WAGE DIFFERENTIALS AND LABOUR MARKET SEGMENTATION IN INDONESIAN MANUFACTURING

by

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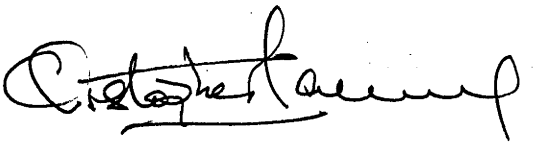
This thesis is based on original research I conducted as a scholar in the Department of Economics, Research School of Pacific Studies, Australian National University.



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ABSTRACT

This thesis examines the nature and causes of wage differentials in Indonesian manufacturing. It is mainly concerned with the impact of recent 'modern' sector growth on the wage structure. It especially concentrates on the influence of new technology and foreign ownership on wage differentials. Several hypotheses are investigated. These attempt to evaluate the effect of internal labour markets, human capital and institutional influences (government and trade union) on wage differentials according to capital intensity.

The empirical analysis is based on an examination of secondary data and more general influences on the wage structure, and a field survey of three industries - weaving, kretek and cigarettes - in Java. Three major conclusions emerge from the study. First, the labour market in Indonesia appears to be quite highly segmented. Labour market segmentation was reflected in large wage differentials, different worker characteristics and low levels of mobility between various segments of the labour market. These were closely related to capital intensity and foreign ownership. Second, variations in wages according to capital intensity and foreign ownership in the three industries were a consequence mainly of the influence of internal labour markets and human capital factors. These two groups of factors were closely interrelated in their effect on wages. It may not be meaningful to pose the question whether human capital or internal labour market factors mainly contribute to wage differentials because of these interrelationships. Third, the study suggests that institutional influences may have been given too much attention in the literature on wage differentials in less developed countries. These differentials may be inherent in patterns of economic development in which rapid technological change and foreign ownership play a central role.

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GLOSSARY AND ABBREVIATIONS

ARTEP	Asian Regional Team for Employment Promotion
ASTEK	Social Insurance Fund
ATBM	handloom
ATM	mechanised loom
badli	casual workers
BAPPENAS	Central Planning Board
batik cap	batik method in which wax is applied on a stamp
batik tulis	batik method in which wax is applied by hand
bea cukai	customs
Berita Buana	daily newspaper
Berita Yudha	daily newspaper
blacu	cambric
BPS	Central Bureau of Statistics
cabang	branch
CLA	collective labour agreement
desa	village (administrative unit)
Dewan Penelitian Pengupahan Pusat	Central Government Wage Research Council
FBSI	Federation of Indonesian Trade Unions
GAPEROKED	*Kretek* producers' organisation, Kediri
GAPEROMA	*Kretek* producers' organisation, Malang
GAPPRI	*Kretek* producers' organisation, All Indonesia
GASBINDO	Muslim trade union
GKBI	Indonesian Batik Cooperative
GOLKAR	Government political party (functional groups)
harga banderol	excise price of *kretek*/cigarettes
Hari Raya	festival at end of Muslim fasting month
Indonesia Raya	daily newspaper
INPRES	Central Government *Kabupaten* public works program
jamu	traditional herbal remedies
KABI	Indonesian Workers' Action Union
kabupaten	regency
Kebutuhan Fisik Minimum	minimal physical requirements
KFM	see Kebutuhan Fisik Minimum

Kompas	daily newspaper
KORPRI	Indonesian Government Employees Corps
kotamadya	municipality
LEKNAS	National Social Economic Research Institute
Merdeka	daily newspaper
MPBI	Indonesian Labour Consultative Council
Musyawarah	mutual consultation
nd	no data
New Order	The post-1965 Indonesian government
non-pribumi	non-indigenous Indonesian (mainly Chinese)
Nota Keuangan dan RAPBN	Notes on the annual Indonesian budget
NU (Nahdatul Ulama)	traditionalist Muslim party
Nusantara	daily newspaper
OPS Kretek	kretek producers' organisation
Pancasila	The five principles of the state philosophy of Indonesia
PDI	Indonesian Democratic Party
Pedoman	daily newspaper
Pelita	daily newspaper
peraturan kerja	work agreements
PERTEKSI	Indonesian Textile Producers' Association
PKI	Indonesian Communist Party
PLN	State Electricity Company
PN	State Enterprise
PPP	Development Unity Party
P4D	Regional Disputes Committee
P4P	Central Government Disputes Committee
PPRK	Kretek Producers' Organisation, Kudus
pribumi	indigenous Indonesian
PUSPI	Indonesian employers' organisation concerned with labour affairs
REPELITA	Five Year Development Plan
rokok putih	Western ('white') cigarettes
Rp	rupiah (the Indonesian unit of currency)
SAKERNAS	labour organisation affiliated with NU
SBT	Textiles Union

SD	primary school
Sinar Harapan	daily newspaper
SLA	upper secondary school
SLP	lower secondary school
SMA	upper secondary school (non-technical)
SMP	lower secondary school (non-technical)
SOBSI	Central Labour Organisation of All Indonesia
SUPAS	Intercensal survey (March 1976)
tahu	soya bean curd
tempe	soya bean cakes
Tempo	weekly current affairs magazine
tukang giling	factory worker employed to roll cigarettes
tukang gunting	cigarette trimmers
tukang verpak	cigarette packers
tunjangan jabatan	job allowances
Undang-Undang	Basic Laws

CHAPTER ONE

INTRODUCTION

Over the past decade Indonesia has experienced rapid growth in manufacturing output associated with rapid inflow of modern technology and foreign capital. This study examines the effects of this new investment and growth on the wage structure. It focuses on the dimensions and causes of interfirm wage differentials that have emerged since 1967.

The study was stimulated by indications that new foreign investment was beginning to create a labour elite that was not apparent in Indonesia before 1967. The initial objective of the thesis was to investigate the extent and causes of wage differentials associated with foreign investment. However, as the study progressed it became clear that foreign investment was only one of several elements causing changes in the wage structure in Indonesia. In particular, it appeared that modern technology (with which foreign investment is closely associated) has probably played a central role in determining wage differentials in the manufacturing sector. Thus it was necessary to examine wage differentials in a broader framework which emphasised the relationship between technology and the wage structure.

Two main factors influenced the approach of this study.[1] The first is the extensive literature on the causes of wage differentials in manufacturing in Japan during its phase of rapid industrial development in the first decade of this century. This literature stresses the emergence and persistence of large wage differentials which have been associated mainly with the size of firm. Wage differentials became significant in Japan in an economic environment quite

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[1] The major elements of both are summarised briefly here. They are discussed in greater detail in Chapters Two and Three.

different from that of Indonesia today. Foreign investment played no role in Japanese manufacturing development, and there was virtually no organised labour or government intervention in the labour market in the early years of Japanese development. In order to explain wage differentials in Japan one must look beyond these two explanations (foreign investment and external institutional intervention in the labour market) which have received so much attention in the literature on wages in less developed countries (LDCs).

However there are also similarities in the experience of Japan and Indonesia. In particular the rapid rate of technological change which took place in Japan, and the wide range in size of firm and technology in manufacturing, are features of the industrial sector growth which has occurred in Indonesia since 1967. These factors have been given considerable attention in the discussion of causes of wage differentials in Japan. They are also likely to be of importance in Indonesia.

The causes of interscale wage differentials have been hotly debated in Japan. One aspect of this controversy is particularly relevant to the approach taken in this study. There has been much debate over whether high wages in large scale firms are mainly a consequence of social and cultural patterns peculiar to the Japanese environment. Or can they be attributed to human capital factors and specific labour management policies adopted by large scale firms. This study examines the extent to which various 'institutional' forces rather than economic considerations have influenced interfirm wage differentials in Indonesia.

The second set of factors that has influenced this study are the theories of internal labour markets and labour market segmentation. These have been developed mainly to explain wage differentials under quite different labour market conditions in North America. The theory of internal labour markets provides an integrated explanation of wage differentials

mainly related to the nature of skill acquisition in modern industrial environments. The theory suggests that decisions concerning wages and the allocation of labour may, to a considerable extent be taken independently of the external labour market forces. The theory of labour market segmentation was developed to explain the existence of strong internal labour markets in certain segments of the economy; it also emphasises how these markets effectively exclude certain socio-economic groups from relatively stable, high wage jobs.

The theory of internal labour markets is valuable to this study because it provides a more integrated explanation of wage differentials than is given in much of the literature on Japan. In particular, it combines elements of human capital and institutional theories, and links them to firm-specific skills and technology. The theory of labour market segmentation provides a framework for examining wage differentials in the context of technological dualism, a prominant theme in the literature on economic development.

The major issues investigated in this thesis are closely linked to some of the issues taken up in the empirical studies of Japan and the theories of labour markets mentioned above. We suggest that wage differentials are closely related to capital intensity and foreign capital in Indonesia. It is hypothesised that three broad sets of factors help explain these wage differentials associated with capital intensity and ownership. These are (a) internal labour market considerations, (b) human capital and personal characteristics of workers, and (c) institutional factors. The thesis examines the extent to which each influences wage differentials and stresses the interrelationships between the three.[1]

The study has important implications for more general issues of economic development in which wages play a central

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[1] See Chapter Three for a fuller discussion of these issues.

role. It suggests that urban and industrial labour markets are more heterogeneous than has generally been assumed in much of the literature on wage determination and labour allocation (especially rural urban migration) in LDCs.[1] Indeed, the implications of the study are that variations between different kinds of firm in wage rates, systems of remuneration, stability of employment and ease of entry are so great that an aggregate view of urban, manufacturing or 'formal' sector behaviour may be of limited analytical value. Owing to the heterogeneity of wages in the manufacturing sector, models which specify behavioural relationships based on average wages in urban areas (or for the industrial sector as a whole), may add little to our knowledge of factors which determine the rate and nature of labour allocation in LDCs.[2]

Given the heterogeneity of wages in manufacturing in LDCs, the assumption of a uniform manufacturing wage rate may not be valid when applied to these countries. It may not be meaningful, for example, to question the effect of economic policy changes such as devaluation on the manufacturing wage rate. The changes in wages in large scale modern sector firms in response to such policy adjustments may differ considerably from those which occur in medium and small scale enterprises. For example, employees in the latter may not be in a position to demand higher wages in response to increased prices resulting from devaluation.[3] At

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1 These comments are made primarily with reference to the case of the labour abundant LDCs of much of Asia. They may be less relevant to labour scarce economies (especially in Africa and the Pacific) where several of the theories of migration were formulated.

2 Although there has been some attempt to (take account of) some of these complexities in more recent models, studies of rural urban migrations which use the basic framework developed by Harris and Todaro (1970) are examples of such misplaced aggregation. See Chapter Two for a fuller discussion of some of the shortcomings of these models.

3 The recent strikes and wage demands following the November 1978 devaluation in Indonesia are a case in point. These appear to have been made mainly by employees in large scale, modern sector firms.

the very least, a dualistic framework may be required for a realistic analysis of the overall effects of such policy changes.

The study also seeks to contribute to the understanding of the process of wage determination in the LDCs. The influence of 'institutional' forces (especially government minimun wage laws, trade unions and the inherited colonial salary structure) on urban and modern sector wages has frequently been mentioned as the major cause of rural urban or formal-informal wage differentials in LDCs. However we suggest there are also rational economic reasons for quite large variations in wage rates within the manufacturing sector. Relatively high wages are partly the result of the strong influence of internal labour market forces in capital intensive and foreign firms; they are the consequence of contrasting wage and labour management policies adopted to maximise labour productivity. They may also be associated with greater skill and education of workers in capital intensive and foreign firms. These factors help explain high average urban and manufacturing sector wages.

If human capital and imported labour management systems associated with the new technology do result in higher wages in capital intensive and foreign firms, interfirm wage differentials are likely to result from the particular pattern of industrial development chosen by many LDCs. Viewed in this light capital intensive techniques may be both a cause and a consequence of high 'modern' sector wages. A relatively unequal distribution of income between blue collar wage earners is also likely to be a major feature of highly differentiated, capitalist industrial structures.

Such a conclusion has important policy as well as theoretical implications. It indicates that insofar as overall disequilibrium in labour markets in LDCs is the result of wage differentials (as the recent migration models suggest) labour market disequilibrium is an inevitable consequence of an economic strategy that encourages the inflow of modern technology and

foreign investment. It may not be appropriate to blame governments or trade unions for improper intervention in the pricing of labour. Rural-urban migration, urban unemployment and underemployment which occur partly in response to high wage pockets in the urban manufacturing sector, will not be remedied merely by the removal of minimum wage legislation and control over the activities of trade unions. The emphasis by some economists on removal of factor price distortions in labour markets may, to some extent, be misplaced. Interfirm wage differentials and their broader effects on the labour market are a structural problem associated with the pattern of development chosen by many LDCs.

The thesis is divided into three major parts. The first part (Chapters Two and Three) reviews the literature on theories and empirical studies of wage differentials and provides a framework of analysis. The second part consists of Chapters Four to Six. Chapters Four and Five review secondary data on the wage structure, general labour market conditions and institutional forces affecting wages and the labour market in Indonesia. Chapter Six discusses the industrial structure and wages in the three industries selected for the field survey. The third part, Chapters Seven to Ten, provides an analysis of data collected in the field survey. Chapter Seven examines several hypotheses concerning the determinants of wage differentials in the three industries. This chapter analyses the extent to which wage differentials are associated with several firm characteristics (mainly capital intensity and foreign ownership), various worker characteristics and institutional forces. Chapter Eight looks at fringe benefits and the form of wage payment. In Chapter Nine we investigate the contrasts in the characteristics of workers in firms with varying levels of capital intensity and ownership patterns. Chapter Ten examines the influence of various firm and worker characteristics on rates of labour turnover and absenteeism. It also discusses some institutional influences on wages in capital intensive and foreign firms.

CHAPTER TWO

THE DETERMINATION OF WAGE AND STRUCTURE OF LABOUR MARKETS IN LESS DEVELOPED COUNTRIES

The level of wages and intersectoral wage differentials play a central role in several theories of economic development in LDCs. In particular they play a major role in theories of rural urban migration and intersectoral labour flows. A major shortcoming of these theories (mentioned in the introduction to this study) is that they have tended to oversimplify the wage structure and nature of labour flows within the urban and industrial sectors, and between these sectors and agriculture. In this chapter we will examine briefly the role given to wages in some of these earlier studies. Some attention will be given to explanations for high urban and modern sector wages that have been a focus of much of the literature on labour markets in LDCs. Studies of this subject are relevant to the thesis because they place the examination of the causes of wage differentials in manufacturing in a broader framework of intersectoral labour allocation in LDCs.

There is quite a diverse literature on various aspects of wage differentials in LDCs that are relevant to this study. These include:

(i) models of surplus labour, migration and rural urban wage differentials,

(ii) studies highlighting the historical, institutional and political factors affecting wage differentials in LDCs,

(iii) econometric studies mainly of the determinants of interindustry wage differentials, and

(iv) an extensive literature on the determinants of interscale wage differentials (wage differentials according to size of firm) in Japan.

All make an important contribution to an understanding of the causes of wage differentials and processes of labour allocation in LDCs. In this chapter we will examine each of

these subjects and indicate their contribution to development of the major questions to be raised in the thesis.

1. The Lewis Model of Labour Surplus and Constant Wage Rates

Lewis's surplus labour model is the starting point for our discussion of theories of wage determination in LDCs (Lewis, 1954, 1958; Fei and Ranis, 1964). Two key points in the Lewis model are of relevance to the present study. First, abundant labour in agriculture provides a surplus resource which enables manufacturing development to proceed at a constant real wage. Second, the transfer of labour from agriculture to industry continues (in the simple two sector case) until all 'surplus' labour is withdrawn from the agricultural sector. Further, movement from agriculture can only be achieved by increasing wage rates.

The process is demonstrated in Figure 2.1. Surplus labour in agriculture enables the manufacturing sector to absorb increasing amounts of labour at a constant wage rate (w_1) until ON_3 amounts of labour are employed. Beyond this point new labour can only be transferred out of agriculture at rising real wage rates (w_2 and w_3). The 'turning point' in economic development is marked by rising wages in both agriculture and industry as the economy is transformed from labour surplus to labour scarcity (Lewis, 1958:19-26; Fei and Ranis, 1964: 260-6; Minami, 1973).

There has been considerable debate concerning the nature of surplus labour in agriculture and the actual process of wage determination in rural areas.[1] Nevertheless, Lewis's assumption of constant wages in agriculture has been a major element of other models of wage determination in LDCs, and appears to accord broadly with the experience of most labour surplus LDCs. But the usefulness of the model has been questioned for its failure to explain quite large differences between urban and

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[1] In particular there has been much discussion in the literature on whether in practice the marginal product of underemployed labour in agriculture is likely to equal zero.

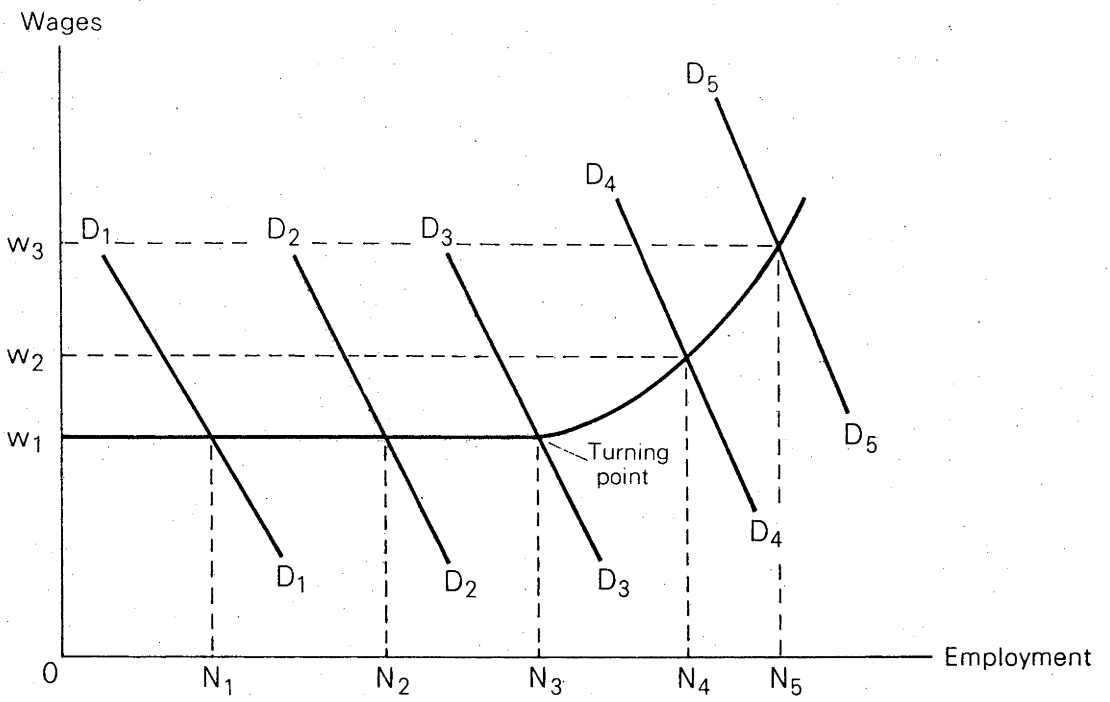

Figure 2.1: The labour surplus model of wage determination and the 'turning point'

rural wages and rising real wage rates in urban areas despite conditions of labour surplus in agriculture.[1] Since these intersectoral wage differentials have received such a central place in the discussion of labour allocation in LDCs, it will be useful to summarise briefly the major explanations that have been suggested for their origins and persistence.

2. The Causes of Intersectoral Wage Differentials in LDCs

Much of the literature on the subject of wage differentials in LDCs has been concerned to explain why urban or modern sector wages have risen significantly above agricultural wages despite conditions of labour surplus. High urban sector wages have been explained by the interaction of inherited, colonial wage policy and systems and institutional forces, and the effect of high wages in leading export sectors. We will look briefly at arguments explaining the importance of each of these.[2]

The present wage structure in many LDCs has its origin in wage policies adopted during the colonial period. European mining and plantation enterprises which spread in LDCs in the latter half of the 19th Century and early half of the 20th Century tended to adopt low wage policies for the employment mainly of casual labour (Myint, 1973:41-8). In Africa the

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1 (continued)
See Myint (1973:68-74) and Corden (1974:126-9) for a discussion of these issues.

1 See Lipton (1977:Ch.5) for data on urban rural wage differentials in LDCs and Turner and Jackson (1970) for an empirical investigation of trends in real wage rates in LDCs.

2 This section summarises some of the key points made in numerous explanations of wage differentials in LDCs. Some of these explanations will be more important in some countries or groups of countries than others. However most of them have probably been influential in quite a large number of countries. See especially Arrighi (1970), Weeks (1971), Hunter (1969), Berg (1966, 1969), Baldwin (1962), Seers (1964), Myint (1973, 1971) Morris (1960, 1965), Boeke (1953:Ch.13 and 14), Meier (1970:432- 7).

predominant pattern was employment of temporary, migrant labour from rural areas. In many parts of Asia (and in some parts of the Pacific) immigrant labour was brought under contract from overpopulated areas of India, China and Java.[1] Even in India where manufacturing development had advanced faster than in many countries by the early part of the 20th Century, employees in the Bombay textile industry were highly mobile between alternative manufacturing employments in reaction to variable wages and a "ramshackle system of labour use and discipline" (Morris, 1965:203-4). Long hours of work, instability in output and employment were the major explanations for poor labour performance in this industry in India.[2]

Owing to these policies, there was little attempt during the colonial period to invest in the skills of the labour force. This reinforced the tendency towards temporary supply response. In many countries a high proportion of more stable and highly paid skilled, administrative and commercial positions were held by Europeans or by Chinese or Indian immigrants (Furnivall, 1947:116-23, 308-12). The different levels of wages and incomes of various races was a central aspect of the 'plural society' that developed in many colonised countries.[3]

Independence appears to have greatly affected the structure of wages in many LDCs. Nationals replaced foreigners in both the civil service and as skilled and professional employees in

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1 However the African pattern of temporary migrant labour was also common in some Asian countries. One example is the employment of casual workers on estates in Java which, according to Boeke, typified dual labour markets (Boeke, 1953:139-47).

2 Mazumdar (1973) in an analysis of labour supply response among textile workers in Bombay suggests that a clear distinction should be drawn between temporary (badli) employees, unmarried employees and more stable employees that migrated with their families from rural areas.

3 Indonesia was one country in which labour market segmentation by race (European, Chinese and Indonesia) was a major objective of colonial policy (Furnival, 1939; Kahin, 1952: 29-36).

private companies. In many countries the replacement of expatriates contributed to the formation of a 'labour elite' in both the public and private sectors. Both the scarcity of skilled and educated manpower, and adoption of civil service and professional salary scales (which were used for expatriates during the colonial period) contributed to the high wage of this labour elite (Arrighi, 1970:233-4; Berg, 1966:207; Hunter, 1969:131-2).[1]

The upward push on urban skilled and administrative wages set in motion by both decolonisation and replacement of expatriate personnel, was supported by two other influences emanating from the private sector. These were partly motivated by profit maximisation objectives, partly by political considerations. The first involved a change in attitude on the part of foreign companies towards the capacity of indigenous peoples to accumulate skills and provide a stable, disciplined work force. New investments in relatively capital intensive industry by both foreign and domestic entrepreneurs were accompanied by new personnel policies. These paid more attention to high wages in order to create a higher quality, more stable work force. Moreover it has been argued that large scale firms in the 'modern' sector were more likely to benefit from a policy of high wages.[2]

This change from a cheap labour policy appears to have been most marked in parts of Africa where employers had complained for some time of the migrant labour problem

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1 Not only were wage differentials between unskilled workers and administrative personnel very large but they were also perverse in many countries. The inherited salary system favoured clerical and administrative officers rather than much scarcer skilled mechanical and technical employees (Jolly, 1969).

2 Myint argues that the gains in productivity may more than pay for the wage bill, especially since 'modern' sector firms may not be able to adapt to the use of casual labour (Myint, (1970:143). And Mazumdar suggests that the "functional relationship between wages and efficiency will generally be more important for firms with modern technology employing a large number of workers" (Mazumdar, 1976:656).

(Weeks, 1971). But Morris (1960) also notes the very different system of labour management developed to stabilise the work force at Tata Steel Mills, Ahmedabad. Willner (1961:Ch.3) mentions that, compared with the situation during the colonial period, there was a considerable decline in labour turnover and absenteeism in an East Javanese textile mill in the 1950s. In addition to these rather narrow profit maximisation reasons for higher wages, foreign firms were also motivated by a need to retain goodwill with host countries and to avoid nationalist criticism (Turner, 1965:20-1).

Another influence on wages has come from enclave investors in minerals and petroleum industries (Seers, 1964; Baldwin, 1962; Berg, 1969:296-8). Firms in these sectors often earned high profits (especially when export prices were high) and labour costs were a small proportion of total costs. Consequently it is argued that management was less resistant to wage claims than in more competitive industries. Besides, the employment of a relatively large number of highly paid foreign personnel, and foreign ownership of these enclave operations, increased the pressure for high wages in such firms which tended to be vulnerable to nationalist pressure.

It appears that both the lop-sided, inherited salary structure and high wages paid to unskilled workers in pockets of the private sector, fueled increasingly organised trade union pressure for minimum wages in many countries (Arrighi, 1970:237). Minimum wages were not introduced in all LDCs (indeed they appear to have been much more important in Africa than in Asia) and often they affected a small segment of the 'protected' urban work force (Watanabe, 1976; Harberger, 1971)[1].Nevertheless undoubtedly they contributed to widening urban rural wage differentials in many countries. The adoption of quite comprehensive labour protection codes (often partly in

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[1] Watanabe (1976) notes the wide range in the influence and scope of minimum wages in various LDCs.

response to pressure from international bodies such as ILO)[1] which were implemented only in urban areas or among large enclave investors, further contributed to a widening of these differentials.

This brief survey of various explanations for high urban and modern sector wages indicates the great importance which various writers have attached to historical and institutional factors. Although some writers have suggested that profit maximising objectives played a vital role, the influence of colonial wage structures, government and trade union intervention have been given the most attention. In later sections of this chapter it will be suggested that, at least within the manufacturing sector, profit maximisation objectives have played a much more important part than many of these studies suggest. For example, a wide range of interfirm wage differentials existed in Japan for over half a century despite a minimal amount of government or trade union intervention and without the influence of high wage foreign and enclave investments.

All these influences on urban and modern sector wages in LDCs had two major effects. First, employers economised on the use of unskilled labour in some societies and this contributed to urban unemployment (Hunter, 1969:125-6; Weeks, 1971; Baldwin, 1964:79-82). Second, rising urban wages and increased urban rural wage differentials provided an increased incentive for rural urban migration. This further swelled the ranks of the urban unemployed and underemployed (Todaro, 1973). The second effect and its relationship to urban wages and existing unemployment has received much attention in more recent literature on labour markets in LDCs. We will look briefly at the major features of these models in which urban rural wage differentials play a central role.

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[1] Turner (1965:25) states that the ILO probably has been the "biggest single influence upon formal or official wage and labour policy in underdeveloped countries."

The discussion will indicate some shortcomings of the models that are relevant to this study and lead us into an examination of some more general theories concerning the operation of urban labour markets.

3. The Harris-Todaro Model and the Structure of Urban Labour Markets

The Harris-Todaro model of rural urban migration attempts to explain continuing high rates of rural urban migration in many LDCs despite considerable unemployment and underemployment in urban areas.

The model includes both urban rural wage differentials and the rate of urban unemployment as key variables (Harris and Todaro, 1970; Todaro, 1969). It focuses on a measure of expected wage differentials (including both actual urban rural income differentials and the level of urban unemployment) rather than actual differentials as the major factor influencing the potential migrant's decision to move. It predicts that rural people will continue to move to urban areas as long as the expected urban wage exceeds the rural wage. Temporary unemployment is tolerated because migrants are prepared to sacrifice present earnings (in agriculture) for the chance of obtaining a high wage urban job. High levels of urban unemployment are explained by the migrant's desire to maximise lifetime rather than current earnings.

The general Harris-Todaro framework has been broadened by the addition of several variables including labour turnover, temporary employment in the low wage, informal ('murky') sector, and variations in the quality of labour inputs (see especially Fields, 1975; Johnson, 1971; Barnum and Sabot, 1976). The relationship between expected income differentials and rates of rural urban migration have been confirmed by quite a large number of empirical studies in a wide variety of countries.[1]

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[1] See Todaro (1976a:67-74) and Yap (1975) for a summary of the major findings of these studies.

Nevertheless some writers have drawn attention to shortcomings of the model and of empirical studies used to test its validity. It will be useful to mention some of these criticisms since they are pertinent to some of the major aspects of wage determination raised in this study.[1]

One criticism that may be made of the Harris-Todaro model is that it oversimplifies both intra urban and urban rural labour market relationships, and thereby fails to identify the nature of labour market flows with sufficient precision. In Chapter One we mentioned the difficulties of obtaining meaningful measures of aggregate urban wage rates (and other urban labour market performance variables) because of the heterogeneity of employment situations in many LDC cities.[2] Although the model predicts that migrants move from poorer to richer areas, it is not clear what is the main motivation for movement. Most of the econometric studies (which are mainly based on secondary data sources) have not been able to measure the key independent variables. For example per capita income, average wage rates or average industrial earnings are usually used to approximate urban wage rates (Yap, 1975:244). Thus even studies which appear to confirm the model leave several key questions unanswered. Do migrants gamble on finding employment in high wage, modern sector jobs? Or are they excluded from this kind of job and seek lower paying, less stable employment in medium sized or small firms? Or perhaps, faced with rural poverty and unemployment, they move to urban areas to obtain any job or income. Where there is a heterogeneous structure of urban labour markets, any of these

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1 Although several criticisms of the model are given here, it should be noted that we are not denying the important contribution that the Harris-Todaro model (and subsequent refinements to this model) has made to the understanding of the operation of labour markets in LDCs.

2 It should be noted that the model may have greater relevance to labour market situations in Africa (where it was originally conceived) than to densely populated Asia.

alternatives may be consistent with the findings of some of these empirical studies that rely on aggregate measures of urban wage rates and labour allocation. Introduction of the informal sector into these models is a major step forward in the theoretical specification of the migration process. But there remain some major difficulties in testing the models empirically, especially from secondary data.[1]

Numerous studies now suggest that many of these questions may only be answered satisfactorily by taking account of the heterogeneous nature of urban labour markets in LDCs. Several writers have drawn attention to the distinction between the 'labour aristocracy' employed in the modern urban sector and the large mass of 'lumpenproletariat' in low wage, unstable employment in urban areas in LDCs (Arrighi and Saul, 1968:147-50; Arrighi, 1970:231-44; Amin, 1977). Conditions of employment and wage rates (and also class orientation) are likely to differ markedly between the two groups. As a consequence, these writers suggest that it makes little sense to lump them together to describe the urban labour force. Other writers have suggested that an even more complex structure of employment exists in the

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[1] Barnum and Sabot have attempted to disaggregate the labour market further according to various skill categories and by distinguishing between educated and uneducated workers. They analyse the effects that excess supply of educated employees have on rates of migration and the urban labour market. For example, they have developed a model for Tanzania which tests the extent to which educated workers displace the uneducated, first in relatively skilled jobs, and later in unskilled urban jobs, as excess labour supply (especially of educated workers) begins to develop (Barnum and Sabot, 1976).

urban areas of many LDCs (Friedmann and Sullivan, 1974; Breman, 1976).[1]

All these studies suggest that there is a need for a more disaggregated approach to the investigation of labour markets which takes account of some of the major divisions within labour markets in LDCs. Several studies of wages suggest that a more differentiated wage structure than is implied in the basic labour surplus and migration models does exist within the industrial sector of many LDCs. In the next section we summarise the major findings of several of these studies.

4. Empirical Studies of Industrial Wage Differentials in LDCs

Several empirical studies of wages have pointed to the great variation in wage rates between firms and industries in LDCs (Eriksson, 1966:35-46; Berg, 1969:296-8; Papola and Bharadwaj, 1970).[2] The dispersion has tended to be much greater in LDCs than in developed countries (Papola and Bharadwaj, 1970). These findings are confirmed by some studies of inter industry wage structure in specific countries (Akrasanee and Chutikul, 1977:5-10; Guisinger and Irfan, 1974:276-8). Although the

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1 For example, on the basis of research in Southern India Breman (1976:1939-43) suggests a fourfold classification of urban labour markets into the labour elite, petit bourgeoisie, sub-proletariat and paupers. In this scheme the large majority of the wage earning population falls into the sub-proletariat and a minority are part of the labour elite. In his study of an urban community in Gujerat, methods of recruitment, stability of employment and the level of labour earnings all differed markedly between various segments of the urban population (Breman, 1977). Mazumdar (1973) notes a similar contrast in level of wages and stability of employment between casual badli workers and more permanent employees in the Bombay textile industry.

2 In this study we are concerned mainly with interfirm wage differentials. Occupational differentials have received considerable attention in the literature on wages in LDCs but these are not central to the major issues raised in this thesis. See Eriksson (1966), Taira (1966) and Turner (1965) for general surveys of occupational differentials in LDCs.

search for an explanation for these differentials has by no means produced a uniform picture, certain characteristics of industrial development appear to have affected interindustry (and interfirm) wage differentials.

Findings of six studies conducted in Pakistan, Columbia, Kenya, Singapore, Thailand and India are summarised in Table 2.1.[1] In almost all countries in which foreign investment was specified as an explanatory variable, industries (or firms) with a high proportion of foreign capital tended to pay higher than average wage rates.[2] In addition, two other studies that have concentrated specifically on foreign-domestic wage differentials support these findings (Lim, 1977; Isarangkun and Taira, 1976). In four countries (Pakistan, Columbia, India and, to a lesser extent, Thailand), capital intensity was found to be a major determinant of wage differentials.[3] Size of the firm (or measures of concentration based on firm size) was found to be significant in three cases (Thailand, India and Kenya) but insignificant in two others (Pakistan and Singapore). A variety of other factors (region, unionisation, average product or value added per worker, proportion of government employees in the industry, sex and other personal characteristics of workers) were found to be significant in one or more studies.

Most of the studies did not take the investigation of the causes of interindustry or interfirm wage differentials beyond

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1 All these studies used multiple regression analysis to examine the relationship between measures of interindustry wage differentials and various explanatory variables.

2 The one study which found that foreign investment was not a significant determinant of wage differentials explains this result by poor specification of the foreign capital variable Akrasanee and Chutikul, 1977).

3 Lim (1976) concludes that capital intensity was also a major factor contributing to foreign-domestic wage differentials in Malaysian manufacturing.

TABLE 2.1 Summary of the findings of several studies of interindustry wage differentials in LDCs

Author(s)	Country	Variables with a significant influence on wages	Variables with no significant influence on wages
1. Guisinger and Irfan (1974)	Pakistan	Capital intensity, region (very important) foreign capital, unionisation	Skill, size of firm
2. Fields and de Marulanda (1976)	Columbia	Value added per worker, capital intensity, foreign capital, skill	-
3. House and Rempel (1976)	Kenya	Average product per worker (highly significant), size of firm) (index of concentration), proportion of employment in government enterprises.[2]	-
4. Pang Eng Fong[1] (1974)	Singapore	Foreign capital, various personal characteristics of workers (education language, experience)	Size of firm, race
5. Akrasanee and Chutikul (1977)	Thailand	Sex, size of firm (important) capacity to pay capital intensity (less important)	Foreign capital, export orientation, market power, labour turnover, unionisation
6. Horowitz (1973)	India	Capital intensity, size of the firm	-

[1] Interfirm study of wage differentials.

[2] All significant only for skilled workers.

a rather simple search for correlates. Several suggest that the association between wages and certain explanatory variables indicated that the rather vaguely defined 'non-market' forces were a major determinant of wage differentials.[1] For example, Akrasanee and Chutikul (1976:63-4) conclude that 'non-market' forces (chiefly sex and size of firm) were the major cause of interindustry wage differentials in Thailand.[2] The influence of trade unions and foreign investment on wages, and the share of wages in total production costs were all also seen as significant 'non-market' forces in this and other studies. On the other hand, Fields and de Marulanda (1976:9) suggest that the association between capital intensity and wage differentials demonstrates the importance of 'market' forces because of the need to minimise labour turnover in capital intensive firms. The importance of 'market' forces in wage determination is also stressed by Horowitz (1973:672) in a study of interindustry wages in India. She concludes that although government policy "plays some part in influencing wages...

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1 'Non-market' forces were not defined uniformly by different writers. Guisinger and Irfan (1974:275) suggest that 'non-market' forces are any intervention to disturb the 'perfectly competitive determination of wages'. The influence of skill on wages is seen as a market factor but capital intensity may be a market or non-market factor. According to these writers, capital intensity is an indication of market forces to the extent that it reflects skill differences; but it is non-market to the extent that it reflects market power and the redistribution of monopoly profits to workers, or the presence of foreign investment. Fields and de Marulanda (1976:6) give a broader definition of market forces than is provided in standard competitive theory to include "other market motivations of firms (such as paying higher wages in order to reduce labour turnover costs or improving worker efficiency".

2 Although these authors do not provide further evidence to support their conclusions, they surmise that sex differences are evidence of discrimination rather than productivity differentials between males and females. Also they suggest that wage differentials owing to firm size are greater than may be the result of differences in productivity between firms.

economic considerations played the greatest role". This rather bold statement is based on the strong relationship between wages and both capital intensity and size of the firm. Although she provides little evidence to support the assertion, the author attributes these relationships to insurance against strikes, and wage incentives. She suggests that wage incentives contribute to better health and greater work effort in larger and more capital intensive firms. The studies of Pakistan and Columbia come to a similar conclusion that both 'market' and 'non-market' forces are important (Fields and de Marulanda, 1976:23; Guisinger and Irfan, 1975:287).[1]

A more comprehensive study has been undertaken by Heady (1976a, 1976b). He suggests two theories of wage determination in LDCs and tests them with Columbian data. The first theory, labelled a cost minimisation theory draws on the theoretical works of Stiglitz who has suggested two models ('efficiency wage' and 'labour turnover') to explain interfirm

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[1] Many of these studies of LDCs appear to have been inspired by earlier studies of developed countries and the approach and findings are similar. Slichter (1950) noted a negative relationship between wages and the size of payroll as a proportion of sales; other research has pointed to the relationship between wages and both size of firm and interindustry differences in concentration ratios (Lester, 1967; Masters, 1969; Weiss, 1971). These differentials have been attributed to greater unionisation, higher than average profits and a greater willingness on the part of management to pass on some of the excess profits to workers in certain industries. However Weiss (1971:351-9) suggests that the relationship between concentration and earnings may be almost entirely attributed to differences in personal characteristics of workers - chiefly age, race, education and experience. Similarly, Rees and Schultz (1970) found no relationship between size of firm and wages once personal characteristics were taken into account. They also found that individual worker attributes were closely associated with wage differentials in Chicago.

wage differentials in LDCs.[1] The second theory suggests that trade unions or other institutional forces encourage firms to share their profits with workers. Both theories predict that more capital intensive firms are likely to pay higher wages. Although a more significant result was found for the second theory, both were supported by the empirical investigation (Heady, 1976b:Ch.5).

The findings of most of these studies on the determinants of wage differentials in LDCs must be considered very preliminary. They do question the conventional view that wage differentials in LDCs are primarily the result of 'non-economic', institutional influences owing to government and trade union intervention. Although certain firm (or worker) characteristics are invoked to support 'non-market' or 'market' interpretations of wage differentials, very little evidence is presented to support these relationships. For example the studies do not examine labour turnover or measures of labour efficiency (for example absenteeism). Few have investigated the influence of human capital factors on wage differentials. Only Pang Eng Fong's (1976) study of Singapore examines a wide range of personal and human capital variables and disaggregates the analysis for a variety of occupational groups.[2] Thus research which has been carried out on the wage structure in LDCs while suggesting several interesting hypotheses, does not add greatly to our knowledge of the causes of wage differentials within the manufacturing sector. It does suggest that capital intensity, size of the firm and foreign ownership and a large number of worker characteristics may

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1 The former develops on the earlier work of Leibenstein (1957) and draws attention to the relationship between higher wages and labour productivity (the 'economy' of high wages), and the latter to the effect of high wages on labour turnover. See Stiglitz (1973, 1974).

2 Pang Eng Fong (1976:41) finds that both education and age are major determinants of earnings and concludes that human capital "is a powerful indicator of earnings" in Singapore. His findings are supported by two other human capital studies in Thailand (Blaug, 1974) and Morocco (Psacharopoulos, 1977).

all influence the wage structure. But most do not offer an integrated explanation of why certain firms should pay higher wages. Even the studies that explain the differences in terms of human capital differences do not indicate why some firms employ workers with higher levels of education, more experience or other attributes. Few studies suggest (as we will later in this study) that there may be an association between certain firm characteristics, labour management policies and the quality of the work force employed.[1]

One major shortcoming of the research on interindustry wage differentials in LDCs has been the failure to examine these differentials in the context of more general theories of labour market behaviour and development. How are 'market' and 'non-market' influences on interindustry wages related to the more general problems of labour market imbalance discussed above? How do they contribute to a better understanding of the processes of rural urban migration and problems of urban unemployment and underemployment in LDCs. And, more generally, can these studies be integrated with broader theories of technological dualism in LDCs? One objective of this study will be to attempt to place the examination of manufacturing wage differentials in a broader framework of labour market relationships.

Nelson, Schultz and Slighton's (1970) examination of structural change in Columbia is one study that does attempt to relate wage differentials in manufacturing to the structure of industrial development. They distinguish between small scale

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[1] Two exceptions were Fields and de Marulanda (1976:9) and Heady (1976b) who argue that the high wages in capital intensive firms are related to a desire to minimise turnover because of the need of such firms to retain scarce, skilled personnel. Fields and de Marulanda (1976:24) also stress the importance of examining the 'indirect' effects on wages of employment of more skilled workers in more capital intensive firms. But they leave this task to future research.

'craft' and large scale 'modern' enterprises which differ in wage rates, value added per worker and employment within major industries. Wage differentials are attributed to modern sector firms' accommodation to "well organised wage bargaining and (in certain cases) to gratify the paternalistic urge to do well by its workers". The result is that wages of unskilled labour in the modern sector "contain an important element of monopoly rent. For such workers the job is a valuable property right".[1]

Studies of the labour market during various phases of industrialisation in Japan also suggest that dualism within the manufacturing sector is reflected in wage rates and systems of labour management. Large firms employed higher quality workers and adopted certain labour management policies (including the payment of high wages) to maintain a more stable work force. In addition, much of the literature on interfirm wage differentials in Japan has given some attention to the influence of wages (and earnings) in the rural and self employed sectors on patterns of employment and wage differentials in manufacturing. We will briefly summarise some of the major findings of these studies on labour markets in Japan. They provide a valuable empirical base for the development of the framework of analysis adopted in this thesis.

5. Dual Labour Markets in Japan

A considerable amount of research has been carried out on the nature and causes of interfirm wage differentials in

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[1] The last sentence in this quotation implies a low rate of labour turnover in these modern firms but the authors do not examine rates of turnover in various kinds of firm. In a long footnote they suggest that education and on-the-job training may have also contributed to high wages in the modern sector. Unfortunately the study does not investigate these possibilities further. (Nelson et al., 1970:155-6).

the early years of industrialisation in Japan.[1] Students of the Japanese economy have attempted to explain the quite significant wage differentials that are closely correlated with size of the firm and capital intensity within the manufacturing sector. A quite differentiated structure of Japanese manufacturing began to develop with the growth of relatively large, capital intensive firms at the beginning of this century (Ohkawa, 1972:Ch.2).[2] Considerable interscale wage differentials developed in the manufacturing sector. These were associated with the emergence of a wide range of technologies and size of firm marked at the extremes by large scale, capital intensive enterprises on the one hand and small, highly labour intensive operators on the other. These wage differentials prevailed throughout this century until the transition from labour surplus to a labour scarce economy in the 1960s after which they have narrowed considerably (Minami, 1970; Odaka, 1967).

There have been two largely conflicting explanations offered for the emergence and persistence of dual labour markets in Japan (Crawcour, 1978). The first, which stresses 'cultural' factors, suggests that lifetime employment and a tradition of long and loyal service were peculiarly Japanese institutions with their origins in Japanese culture. Interfirm wage differentials were mainly the result of the adoption of these systems in large scale firms. The second explanation mainly attributes the emergence of permanent employment systems and high wages in large scale firms to the influence

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1 Paine (1971) and Crawcour (1978) summarise the major issues and findings of different scholars. See also Odaka (1967, 1973), Shinohara (1968), (Dore, 1973), Yasuba (1976), and Ohkawa (1972:Ch.2 and Ch.3).

2 Ohkawa describes the Japanese manufacturing sector as a 'differentiated' structure (Ohkawa, 1970:61).

of 'economic' factors.[1] According to the latter view large firms introduced the system of lifetime employment in response to shortages of skilled labour which emerged in the early part of the 20th Century. (Taira, 1970:Ch.5). Their major goal was to ensure a stable labour force. They recruited and trained young, male, educated (but unskilled) workers. To minimise turnover, especially of skilled labour, employees were recruited for life and guaranteed annual increases with age and seniority.[2] Moreover it appears that through the offer of higher starting salaries large firms were able to skim the cream off the labour market (Odaka, 1967:56-7).

From the beginning of this century to about the 1960s, labour markets for small scale firms in Japan appear to have worked quite differently to those in which large, capital intensive firms operated. The sector was characterised by strong competition and individual firms suffered frequent, quite large fluctuations in output and employment. Since wages were low, unskilled workers profited from movements between industry, the urban self-employed sector and agriculture as economic conditions dictated (Shinohara, 1968; Taira, 1970: Ch.3). But although wages and opportunities for employment fluctuated in accordance with economic conditions, in the longer term they were held low by the surplus of labour in the agricultural sector. Owing to the instability of output, employers were encouraged to maintain labour intensive techniques and had little inducement (and indeed they mostly did not have the resources) to invest in the quality of their work force. The work force usually recorded high rates of

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1 This polarisation of the two explanations of wage differentials is, of course, an oversimplification. As Dore (1973:Ch.14) points out, there was a dynamic interaction between traditional values, the economic demands of modernisation and forms of employment relationship.

2 The (English language) literature on permanent employment systems in Japan is not always clear whether the system only applied to skilled workers. However it is generally presumed (see for example Crawcour, 1978:234-5) that it applied mainly to skilled workers.

turnover. Skilled labour was either trained by an apprenticeship system (and hence paid for by the worker himself) or obtained from the (few) dropouts trained in the large scale sector.

A large proportion of the labour force in Japan remained in this small scale sector until quite recently despite the substantial shift in employment out of agriculture. Thus, for example, in the 1950s over half the Japanese labour force in manufacturing was employed in small firms with less than 50 employees; almost sixty percent of the labour force was classified as self-employed or family workers (Ohkawa, 1972:44-5).

In one important respect this contrast between two extremes of the dual structure requires modification. A significant proportion of employees in large firms was temporary and did not receive annual wage increases with seniority: temporary 'regular' workers received no seniority benefits and a further category of temporary workers was reported to receive less than half the wages paid to regular employees; both these categories of labour were likely to be laid off if economic conditions deteriorated (Tsuda, 1965; Paine, 1971). In addition, large scale firms sub-contracted a significant proportion of jobs to small and medium firms.[1] The employment of temporary labour and sub-contracting allowed large firms flexibility in adjusting to fluctuations in economic conditions. It also explains how they were able to guarantee a high degree of stability of employment to permanent workers.

It should also be noted that not all industries demonstrated large interfirm wage differentials in Japan. Studies of the textile industry provide a very different picture to the patterns of employment in large firms described above. Firms mainly

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[1] Watanabe (1974) reports that as late as 1966, 43.6 percent of all medium and small enterprises were sub-contractors and accounted for more than 25 percent of total manufacturing employment.

employed young female labour at low wage rates, under very poor working conditions and with high rates of labour turnover. (Koh, 1966:Ch.2). Saxonhouse (1976) has explained the lack of interfirm differentials in the cotton spinning industry in terms of relatively homogeneous technology and open communication about technical matters between competitors. In this industry it appears that firm-specific training was not nearly as important as in industries with a more complex and differentiated technology.

One other qualification to the dualistic model should be borne in mind. The kind of employment and wage policies followed by large firms in a labour surplus economy are likely to differ substantially from those in a labour scarce one. In Japan, pricing and labour allocation policies used by large firms combined certain sets of 'internal' maximising policies with others which were designed to take advantage of external market conditions.[1] The wide use of sub-contracting and the employment of temporary labour are both examples of how large firms took advantage of the labour surplus situation in Japan. Moreover, the combination of various systems of labour management both to accommodate the demands of modern technology and also to benefit from labour market conditions, suggests that the conventional concept of dualism may be inappropriate for describing systems of labour pricing and allocation used by different firms. The notion of dualism has also been questioned by Ohkawa. Although it may simplify analysis to describe only the two extremes, in practice a continuum is a much better description of reality. In Ohkawa's (1972:60) words:

> The productivity of labour engaged in various industries, including family enterprises, shows a wide range of continuous differentials (even within the same industry) and the wage rates or incomes of working people also have

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[1] This distinction between internal and external labour market forces will be discussed in the next chapter.

> wide differentials ..... the situation has not changed over a long period and can be understood to be at a sort of equilibrium. It is difficult to analyse such phenomena in terms of concepts which have drawn out from the experience of the economies of homogeneous structure.

There have been several interpretations of the persistence of interfirm wage differentials in Japan. It has been suggested that larger firms offered higher wages and fringe benefits to compensate for the loss of paternalistic benefits which were available only to workers of small firms (Yasuba, 1976:285-8). Another viewpoint argues that monopoly profits earned by large firms were distributed in the form of higher wages because of labour market imperfections (Shinohara, 1968:8-22). Greatly reduced interfirm mobility which resulted from the lifetime employment system in larger firms, limited the influence of the external labour market. But some commentators have questioned the view that interfirm wage differentials are an indication of market imperfections. They have suggested that these differentials may be explained almost entirely by differences in the quality of labour inputs (chiefly age, sex, education and experience) (Stoikov, 1973; Blumenthal, 1966).[1]

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[1] Tan (1978) develops the human capital interpretation by linking firm specific training to the rate of technological change. It should be noted that Stoikov's (1973:1103) conclusion that "there is no evidence that larger firms pay higher wages than smaller ones for the same quality of labour input" (1973a, 1103), had been strongly criticised by Yasuba (1976:252). Yasuba claims that Stoikov neglects two of the major variables (annual bonuses and the category of employees with 30 or more years experience) that have contributed to interfirm wage differentials in Japan.

As we have mentioned already, these studies of Japan provide greater insights into the causes of wage differentials than most of the interindustry studies of LDCs referred to above. They view wage differentials in manufacturing in a broader framework of intersectoral labour allocation and also in the more general context of dualistic development. Emphasis on the different yet equally rational responses of large and small firms to different sets of economic circumstances is an important contribution to the study of wage differentials. It suggests that explanations of wage differentials need to go beyond rather simplistic interpretations which emphasise the role of 'market' and 'non market' forces or 'institutional' pressures.

There are several problems in much of the literature on explanation of interfirm wage differentials in Japan. First, many of the studies tend to neglect the possibility that the relationship between scale of firm and wages may be primarily the result of the influence of other firm characteristics closely correlated with size of firm. In the previous section we saw that several studies of interindustry wage differentials have suggested that capital intensity appears to have a greater influence on wage differentials than size of firm. It was also noted that the relationship between capital intensity and wages can be explained in terms of quite rational maximising decisions taken in more capital intensive firms. Since size of firm is likely to be closely correlated with capital intensity, it is quite plausible that the relationship between size of firm and wage differentials is the result of the influence of capital intensity on wages. It may be more fruitful to concentrate on factors contributing to wage differentials between firms of different technology than on factors associated with interscale wage differentials.

Second, explanations of the economic cause of interscale wage differentials in Japan are often rather vague. Most writers have identified lack of skilled manpower and internal training programs undertaken by large scale firms as major

factors contributing to wage differentials between large and small firms. But few have linked this to economic theories of how training may affect wage differentials. Few studies (Saxonhouse (1976) and Tan (1978) are two exceptions) attempt to distinguish the extent which training is firm-specific rather than general in large scale firms. Human capital theory tells us that it is only the former which is consistent with interfirm wage differentials in a competitive environment (Becker, 1964). A neoclassical interpretation of the effect of training on interscale wage differentials rests heavily on the assumption that skills learnt are firm-specific; seniority payments are in this case a reflection of firm-specific accumulated experience (the costs and benefits of which are shared by the firm and the individual). Indeed the great emphasis on loyalty and being a 'company man' in large scale firms implies that the entire work effort is to a considerable extent firm-specific.

The great concern of employers in Japan to reduce labour turnover also indicates that not all training and skills learnt in large scale firms have been firm-specific. It appears that the relatively high wages, seniority benefits, generous bonuses and firm financed social welfare schemes were partly introduced to prevent firms from losing labour whose skills were, to some extent, general to the industry as a whole. Agreements between employers against poaching were also common in several industries and further contributed to low turnover (Saxonhouse, 1976:120-1; Crawcour, 1978:231-3). Instead of bidding for these general skills on the external market, firms preferred to generate them internally and then to take steps to ensure minimum rates of labour turnover.

Two factors appear to have contributed to this peculiarly Japanese response to a shortage of general skills. First, the growth in demand was very rapid and there was a continuing shortage of skilled labour in the modern sector (which continued largely unabated up to the 1960s.) Second,

the relatively oligopolistic structure of the modern segment of most industries enabled firms to collude to prevent labour piracy. These characteristics of labour demand, together with the firm-specific nature of skills and attitudes, produced a highly stable work force committed to employment in particular modern sector firms.[1]

We have raised these general problems encountered in identifying the causes and significances of interfirm wage differentials in Japan because all are directly relevant to the questions raised and the interpretation of empirical data presented in this thesis. The issues will be clarified from an examination of some of the recent literature on internal labour markets and labour market segmentation. The relevant aspects of this literature will be discussed in the next chapter.

Summary and Conclusions

In this chapter we have examined several theories of wage determination and empirical evidence about the extent and causes of wage differentials in LDCs. It was suggested that labour markets are far less homogeneous than is assumed in some of the better-known models in which wages, especially urban wage rates, are a central component. The notion that these differentials arise primarily because of market imperfections or institutional causes (which are highlighted in much of the literature on LDCs) is not confirmed by empirical studies of LDCs or by research on labour market development in Japan. Indeed the usefulness of the approach of assuming a homogeneous industrial labour market in LDCs and analysing its efficiency in terms of the influence of 'market','non-market' forces has also been questioned.

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1 I am particularly grateful to Professor Crawcour for helping clarify some of these points concerning the operation of labour markets in Japan.

The experience of Japan suggests that large and small scale firms adopt wage levels and systems of labour management that are so different as to require a separate analysis of managerial decision-making and of the forces affecting wage determination. A particular pattern of dualistic labour markets emerged in Japan mainly in response to excess labour demand created by rapid technological change and modern sector growth in an economy still marked by overall conditions of labour surplus. Despite the great interfirm differences in actual wages (though much less in efficiency wages), and in labour management policies and labour performance, most firms in Japan nevertheless appear to follow quite rational economic policies with respect to the pricing and allocation of labour.

In Chapter Three a more systematic justification for these conclusions will be suggested through an examination of various theories of labour market behaviour. The recent theories of internal labour markets and labour market segmentation provide a theoretical framework for analysing the causes of wage differentials in a dualistic manufacturing sector. They also assist the development of the major hypotheses to be tested later in the thesis.

CHAPTER THREE

THEORIES OF WAGE DIFFERENTIALS, INTERNAL LABOUR MARKETS AND LABOUR MARKET SEGMENTATION: A FRAMEWORK FOR ANALYSIS

Large wage differentials between rural and urban areas, and within urban areas and the manufacturing sectors are common in many LDCs. Some writers have attributed these wage differentials primarily to the interaction of historical, institutional and political factors. Others have seen them as following from the pursuit of profit maximisation objectives. Several studies have suggested that within the manufacturing sector the factors which determine wage differentials can be divided into rather vaguely defined 'market' and 'non-market' forces. As noted in Chapter Two writers dealing with interfirm wage differentials in Japan have suggested a more integrated explanation in terms of contrasting responses to labour market conditions in large and small scale firms.

The purpose of this chapter is to place these explanations of interfirm wage differentials in the manufacturing sector in LDCs and in Japan into a broader theoretical framework. This framework provides the basis for the empirical analysis in later chapters. The framework outlined in this chapter has drawn on ideas developed in the theories of internal labour markets.[1] It is suggested that the theory of internal labour markets makes an important contribution to understanding the causes of wage differentials in LDCs. It is argued that wage differentials are likely to be closely associated with certain internal market considerations, human capital and institutional influences.[2] All three groups of influences

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1 The theory of internal labour markets stresses intrafirm considerations associated primarily with firm-specific human capital which insulates the firm from external labour market pressures.

2 The term 'human capital' theory is used broadly here to cover those theories of labour markets which emphasise the influence of personal characteristics of workers as the major factors contributing to wage differentials. Similarly, we use the term 'institutional' theories to

(internal market considerations, human capital and institutional factors) are likely to be related to specific patterns of labour demand in LDCs. A major objective of the thesis is to examine the extent to which interfirm wage differentials are the result of each of these influences and to investigate the interrelationships between these variables.[1]

To simplify the analysis, it will be useful to examine wage differentials in a dualistic framework. It is hypothesised that dualism in wage rates is closely related to technological dualism in LDCs (Higgins, 1959:274-93).[2] Internal labour market forces and institutional pressures would be expected to be stronger in capital intensive firms, and these firms are also likely to employ higher quality workers than labour intensive firms. In this simple framework we might think of labour markets as being divided into two segments containing capital and labour intensive firms.

It is argued that the relationship between technology and wage differentials highlights the different

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2 (continued)
describe those theories which have stressed the importance of 'non-market' factors (especially the government and trade unions) in wage determination.

1 In this discussion we distinguish between internal labour market and institutional influences on wages. Institutional pressures (especially from enterprise unions) are considered an integral part of some internal market theories (Doeringer and Piore, 1971:35-6). However, since some institutional pressures (for example minimum wage legislation) are external to the firms, in order to avoid confusion we shall define all institutional factors as a separate category of influences on wages. But we shall take note of the interaction between these factors and other internal labour market forces.

2 It should be noted that although the discussion adopts a dualistic framework, in practice we may expect a range in technology associated with technological diffusion in LDCs (see Nelson et al., 1970). It is reasonable also to expect a range in wage rates and labour management practices related to different technologies.

labour management policies adopted by capital and labour intensive firms to maximise labour productivity. On the other hand, institutional influences on wages are more likely to be associated with foreign ownership of firms in LDCs. Higher wages offered in foreign firms may be partly the result of the greater capital intensity of foreign compared with domestic firms. But institutional pressures from trade unions and government also are likely to have a major influence on the wages of foreign firms.

The chapter is divided into two main parts. In the first we review briefly the major theories of wage differentials that are relevant to the subsequent argument. We note how these theories contribute to an understanding of wage differentials in LDCs. In the second part of the chapter we make use of some of the major elements of these theories to construct an analytical framework for examining wage differentials in labour surplus LDCs. A simple framework of dualistic labour demand and dualistic supply conditions is presented to demonstrate the major factors likely to influence wage differentials in labour surplus LDCs. This general framework enables us to derive and test some specific hypotheses concerning the causes of interfirm wage differentials in later chapters of the thesis.

I. Theories of Interfirm Wage Differentials

Several major bodies of theory have been developed to explain interfirm and interindustry wage differentials. These include the basic neoclassical explanation of wage differentials, both institutional and human capital theories and, more recently, the theory of internal labour markets and the theory of labour market segmentation. The major elements of each of these theories that are relevant to this study will be examined in this part of the chapter.

1. Neoclassical Theory, Human Capital and Institutional Wage Theories

A major task of theory and empirical investigation of labour markets has been to explain quite large and often

persistent differences in interfirm wage levels for comparable jobs even within the same labour market areas (Lester, 1946; Slichter, 1950). In traditional neoclassical theory these wage differentials have tended to be attributed to short run rigidities on both the demand and supply sides of the labour market. It is suggested that employers adjust slowly to market conditions and it is only in the longer run that deviations from from marginal product "slowly bend wages to meet the new situation" (Hicks, 1932:86). In the short run, wage and employment policies of particular firms depend on varying estimates of the effect of wage adjustments on future labour supply. They also depend upon differences in expectations as to whether changes in commodity demand and employment are temporary or permanent.

In addition, labour markets are never likely to achieve equilibrium because of the dynamic nature of the economic system. Some firms and industries are always growing faster than others and other firms are declining, and these trends are reflected in the labour market and in wage rates (Reynolds and Taft, 1954:Ch. 13). The supply of labour adjusts slowly to these changes in labour demand, especially where new skills are demanded in expanding industries and skills become redundant in declining industries.

The basic neoclassical framework with its emphasis on marginal productivity theory has been extended in more recent theories of human capital. Although traditional neoclassical theory placed some emphasis on the influence of the quality of labour inputs on wage differentials (Marshall, 1920:454-7), these factors have been given greater attention in theories of human capital. Experience and schooling of the work force, and the relationship between these two variables, are two major human capital factors which have been shown to have a major influence on income differentials (Becker, 1964; Mincer, 1974). In addition some empirical studies have suggested that personal characteristics of the work force may be the major determinants of wage differentials (for example, Weiss, 1966). These human

capital variables have also been given some attention in the examination of wage and income differentials in LDCs (see Chapter Two).

Neoclassical and human capital theories of earnings differentials have received considerable criticism in recent years. Some of these criticisms are relevant to this study.[1] Various writers have resurrected interest in the demand determinants of wage differentials (chiefly sectoral and occupational differences in jobs) as a criticism of overemphasis on the supply side and personal characteristics of workers in human capital theory.[2] They have shifted the emphasis in explanations of wage differentials to characteristics of jobs rather than workers (Thurow, 1972). According to this interpretation workers are allocated to various jobs according to their position in the labour queue. Thus characteristics such as education act chiefly as signalling devices to facilitate screening of new workers (Spence, 1973). It is suggested that wage differentials by education mainly reflect differences in the productivity of jobs obtained by various educational groups rather than productivity differences which may be directly attributed to education (Wachtel and Betsey, 1972). This 'structural' model questions the great emphasis on education and training schemes as a means of overcoming unequal wage and income distributions, and stresses the importance of changing the structure of employment to help solve many of these problems.

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1 See especially Cain (1976) for a summary of the major criticisms of human capital theory.

2 The early postwar literature concentrated on several of these demand characteristics (mainly differences in concentration, profits and unionisation between industries) to explain wage differentials. This focus of the literature gave way in the 1960s to human capital explanations of wage and earnings differentials. Wachtel and Betsey (1972:121-2) refer to the first as the 'structural' approach and the second as the 'personal characteristics' approach.

Other theorists, have since the 1950s been concerned to emphasise various institutional determinants of wage differentials that have been neglected by neoclassical economists.[1] Cain (1976:1227) summarises the major beliefs of these groups:

> They [the neo-institutionalists] believed that the complexity of the modern economy, the growing role of governmental regulation, and the growth of other anticompetitive institutions, such as bureaucratic corporations and unions, all served to undercut whatever basis previously existed for the application of neoclassical models.

These institutional theories have encouraged a more radical departure from the neoclassical theory of labour markets through their contribution to the development of the theory of internal labour markets and labour market segmentation.[2] Since several of the major issues raised in this thesis are taken from the theory of internal labour markets, we will look at this theory in some detail.

2. Internal Labour Markets

The theory of internal labour markets provides a set of explanations for quite large wage differentials in a competitive economic environment. The theory emphasises internal managerial decisions concerning wages and labour allocation and suggests that these decisions may be taken to a considerable extent independently of external market forces.

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1 The most important of these (government intervention in labour markets and in wage determination, and the influence of trade unions on wages) have been noted in the discussion of wage differentials in LDCs in Chapter One.

2 In particular two concepts of this group of economists have contributed to the development of theories of internal labour markets and labour market segmentation. First, a distinction was drawn between forces of the internal (intra-firm) and external labour markets in the pricing and allocation of labour (Dunlop, 1957). Second, Kerr drew attention to the 'balkanisation' of labour markets into various segments - notably 'guilds', 'manorial' markets (private enterprise markets in which internal markets are of considerable importance) and 'unstructured' markets - characterised by low wages and high mobility (Kerr, 1954).

According to this theory, employer decision-making is influenced by both economic and administrative (and bargaining) considerations. We will briefly summarise its major characteristics and its implications for wages, labour mobility and competition for jobs.[1]

In this body of theory strong internal labour markets are characterised by a wider range of interfirm wage differentials and lower labour turnover than is predicted in conventional neoclassical analysis. These large wage differentials and low rates of labour turnover are partly explained by the generation of firm-specific skills. Both firms and employees pay for firm-specific skills and wages are partly determined by bilateral monopoly bargaining over the returns to these skills (Becker, 1964:22-4; Oi, 1962). Owing to the specific nature of skills, both employees and employers are likely to sustain losses from labour turnover and both are likely to encourage a more permanent employment relationship.

In addition, firms also find it more efficient (because of lower transactions costs) to recruit, screen and train existing employees rather than unknown applicants for new jobs. Custom and enterprise rules are likely to increase the tendency for appointment from within. Thus, there is much greater vertical mobility on the basis of experience, ability and seniority, and more skilled jobs are filled internally than in a model where external labour market conditions play a more important role. Competition from the external market is reduced by the limited number of 'ports of entry' at which job applicants can compete with existing employees; recruitment from the external market is restricted mainly to unskilled employees.

All of these factors tend to exert an upward push on wage rates compared with those that employees could earn in the

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[1] This summary of the main features of internal labour markets draws heavily on Doeringer and Piore (1971).

external market. Firm-specific training and skill transmission ensures that wage rates are higher than those offered on the external market. Greater stability of employment (which further increases the tendency to greater skill acquisition purely as a result of experience) and seniority payments tend to increase further the differential in earnings above what employees could earn in similar jobs elsewhere. Employers are constrained in wage adjustments to external conditions by the prevailing structure of jobs and wages.[1]

Interpretation of the economic significance of wage differentials is more difficult once one accepts the importance of internal markets.[2] The tools provided by neoclassical theory are not always useful for evaluating the performance of internal markets. The external labour market in the theory of internal markets approximates the competitive market in traditional theory. But quite a wide range of profit maximising decisions may be made with respect to the pricing and allocation of labour which are only indirectly related to external labour market conditions. A wide range in wage rates between firms is not necessarily evidence of the varying influence of external institutional factors or of imperfect labour supply response.[3] They cannot be explained simply in terms of

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1 In addition, it is suggested that custom and union pressure are likely to make it more difficult to make adjustments to wage relativities than when the labour market is more fluid. Adjustment of wage rates for one job may induce adjustment of other rates as employees, sensitive to relative wage rates within the firm, seek to preserve existing relativities.

2 Empirical testing of the theory of internal labour markets is still in its infancy. However at least one major empirical study tends to confirm the importance of these markets. Mackay et al. (1971:esp. 95-7) note a wide range in wage rates between engineering firms in Glasgow and Birmingham which could not be explained by human capital differences in employees or by different rates of expansion of various firms. At least in part high wages were paid with the aim of minimising labour turnover and increasing labour productivity.

3 Nevertheless, although significant wage differentials are likely to occur and persist within a particular labour market, Doeringer and Piore (1971) suggest that firms will not be able to sustain substantial deviations from external

'market' or 'non market' forces or short run problems of adjustment.

The theory of internal labour markets has been integrated with theories of dualistic or segmented labour markets. Although the concept of labour market segmentation has been used mainly to describe labour markets in the United States, it will be argued that it has considerable relevance to the study of labour markets in LDCs. In the next section we provide a brief summary of the main features of segmented labour markets.

3. Segmented Labour Markets

Labour market segmentation is usually defined as the division of the labour market into two groups.[1] Doeringer and Piore (1971) describe those industries and occupations where internal labour markets are weak as 'secondary' (unstructured) labour markets and those where internal markets are strong as 'primary' (structured) labour markets.[2] Table 3.1 summarises differences between the two kinds of labour market with respect to various characteristics of wages, employment and

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3 (continued)
market conditions for long. In the short run they may adjust to market conditions by manipulating 'less constrained' instruments - overtime, hiring standards, screening and training programs. But in the long run they will be forced to adjust wages and the allocation of labour in accordance with pressures from the external market.

1 See especially Doeringer and Piore (1971:163-88) for a discussion of the characteristics of segmented labour markets. Other interpretations are given by Cain (1976), Reich, et al. (1973), Vietorisz and Harrison (1973).

2 Owing to the confusing nature of the terminology used to distinguish between these markets (the terms primary and secondary are commonly used to describe the agricultural and industrial sectors), the terms structured and markets will be used to differentiate between the two kinds of labour market. Doeringer and Piore note that unstructured labour markets in the United States cover casual labouring in construction industries, domestic work, blue collar jobs in foundries, menial jobs in hospitals and similar low wage, unstable occupations. The majority of private firms operate in structured labour markets but even here there is considerable variation in the strength of internal labour markets.

Table 3.1: Major characteristics of structured and unstructured labour markets

Characteristic	Structured Labour Markets	Unstructured Labour Markets
1. Conditions of employment	Relatively stable	Unstable
2. Wages	Relatively high, generous fringe benefits	Low and unstable; few fringe benefits
3. Wage determination	Heavily influenced by internal labour market considerations	Strongly influenced by external wage and employment conditions
4. Administration of wages and labour	Promotion, wage increases and conditions of employment set by rules and influenced by custom and activities of trade unions	Ad hoc administration according to prevailing market conditions tions; weak unions
5. Training	On-the-job and formal training increases the possibility of advancement and higher earnings	No formal training and little on-the-job training
6. Vertical mobility	Considerable opportunity for advancement with years of experience and acquisition of new skills	Very little skill differentiation and few chances for advancement
7. Labour performance	Low turnover, low absenteeism, a high degree of commitment to the firm; rules enforcing a high level of discipline and penalising poor performance	High turnover and absenteeism, low level of work discipline

Source: Condensed from Doeringer and Piore (1971:165-77).

labour management. In structured markets there tends to be stable employment and relatively high wages, internal factors play a major role in wage administration, and there are considerable opportunities for advancement and on-the-job training. Unstructured labour markets share few of these attributes.

These examples provide two extremes. The dichotomy is in practice unlikely to be so sharp. Many firms and occupations may share a mix of structured and unstructured labour market characteristics (Doeringer and Piore, 1971:169). The extent of the dichotomy will moreover depend upon general labour demand and employment conditions and also upon longer run forces (particularly education) influencing the supply of certain kinds of labour input. Nevertheless there are also likely to be strong forces that help maintain and even strengthen the division. Characteristics of employees from low income groups and with low wage, unstable jobs (high rates of turnover and absenteeism, low levels of precision and lack of factory discipline) are reinforced by their low income work and home environments. These influences hinder a permanent movement into more structured labour markets. Doeringer and Piore (1971:173) also suggest that the attractiveness of subcontracting to large firms (who subcontract to workers in unstructured markets) helps perpetuate the existence of unstructured markets. In addition, the influence both of unions and government legislation (which mainly protect employment and incomes in structured markets) also tends to strengthen the division between the two markets.

The causes of labour market segmentation are not given a great deal of attention by Doeringer and Piore (1971:37) in their major work on this subject. However they do note that:

> There are indications that internal labour markets, at least in the United States, have evolved in the course of economic development from a far more open, fluid and competitive economy in the nineteenth century.

Other, more radical labour segmentation theorists have traced labour market segmentation from the emergence of monopoly capitalism in the United States at the end of the 19th Century (Reich et al. 1973). Their perpetuation has also been explained in this broader framework in terms of destabilising, 'divergent development'. Technical progress and a tendency towards increased wages and accumulated skills in structured labour markets are contrasted with unchanged technology and constant or falling wages in unstructured labour markets (Vietorisz and Harrison, 1973).

Attempts to apply segmented labour market theories to the United States have been subject to considerable criticism.[1] However several factors suggest that it may be relevant to studies of LDCs. We shall examine some of these factors in the next section of the chapter.

4. Segmented Labour Markets in LDCs

The notion of segmented labour markets is not new to the study of LDCs. Indeed dualistic labour markets were an important element in Boeke's theory of dualism which was developed to describe Indonesia's economy in the colonial period (Boeke, 1953:138-48).[2] There has been considerable controversy over Boeke's general theory of dualism but little attention has been given to a systematic examination of

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1 Cain (1976:1231-2) summarises the findings of several studies which suggest that two major hypotheses derived from theories of labour market segmentation - a bimodal structure of earnings and lack of mobility between structured and unstructured employments - are not confirmed by empirical data (see also Wachter, 1974:650-60). It appears that dualism in wages and working conditions may not be nearly as strong as implied by the theory.

2 According to Boeke, labour markets (and other markets) in Indonesia were divided into 'eastern' and 'western' segments; each segment of the labour market had separate patterns of wage determination and labour allocation; 'dualistic' labour markets marked a meeting of eastern and western systems.

dualism in labour markets in LDCs. The discussion of the causes of interfirm wage differentials in Japan and in LDCs (see Chapter Two) suggests that these may be interpreted in a general framework of segmented labour markets.

The notion of a division of labour markets into structured and unstructured segments has many similarities with the distinction between large and small scale firms in the pricing and allocation of labour in Japan.[1] Relatively high wages, low labour turnover and emphasis on seniority and skill acquisition in large firms in Japan are all attributes of structured labour markets. On the other hand low and unstable wages, unstable employment and low level of skill in small scale firms have much in common with unstructured labour markets.

The distinction between structured and unstructured markets may also be applicable to the study of wage differentials in LDCs. Quite large wage differentials associated with a range of technology and ownership patterns in LDCs (see Chapter Two) suggests that the notion of labour market segmentation might be meaningfully applied to the study of labour markets in these countries. It will be useful to examine the extent to which high wages in capital intensive and foreign firms are associated with certain internal labour market phenomena (for example firm specific training, emphasis on promotion from within based on seniority, wage payment systems which encourage stability of employment, strong enterprise unions, etc.). One might also ask to what extent wage policies are adopted <u>specifically</u> to minimise turnover costs and to encourage intensity of effort in capital intensive firms in LDCs.[2] Conversely, it will be useful to examine the extent to which the low wages offered by labour intensive establishments are merely one aspect of labour market behaviour of firms operating in unstructured labour markets. The low unstable earnings and unstable employment and hours of

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1 This parallel has also been noted by Tan (1979:17-9).

2 See especially the studies of Stiglitz (1973, 1974) and Heady (1976b) discussed in Chapter Two.

work that are a feature of 'informal' sector activities (see, for example, Hart, 1973; ILO, 1974:6-7) are also likely to be common in many small scale manufacturing establishments.

However it should be noted that the division of the labour market into two segments in LDCs is adopted mainly as an analytical device. As in the developed countries and in Japan, labour markets in LDCs are unlikely to be divided neatly into structured and unstructured markets. It is reasonable to expect the diffusion of technology to result in a range of capital intensity, wage rates and labour management patterns.[1] Dualistic models of the labour market should be thought of as a simplification of a more complex structure. In practice continuous differentials in technology and wages are likely to be associated with the nature and speed of technological diffusion.

However the emphasis in a study of labour segmentation in LDCs is likely to differ significantly from studies in developed countries. In developed countries the emphasis has been on the existence and perpetuation of low wage employment (low wage 'islands') among minority and disadvantaged groups. In contrast, in LDCs unstructured labour markets are likely to cover a high proportion of the total wage earning population. We noted earlier that until quite recently a high proportion of the total wage earning work force in Japan was in small scale enterprise.

A similar situation is prevalent in many LDCs, especially in Asia (Baer and Herve, 1966; Morawetz, 1974). Understandably, the literature on wage differentials in LDCs has been more concerned to explain the existence of high wage 'islands' than low wage employment which is much more common in these countries.

In this study the focus is on the reasons for the persistence of a high wage sector under conditions of labour

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[1] See Ohkawa (1972) and Nelson et al. (1970) for a description of models of technological diffusion applied to the analysis of labour markets in Japan and Columbia respectively.

surplus. Thus the major theoretical issue is not merely the causes of large interfirm wage differentials. Rather it is to discover why wages (even of unskilled labour) are much higher than average in large, capital intensive and foreign firms under conditions of labour surplus.

To sum up, this first part of the chapter has reviewed several theories of labour markets and has noted their relevance to the study of labour markets in LDCs. Several criticisms of the simple neoclassical and human capital theories of wage differentials may justify a different approach to the examination of wage differentials in LDCs. The theories of internal labour markets and labour market segmentation provide such an alternative.

However it should be stressed that human capital factors may play an important role in the determination of wage differentials in LDCs. Following some of the criticisms of the application of human capital theory, we argue that human capital factors should be examined in the context of certain patterns of labour demand. Specifically, it is useful to investigate the relationships between technology, human capital characteristics of the work force and wages than merely to concentrate on human capital influences on wages. For example, the question may be asked: To what extent are wage differentials between capital and labour intensive firms a consequence of differences in human capital attributes of employees rather than the result of internal labour market or institutional forces?

Throughout this part of the chapter it has been stressed that technological differences are likely to be the major factors contributing to wage differentials in LDCs. In the second part of the chapter we provide an analytical framework which allows examination of why wages are likely to be higher in capital compared with labour intensive firms in labour surplus LDCs. This analysis will also examine the likely nature of human capital and institutional influences on wage differentials between capital and labour intensive firms.

II. A Framework for Analysis of Interfirm Wage Differentials

In the first part of this chapter we reviewed several theories of wage differentials and concluded that theories of internal labour markets and labour market segmentation could assist an understanding of the causes of wage differentials in LDCs. It was suggested that these theories might aid the examination of the cause of wage differentials associated with a range of technology which exists in many labour surplus LDCs. In this part of the chapter we present an analytical framework which describes how internal market considerations, human capital and institutional factors are likely to influence wage differentials in manufacturing in these countries. A framework of analysis is developed which stresses the interrelationships between these three groups of influences.

To simplify the analysis, we assume a bifurcation of labour demand and supply patterns. Firms are divided into capital and labour intensive types and labour supply is divided into categories of 'educated' and 'non educated' workers. The argument is developed in three stages: (i) homogeneous labour demand and supply, (ii) dualistic labour demand and homogeneous supply and (iii) dualistic labour demand and supply. The first stage is similar to the familiar Lewis model of wage determination in a labour surplus economy. In the second we examine how internal and external labour market factors and institutional forces are likely to influence wages in capital and labour intensive firms. The third stage investigates the influence of human capital on the pattern of wage differentials between capital and labour intensive firms.

The discussion focusses on the causes of interfirm wage differentials among unskilled (or semiskilled workers).[1] Thus

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[1] However we will also indicate the extent to which the analysis might also be applicable to various groups of skilled workers.

we are not concerned directly with occupational wage differentials or interindustry wage differentials which have received so much attention in the literature on wage differentials in LDCs;[1] rather this study deals with the causes of interfirm wage differentials of employees in similar occupations.

However, although the analysis concentrates on a general category of unskilled (or semi-skilled) workers, it does assume that employees require some skills to perform their tasks. Further, we assume that these jobs are likely to be technology specific. It is expected that the workers (for example, machine operators) do have some direct effect on the quantity and quality of production.[2] It also assumes that there is a surplus supply of unskilled labour on the external market which is capable of filling vacancies. Unskilled labour is made available from the agricultural sector or from among the urban unemployed at a constant real wage rate.[3]

Finally, throughout we adopt the assumptions of perfect competition in product markets and perfect knowledge. These two assumptions simplify the analysis and enable us to concentrate on the effect of internal labour market, institutional and human capital factors independently of other influences on wages.

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1 But the study does contribute to an understanding of the causes of interindustry wage differentials in LDCs which were examined in several of the empirical investigations discussed in Chapter Two.

2 We are not primarily interested in the demand for completely unskilled jobs (for example floor sweepers) since there are likely to be only a small proportion of total employment in most manufacturing firms. These jobs are unlikely to be specific to particular technologies and performance of completely unskilled jobs is also unlikely to directly affect the firm's production.

3 The minimum supply price of labour to manufacturing may be determined by average product pricing rules (as in the Lewis model) or may simply be determined by some conventional minimum level of subsistence (see especially Wharton, 1963). Throughout this section we will assume that there is a conventional minimum subsistence which provides a floor to wages.

1. Homogeneous Demand and Supply Schedules

The analysis of wage differentials under conditions of homogeneous labour demand and supply is well known in the literature and requires only brief mention here.[1] Each firm demands the same quality of labour inputs and wages are set at a minimum subsistence level by surplus labour. This simple equilibrium is illustrated in Figure 3.1. Different firms demand varying quantities of homogeneous labour (D_1D_1, D_2D_2, etc.) at a constant wage rate w_1. An expansion of demand for labour of the firm (or indeed an industry, or even the manufacturing sector as a whole) will have no permanent effect on wage rates of unskilled labour as long as a surplus is available to fill the new jobs at a constant real wage rate.[2]

2. Dualistic Labour Demand, Homogeneous Labour Supply

We now introduce a dualistic pattern of labour demand which is distinguished by a division of firms into capital and labour intensive (modern and traditional) segments. It is argued that capital intensive firms are likely to pay higher average wages for several reasons associated with (i) wage productivity effects; (ii) the effects of training and scarcity of modern sector skills; and (iii) various institutional forces. Wage productivity effects, labour shortages and institutional forces all affect wages through a combination of internal and external labour market influences. We examine each of these factors in turn.

(i) Wage productivity effects. We have already noted the views of several writers who claim that capital intensive

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1 For example, see our brief description of the Lewis model in Chapter Two.

2 There will of course be short run fluctuations in wages in response to demand pressures and short run rigidities in supply, but in the long run wages will return to an equilibrium level set by the wages of surplus labour. See, for example, Taira (1970) for a discussion of short run and long run trends in wages in Japan from 1880-1950.

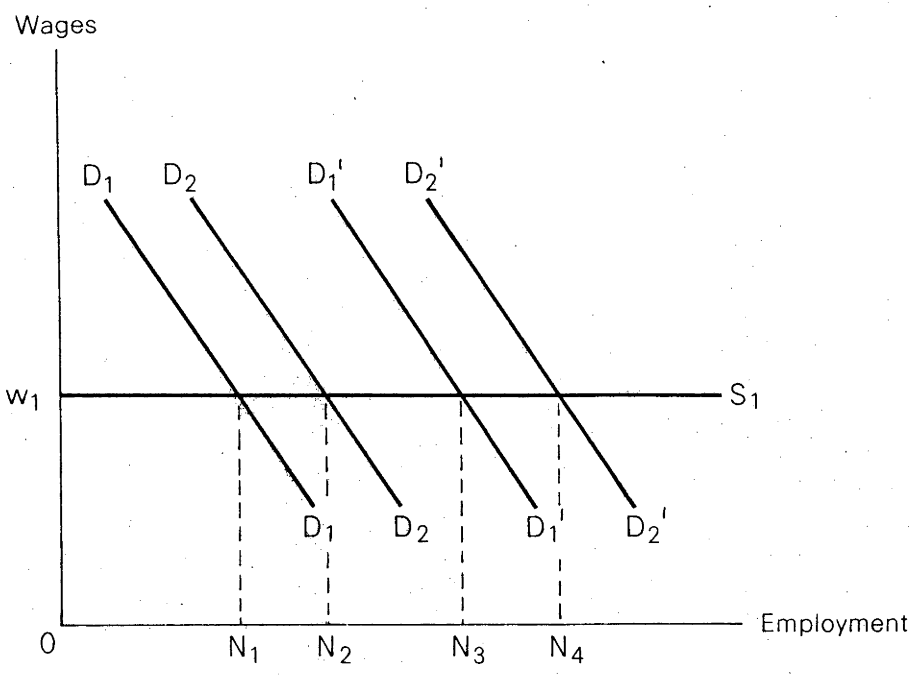

Figure 3.1: Expansion of labour demand and wage rates under conditions of labour surplus

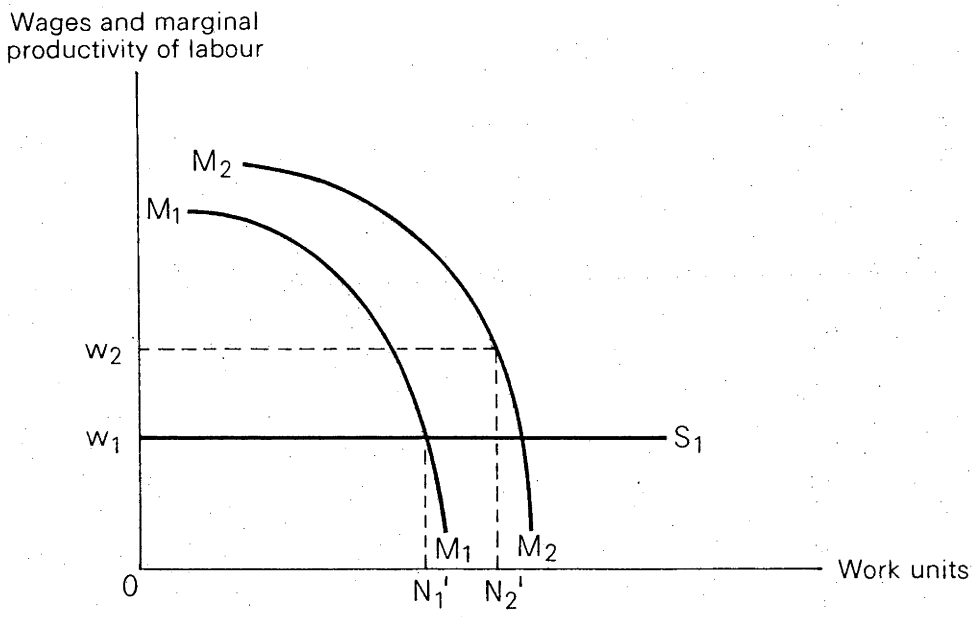

Figure 3.2: Wage productivity effects: increased wages and labour productivity

firms in LDCs may experience higher turnover costs, and higher costs resulting from lower intensity of work than labour intensive firms (See Chapter Two). These problems faced by capital intensive firms are attributed to greater costs associated with underutilistion or misuse of expensive capital equipment. According to this argument capital intensive firms are likely to offer higher wages to stabilise their work force, and to encourage more intensive effort. Higher wages will contribute directly to greater labour productivity. Thus capital intensive firms are likely to choose wage levels according to their own estimation of the effect of wages on labour productivity. These wage levels are likely to be to some extent divorced from external labour market conditions.

We might expect the effect of wages on labour productivity to follow the pattern depicted in Figure 3.2. The marginal productivity curve would shift outwards from M_1 to M_2 in response to an increase in wages above minimum subsistence from w_1 to w_2. The number of work units (measured on the horizontal axis) increases from ON_1 to ON_2 as a result of higher labour productivity. Provided that the increased value of marginal product resulting from the wage increase is greater than the addition to firms, wage costs, it will pay the firm to increase its wages to w_2.[1]

Of course, higher wages will not always be the major way in which firms seek to stabilise their work force. As we have seen in the case of Japan, wage increments based on seniority, and certain fringe benefits may be introduced to minimise labour turnover. Starting rates may be similar in relatively capital and labour intensive firms but owing to seniority increments, wages could be expected to rise more steeply with years of service in capital intensive firms.

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[1] The profit maximising firm will increase wages to the point where the increased value of marginal product caused by wage increases is equal to the increased wages, that is to the point where $\Delta VMP_2 = \Delta W_2$ (where ΔVMP_2 = the increase in the value of marginal product as a result of the wage increase, and ΔW_2 = the amount of the wage increase).

It should be noted that higher wages may not only effect productivity by reducing the costs of turnover and underutilisation. They may also have a positive effect on productivity through their influence on the health and physical well being of workers. Such effects are likely to be particularly important in low wage LDCs.[1] The longer run effect on wages is likely to be perceived and taken advantage of more by capital intensive firms. It will provide an additional reason for higher wages in these firms compared with labour intensive establishments.[2]

(ii) Demand for modern sector skills. In order to isolate the effects on wages of modern sector skills which are required in capital intensive firms, it is useful to envisage a situation in which capital intensive firms enter an economy where labour intensive firms are well established. It is assumed that capital intensive firms require (even from unskilled workers) certain specific skills and work habits (which will be termed 'modern sector skills') that cannot be provided by employees in the labour intensive sector.[3] It

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1 The influence of certain forms of wage payment on the physical wellbeing and productivity of workers in Indonesia is examined in Chapter Eight.

2 Efforts to reduce turnover costs and encourage a more stable work force are likely to make these longer term investments in the physical productivity of employees more attractive to capital intensive firms. Moreover, because wage costs are likely to be a smaller proportion of total costs in capital intensive firms, they may be more willing than labour intensive firms to undertake this investment.

3 Modern sector skills may be thought of as a general type of firm-specific skills or industry-specific skills. They consist of two major components. First, technical knowledge and skills required to operate particular machinery. For unskilled and semi-skilled labour these are likely to be industry-specific and to some extent they may also be firm-specific. The second component of modern sector skills is work habits and behaviour associated with the operation of relatively capital intensive machinery. Modern sector work habits and behaviour would include adherence to a rigorous code of factory discipline (including high levels of punctuality and cleanliness, intensive effort over short time periods and prompt action in response to the employer's requests). These habits would tend to be general to all

will be further assumed that there is an abundance of 'traditional' sector skills associated with labour intensive technology and also an abundance of relatively unskilled labour prepared to learn modern sector skills.

Initially, because modern sector skills are unavailable on the external market, they will have to be generated internally and will be firm-specific to the first capital intensive investor in the modern sector. Employees in this firm (and indeed in other early modern sector firms) will earn higher wages than employees in labour intensive firms because of the relative scarcity of modern sector skills. This situation is depicted in Figure 3.3. Capital intensive firms pay their scarce unskilled employees w_4. The supply function is given by the relatively inelastic line S_1S_1. Wages in this capital intensive firm contrast with the much lower wages paid in labour intensive firms (w_1 in Figure 3.4) which face a perfectly elastic supply curve of labour.

As the capital intensive sector expands, modern sector skills are likely to be increasingly abundant on the external market. Thus we could expect the supply curve to become increasingly elastic. The supply curve in Figure 3.3 will move from S_1S_1 to S_2S_2 and then to S_3S_3 and S_4S_4, and wages will eventually fall from their initial high level w_4 to w_1.

In the longer term, we might expect labour supply pressures to push wages towards equality in capital intensive and labour intensive firms.[1] Modern sector skills are likely to be generated internally but gradually an external market for modern sector skills develops.

Higher rates of growth in the modern sector may however prevent the development of an external market in which modern

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3 (continued)
capital intensive firms which require a certain minimum level of labour performance in the operation of modern technology.

1 It is important to note that there is no presumption that employees in the modern sector necessarily have a higher level of skills than in the traditional sector but only that they have different skills.

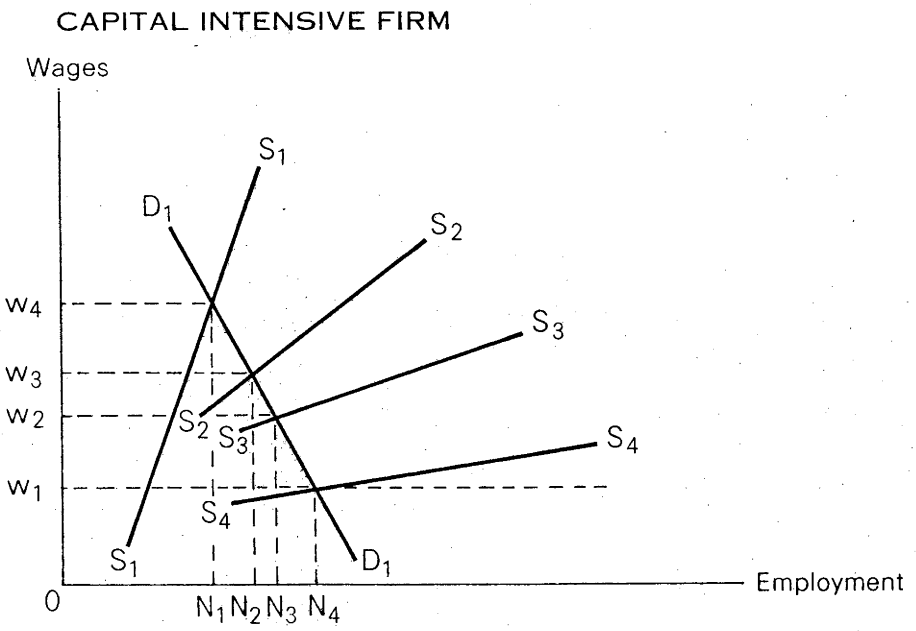

Figure 3.3: Increasing supplies of modern sector skills and wage rates in capital intensive firms

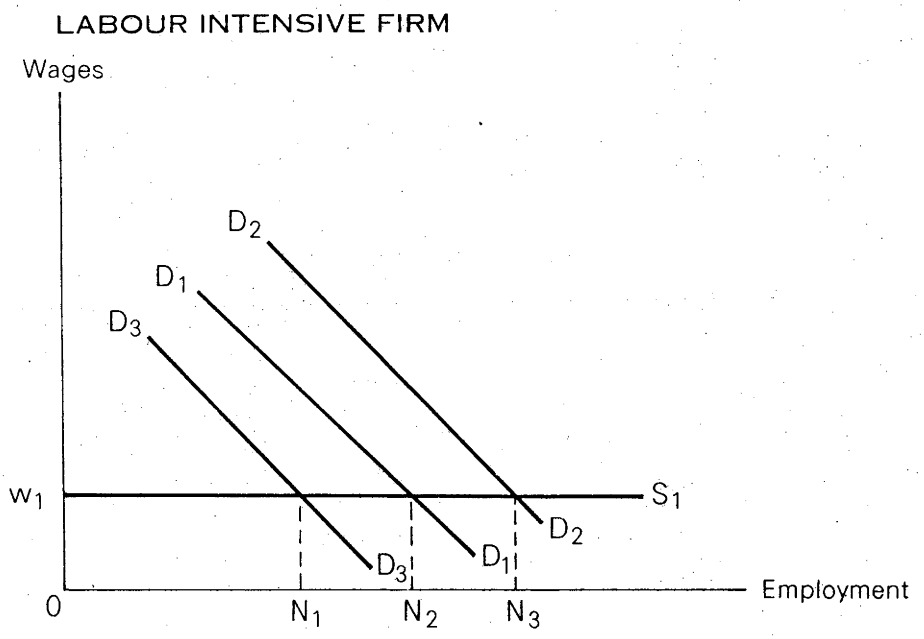

Figure 3.4: Expansion and decline of labour demand in labour intensive firms

sector skills are abundant. Under such circumstances there is unlikely to be a significant narrowing of differentials between capital and labour intensive firms.[1]

Rapid rates of growth in the capital intensive sector might be expected to have one of two effects on the demand for labour in the labour intensive sector. Modern sector growth may stimulate growth in labour intensive activities and result in increased labour demand in this sector. Alternatively, modern sector firms may compete with labour intensive establishments and cause a fall in the demand for traditional skills in the labour intensive sector. However given that wages are determined exogenously in the labour intensive sector, neither the expansion of labour demand nor its contraction will influence wage rates in this sector as long as surplus labour supply conditions continue to prevail. The demand curve for labour in the labour intensive sector may move out to D_2D_2 or back to D_3D_3 but the level of wages will remain unchanged at minimum subsistence at w_1 (Figure 3.4).

Two additional points should be made concerning the contribution of differences in the supply of skills to interfirm wage differentials. First more rapid technological change and the greater complexity of capital equipment in the capital intensive sector may contribute to a greater concentration of firm-specific skills in capital intensive firms than in labour intensive firms. A higher proportion of firm-specific skills associated with capital intensity is likely to result in

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[1] The influence on wages of excess demand for this labour may occur in various ways. Under conditions of perfect competition one would expect there to be constant pressure on external wage rates as employees compete for scarce labour, quit rates would be high and labour 'piracy' a common feature of labour demand patterns. Or, alternatively (as in the case of Japan) where conditions of oligopoly and oligopsomy exist, firms may collude to prevent labour piracy, and wage and other labour management systems be directed towards minimising labour turnover.

greater interfirm wage differentials within the modern sector and also between the modern sector and traditional sector. Second, scarcity of modern sector skills may be even more marked for skilled labour than for unskilled labour, especially in the early stages of industrialisation. We might expect there to be an even greater range in interfirm wages for skilled workers than for unskilled or semi-skilled employees.[1]

(iii) Institutional factors. A third group of factors contributing to wage differentials between capital and labour intensive firms are what we have termed institutional factors. These include minimum wages and other government policies which affect wages, and trade union influences on wages.[2] It is reasonable to expect that trade unions will be more active and government implementation of labour legislation more strict in capital intensive rather than labour intensive firms.[3] Several factors are likely to contribute to the greater importance of institutional factors in capital intensive firms. First, wage costs are likely to be a small proportion of total costs. As a consequence capital intensive firms may be more

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1 However there may also be factors tending to reduce the differentials in wages of skilled workers in capital intensive compared with labour intensive establishments. These include relative scarcity of skilled labour in labour intensive firms and the greater likelihood that the skills of skilled employees are more firm-specific to labour intensive firms than those of unskilled and semi-skilled workers. Thus wage differentials for skilled workers are likely to be less predictable than those associated with unskilled workers in labour intensive establishments.

2 Throughout the thesis the term 'institutional' factors will be used to refer to government and trade union policies and actions which directly or indirectly affect wages.

3 Several studies of developed economies have found that trade union pressure is a major factor contributing to higher wages in larger more capital intensive firms and in more concentrated industries (see for example Masters, 1969; Weiss, 1966).

willing to grant wage increases as a result of union demands or other institutional pressures. Labour demand schedules will be less elastic in these firms than in more labour intensive firms.[1]

Second, lower labour turnover and a more stable employment relationship in capital intensive firms may encourage trade unions to press for wage systems with greater emphasis on seniority and wage payments (for example insurance and pension schemes) which have little direct effect on labour productivity. Institutional factors are clearly closely interrelated with other internal labour market forces. Finally, capital intensive firms are likely to be larger and more visible than labour intensive establishments and to be scrutinised more closely by government and trade union representatives. Better records will enable more intensive control over wages and working conditions.[2]

It might also be expected that there would be a close association between capital intensity and the foreign ownership of firms. Since most foreign firms are also likely to be capital intensive, the arguments for high wages in capital intensive firms also apply to foreign enterprises. However several influences may tend to push wages higher in foreign capital intensive firms compared with domestic capital intensive firms. First, foreign firms may place greater emphasis on manpower planning and pay more attention to wage productivity effects than domestic firms. Second, since there may be greater government and trade union pressures on foreign firms to avoid dismissals, these firms may incur higher recruiting and screening costs to ensure that they obtain

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1 Marshall (1920:319) mentions the proportion of wage costs to total costs as one factor contributing to elasticity of labour demand.

2 It should also be noted that to the extent that capital intensive firms tend to experience higher rates of profit (because of monopolistic or oligopolistic practices of these firms or preferential access to capital and other input markets), they may be more willing to pass on part of their profits to employees in the form of higher wages.

workers of the desired quality. They will have an additional reason for adopting policies to minimise turnover.

A third factor likely to contribute to higher wages in foreign firms is the specificity of skills and work habits to the foreign sector. Foreign firms may demand certain skills and work habits (language, knowledge of foreign business practises and modes of behaviour) in addition to general modern sector skills associated with capital intensity.[1]

Finally, as we have noted from several of the studies reviewed in Chapter Two, institutional pressures are likely to have a greater influence on wages in foreign firms. The foreign sector is likely to be much more vulnerable to nationalist criticism and payment of relatively high wages. In addition, humanitarian considerations inducing payment of wages, above market rates may also be more important among foreign firms.[2]

Thus we may envisage a continuum in labour demand and supply schedules from, at one extreme, the relatively inelastic foreign sector demand for and supply of scarce foreign sector specific skills. At the other extreme there is an elastic demand for and supply of relatively abundant traditional sector-specific skills. The three demand and supply curves are depicted in Figure 3.5. D_FD_F and S_FS_F are the demand and supply curves for unskilled or semi-skilled labour in foreign firms, D_CD_C and D_LD_L and S_CS_C and W_LS_L demand and supply curves in the domestic, capital intensive firms and labour intensive firms respectively. Wages are highest in the foreign sector and lowest in the domestic labour intensive sector.

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1 Of course these specific foreign sector skills will not necessarily be the same for investors from different countries. They may be particularly important for investors from some countries (for example Japanese) with more rigid codes of behaviour than in other foreign firms which place more emphasis on adaptation of their labour management systems to the local environment.

2 Both institutional forces and humanitarian considerations may have a greater influence in foreign firms in which wage costs are a small proportion of total costs and profits are high.

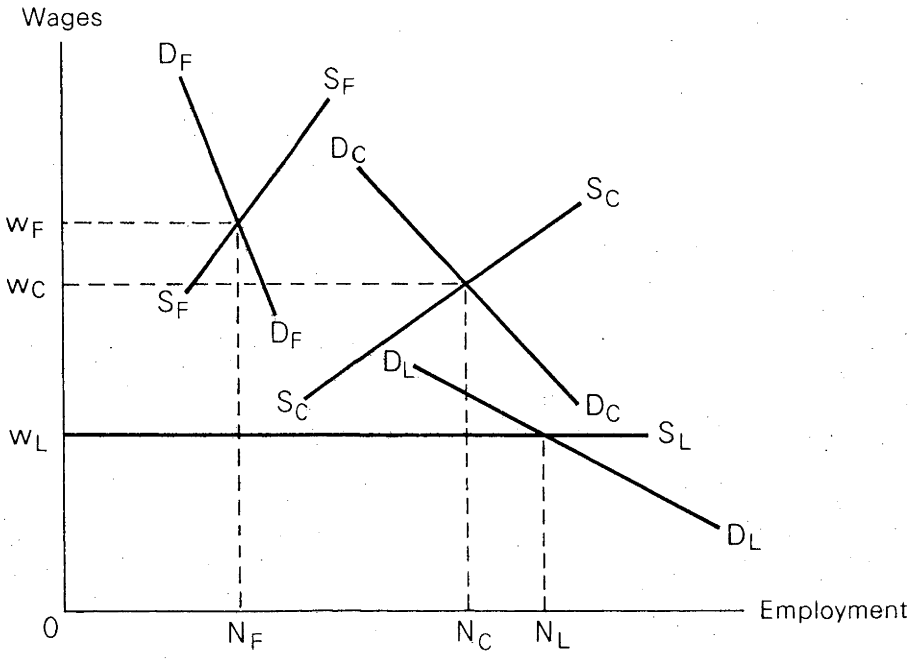

Figure 3.5: Demand and supply schedules in foreign, capital intensive and labour intensive firms

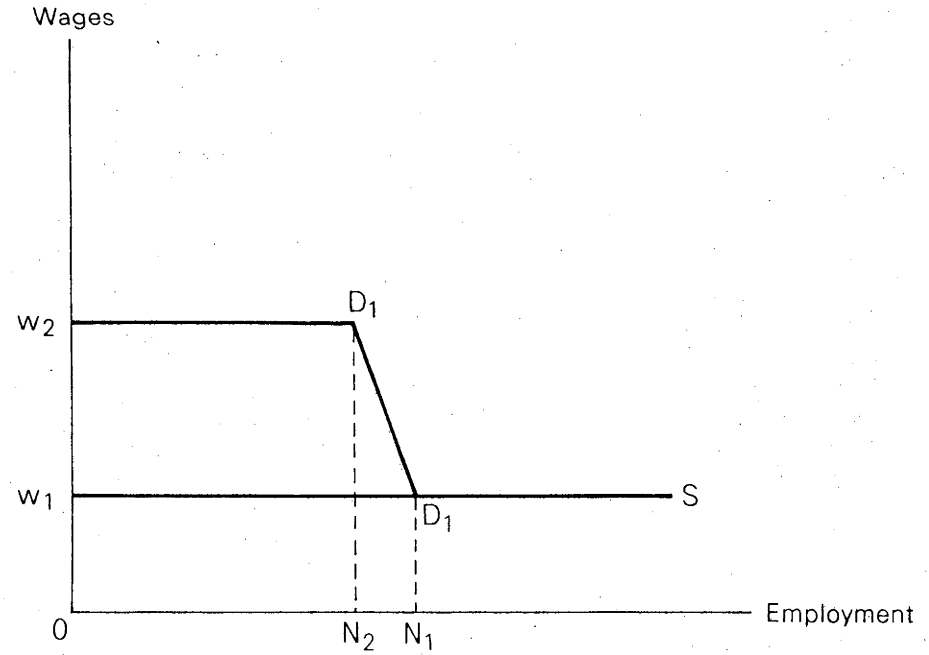

Figure 3.6: Employment of educated workers at various wage rates in labour intensive firms

In brief, a variety of both internal and external market influences are likely to contribute to wage differentials between capital and labour intensive firms and also (partly because foreign ownership tends to be associated with capital intensity) between foreign and domestic firms. Internal labour market influences include wage productivity effects, and the effect on wages of firm-specific training. However more general labour market influences associated with all modern sector firms also contribute to interfirm wage differentials. A scarcity of modern sector specific skills may increase wage differentials between capital intensive and labour intensive firms. On the other hand, increasing abundance of these skills tends to reduce the differentials. Finally more general institutional influences may also contribute to high modern sector wages and especially to wage differentials between foreign domestic firms.

Throughout this discussion of the influence of dualistic demand patterns on wages we have assumed a homogeneous supply of unskilled labour available on the external labour market. Clearly this is an unrealistic assumption. The supply of labour willing to work in most unskilled jobs is likely to possess a range of personal and other labour supply characteristics. We now turn to examine how differentiated supply patterns will influence the extent of wage differentials in a dualistic manufacturing sector.

3. Dual Labour Market Demand and Dual Labour Supply

We now introduce the notion of dualistic labour supply. To simplify the analysis it is assumed that there are only two groups of workers which we will term 'educated' and 'non educated'. It is assumed also that these two groups are distinguished mainly according to years of schooling[1] and

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[1] In reality labour supply is likely to differ in a variety of respects, the most important of which are sex, race, age, schooling and experience. In practice we might also expect more educated workers to be younger males living in urban areas.

that both groups of educated and non educated workers are initially in surplus supply.[1] How is the division of labour supply into educated and non educated groups likely to affect wage differentials of unskilled workers in capital intensive compared with labour intensive firms?[2]

First let us assume that there is no dualism in labour demand and focus briefly on the effects of dualism in supply on the external labour market. Given conditions of labour surplus of both educated and non educated, there is no reason to expect higher wages among educated compared with non educated workers employed in unskilled jobs. Surplus supply of labour is likely to drive wages down to minimum levels among both educated and non educated workers.

However two external market effects may affect wage differentials between educated and uneducated workers. First, owing to preferential hiring of educated workers on the external market, the supply of these workers may become scarce. There will be upward pressure on wages of educated workers and their wages will increase above those of non educated workers. Second, educated workers may demand a minimum wage (consistent with their social position and wage expectations) which is above the price of surplus labour on the external market. This will be labeled a 'social' minimum wage (SMW) set by educated labour (the SMW should be distinguished from the minimum subsistence wage of uneducated workers). This second effect will be important if the educated have expectations of employment in high wage, skilled and administrative jobs.

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1 This is consistent with the empirical data from most LDCs which shows high rates of unemployment among the secondary educated as well as those in primary schools and the uneducated (see especially Turnham, 1971). High levels of unemployment among the secondary educated is also a major feature of labour surplus in Indonesia (See Chapter Four).

2 It should be noted that the analysis in this section has much in common with Fields (1974) and Barnum and Sabot (1976) who examine the distribution of educated and uneducated between skilled and unskilled jobs, and agricultural employment in the overall context of rural urban migration.

Where there is a social minimum wage for educated labour, the proportion of educated employees in unskilled jobs depends on two main factors. On the demand side it depends on whether their marginal productivity in unskilled jobs exceeds the SMW. If their marginal productivity in such jobs is less than the SMW, employers will prefer non educated labour. On the supply side, the educated will take into account the effect that employment in an unskilled job will have on their chances of obtaining a higher paid skilled job. If their chances of obtaining a skilled job are affected adversely by the acceptance of an unskilled job, educated workers may prefer to remain unemployed than take on unskilled jobs.[1]

Now let us assume that there is both dualistic demand and dualistic supply. First, it is necessary to note the different effects that educated workers are likely to have on productivity in capital compared with labour intensive firms. It is reasonable to assume that schooling has a greater effect on productivity in capital intensive firms: education is likely to make a greater contribution to the understanding of sophisticated equipment in capital intensive firms, and since there is likely to be a greater emphasis on formal training in these firms, can be expected to contribute to skill acquisition. Thus it will be necessary to examine two cases: (i) a situation in which education has no effect on productivity in the labour intensive sector; and (ii) a situation in which education has some effect on productivity in the labour intensive sector, but less than in the capital intensive sector. In addition it is useful to distinguish between a situation in which there is a SMW from one with no SMW for educated workers. Each of these cases is discussed in turn.

(i) Education has no effect on productivity in the labour intensive sector.

(a) No social minimum wage. Under such conditions we might expect labour intensive firms to be indifferent as to

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[1] See, for example, Fields, (1974).

whether they employ educated or uneducated workers. The wages of educated workers who accept low wage jobs in labour intensive firms will be the same as uneducated. However capital intensive firms will only hire educated workers. Although the external market wage of educated labour may be the same as uneducated labour, it is reasonable to expect the various labour demand influences (wage productivity effects, shortages of modern sector manpower and institutional forces) to result in higher wages for educated workers employed in modern sector firms.

(b) A social minimum wage. Under these conditions no labour intensive firms will employ educated employees. Capital intensive firms will employ educated labour to the point where its marginal productivity is equal to the SMW. Provided that the SMW of educated workers is lower than that which (for internal market and other reasons) capital intensive firms are prepared to pay, employment of educated in capital intensive firms will be the same as in (a) above. But if it is higher, overall employment of educated employees will fall. Indeed (depending on the extent to which uneducated labour can be substituted for educated labour in capital intensive firms,) we may find that these firms employ a high proportion of uneducated workers as a result of excessively high SMW demanded by educated workers.

(ii) Education has some effect of labour productivity in labour intensive firms.

(a) No social minimum wage. Under these conditions labour intensive firms will no longer be indifferent to whether they employ educated or uneducated workers. They will prefer to employ higher quality educated workers. Initially one may envisage a situation in which educated labour is employed only in the high wage modern sector. However as educated labour becomes more abundant the supply of educated workers will outstrip job opportunities in capital intensive firms. Initially, for as long as the probability of obtaining a modern sector job is still high, the educated will prefer to remain

unemployed (and hence still able to search for modern sector jobs) rather accept low wage jobs in labour intensive firms (see Barnum and Sabot, 1976:36). But as the supply of educated unemployed rises and the probability of employment in the modern sector falls, the educated are likely to turn increasingly to jobs in labour intensive establishments. They will begin to displace less productive, non educated labour.[1]

The extent to which the non educated are 'squeezed out' of labour intensive firms will depend partly on the rate of growth of demand for educated labour (especially in the modern sector) relative to the supply of educated labour. A rapid increase in growth rates in the modern sector may actually reverse the situation described above. The wages of educated labour will rise and labour intensive firms switch back to non educated labour. As the probability of employment in the modern sector increases, educated employees would be expected to leave labour intensive firms in search of modern sector jobs.

(b) A social minimum wage. In this case labour demand in capital intensive firms will be the same as described in (i) (b) above. However labour intensive firms may continue to employ educated labour despite a minimum subsistence wage. Owing to the higher productivity of these workers, labour intensive firms may be willing to pay higher

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[1] In practice the extent to which educated workers are given jobs in labour intensive firms will be influenced partly by the attitude of employers to the employment of educated workers. It is possible that labour intensive firms might find employment of educated workers undesirable. They may prefer not to employ educated workers in unskilled jobs because the unwillingness of the educated to perform more arduous manual tasks required in labour intensive firms. Fields (1974:915-6) identifies two cases of labour market segmentation in which either employers are unwilling to take on educated workers for unskilled jobs or employees are not prepared to accept such jobs.

than subsistence wages to retain educated workers. However above a certain social minimum set by educated workers they will employ only non educated workers. For example, in Figure 3.6 ON_1 units of educated labour will be employed by labour intensive firms at the minimum subsistence wage of w_1. If we assume that educated workers demand a SMW of w_2, employment of educated labour will only fall to ON_2. But above this wage the demand curve is perfectly elastic as labour intensive firms switch to the employment of non educated workers only.

In sum, provided there is a surplus supply of both non educated and educated workers, division of labour supply into these two groups is unlikely to have a marked influence on the pattern of interfirm wage differentials arising from dualistic labour demand patterns. If we assume that educated labour does not contribute to higher productivity in labour intensive firms, wages will be higher in capital intensive firms for the various reasons associated with labour demand patterns described in section two. In labour intensive firms, wages will be equal to the minimum subsistence wage regardless of whether educated or non educated labour are employed in this sector. If however, we assume that educated labour does have some effect on labour productivity in the labour intensive firms, it is possible that a shortage of educated workers (or a social minimum wage demanded by educated workers) may provide some pressure for a reduction of wage differentials of unskilled labour between the two sectors. Wages for educated labour employed in labour intensive firms will be higher than minimum subsistence levels paid to non educated labour in this sector. There may be a reduction in the wage differentials between capital and labour intensive firms.[1]

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[1] It should be noted that in practice there is unlikely to be a homogeneous supply response from educated labour. Some may accept minimum wages in labour intensive firms. Others may only work in this sector at higher wages. A third group may prefer unemployment and a chance of higher wage job later to employment in labour intensive firms.

So far we have been mainly concerned with identifying certain factors which might influence interfirm wage differentials. To place the discussion in a broader perspective, it will be useful to ask what extent the patterns of behaviour described above contribute to labour market segmentation.

In the first part of this chapter labour market segmentation was described as the division of the labour market into structured and unstructured components. The different segments are likely to contrast in wage rates, processes of wage determination and labour allocation. They may also contrast in the importance of internal and external market forces. For the purpose of this study we may define segmented labour markets in terms of three major characteristics. Highly segmented labour markets will be distinguished by (i) large and persistent interfirm wage differentials associated mainly with differences in technology;[1] (ii) low levels of mobility between capital and labour intensive firms; and (iii) the association of high wages in capital intensive firms with certain human capital and personal characteristics of workers. According to the first two of these criteria the labour market described in section three above is likely to be highly segmented. The third is likely to be less segmented. Each characteristic will be considered in more detail.

First, under conditions of surplus educated and non educated labour, there are unlikely to be forces which would cause a narrowing of wage differentials. We have suggested that labour demand patterns in labour intensive firms are not likely to influence wages in the capital intensive sector. Increased labour demand in the labour intensive sector will be met mainly by increased supply of unemployed urban workers or surplus labour from agriculture. Similarly, increased demand for educated workers by capital intensive firms has no effect on wages in the labour intensive sector. One would

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[1] These differentials apply to workers in the same general occupational categories.

expect wage differentials to narrow only as uneducated labour becomes scarce and wage differentials are pushed up in the labour intensive sector. The 'turning point' in economic development is likely not only to reduce wage differentials between urban and rural areas but also between capital intensive intensive and labour intensive firms in the manufacturing sector.[1]

A scarcity of educated workers might also lead to a narrowing of wage differentials. Labour intensive firms may prefer to employ educated workers at wages above the minimum wage than employ non educated workers. Wage differentials would narrow as long as labour intensive firms continue to employ educated manpower at wage rates above the minimum wage.[2] But if scarcity of educated labour leads to substantial wage increases, it is likely that labour intensive firms will prefer to employ only non educated workers at subsistence wages.

A second major feature of segmented labour markets is a lack of mobility between sectors. It has been suggested above that skills and work habits are likely to be specific to capital intensive firms. Employees from labour intensive firms cannot learn new skills (or unlearn their old work habits) easily and labour from this sector may not be easily employed in the capital intensive sector. We may expect capital intensive firms not only to recruit more educated labour but also younger employees with little work experience who will be capable of learning new skills relatively quickly. On the other hand low rates of labour turnover in capital intensive firms precludes the movement of a significant number of workers from these

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1 This was the case in Japan as labour scarcity developed during the 1960s. See Odaka (1967) Yamamura (1965).

2 Since wages in capital intensive firms are already likely to be above the minimum wage because of wage productivity and other influences associated with labour demand, an increase in the supply price of educated labour above minimum wage is unlikely to affect wages in these firms.

enterprises to the labour intensive sector. Moreover even if employees leave capital intensive firms, they may not have the appropriate skills or be willing (for social reasons or because they prefer to seek new jobs in other capital intensive firms) to undertake similar jobs in labour intensive establishments.

A third feature of labour market segmentation which is relevant to this study is the employment of workers with different human capital and personal characteristics in different kinds of firm.[1] According to this criteria, the labour market discussed in section three above may not be highly segmented. It has been suggested that surplus educated labour may be employed in both capital and labour intensive firms. On the demand side, the number of educated workers employed in labour intensive firms will depend on whether labour intensive firms prefer to employ educated workers and, if these workers demand a social minimum wage, the extent to which labour intensive firms are prepared to pay higher wages for these workers. On the supply side it will depend on the willingness of educated workers to accept low wage and low prestige jobs.

Overall, assuming labour surplus of both educated and uneducated workers, the above discussion of dual labour markets suggests (at least for the first two reasons given above) that there will be high levels of labour market segmentation. However three qualifications may be advanced concerning the pattern of labour market segmentation implied in the framework presented above. First, although labour market segmentation may be associated with technological dualism, the extent of segmentation will depend on the particular historical phase of manufacturing development experienced by a country. Rapid

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[1] A major theme of literature on labour market segmentation in advanced capitalist countries has been the division of the labour market according to certain supply characteristics of workers (for example according to race, sex, education and other socio-economic characteristics of workers).

growth of a relatively small capital intensive sector may cause large wage differentials in the early stages of manufacturing development.[1] But these differentials and labour market segmentation is likely to be much less important for an economy with a large less rapidly growing modern sector. The relative rates of growth and size of the two sectors, and the extent of differences in technology will all influence the extent of labour market segmentation.

Second, although we have adopted a simplified dualistic framework, in practice we would expect a range of wage rates to be associated with continuous differentials in technology in most LDCs. Thus the contrast between high wages and stable employment in capital intensive firms and low wage labour intensive firms may be tempered by the addition of firms with intermediate levels of capital intensity. It is reasonable to expect greater mobility between these firms and both capital and labour intensive sectors, than directly between the capital and labour intensive sectors. It is likely also that changes in labour demand in the medium technology sector would also have a greater effect on wages in both of the other sectors.

Third, one other important qualification to the strict dualistic model of labour market segmentation is the addition of foreign firms. Higher capital intensity and labour management patterns specific to foreign firms (see above) are likely to contribute to even greater wage differentials with labour intensive firms than between domestic capital and labour intensive firms alone.

Summary and Conclusion

In this chapter we have developed a framework for the analysis of wage differentials in labour surplus LDCs. The chapter applies some of the theories of labour markets in

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[1] Indonesia is one example of a country which has experienced rapid growth in relatively capital intensive technology since 1967 in a small modern sector which contrasts with a relatively large labour intensive traditional sector.

developed capitalist countries to the analysis of wage differentials in dualistic manufacturing in LDCs. In particular, it is argued that theories of internal labour markets and labour market segmentation are of some relevance to the study of wage differentials in LDCs.

The second part of the chapter provides a conceptual framework for the empirical examination of wage differentials to be undertaken in the remaining chapters of the thesis. The analysis stresses the demand determinants of wage differentials. It suggests that interfirm wage differentials are likely to be caused mainly by patterns of labour demand associated with technology and foreign ownership. Specifically, internal decisions concerning the relationship between wages and labour productivity, the internal generation of modern sector skills, and an external shortage of these skills may all contribute to high wages in capital intensive firms.

Certain human capital and personal characteristics of workers, and institutional forces also could be expected to be associated with substantial wage differentials between capital and labour intensive firms. Since most foreign firms also tend to be capital intensive, these factors are also likely to reflect wage differentials between foreign and domestic firms. However it was noted that institutional forces may also have considerable effect on wage differentials between foreign and domestic firms.

It will be useful to summarise these various influences on wages in capital intensive firms diagrammatically. Factors contributing to high wages and the consequences of high wages in these firms are illustrated in a flow chart in Figure 3.7. The figure demonstrates the nature of causality and several of the relationships between variables. Three sets of factors contribute to high wages in capital intensive firms: high costs associated with underutilisation of expensive capital equipment and high turnover costs, a demand for scarce modern sector skills and low wage costs (or high profits). Trade union pressures are likely to result in higher wages in capital

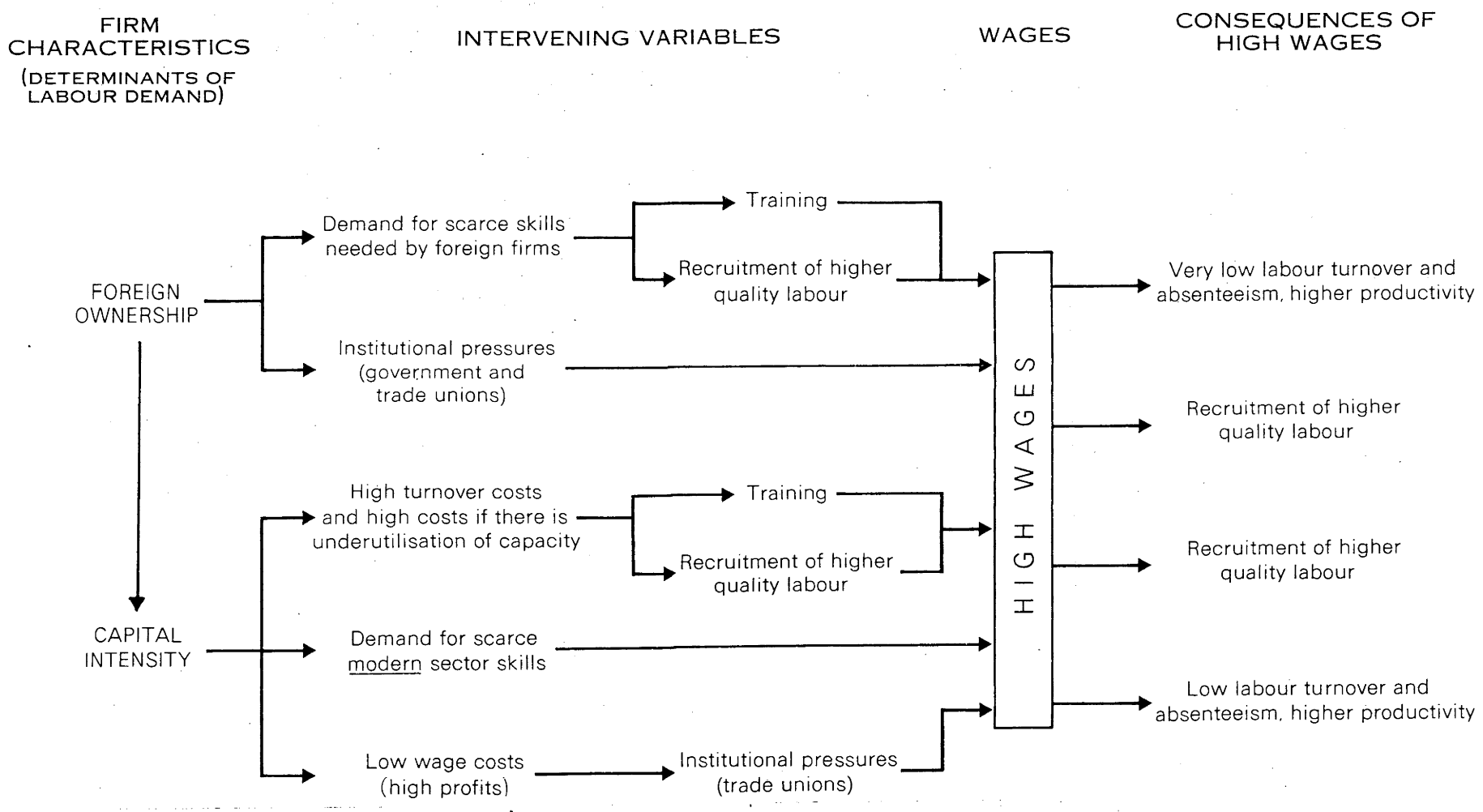

Figure 3.7: Factors contributing to high wages in capital intensive and foreign firms

intensive firms where wage costs are a small proportion of total wage costs or where profits are small. On-the-job and formal training organised by the firm contributes to both general, modern sector and firm-specific skills. In addition, capital intensive firms are likely to seek more educated and more able workers who can operate the new technology and who have the potential for upward mobility. Scarcity of these workers (or a social minimum wage) will induce capital intensive firms to offer them higher wages than those paid by labour intensive firms. However employment of educated workers may also be a consequence of the high wages paid in capital intensive firms. Educated and more able workers will tend to be selected first from long labour queues.

Most of these factors contributing to high wages in capital intensive firms will have a similar effect on foreign firms. But, as we have already noted, the figure shows two additional factors contributing to high wages in foreign firms. These were the demand for skills that are specific to the foreign sector and institutional pressures on wages in foreign firms.

A major task of the thesis is to test some of these broad propositions. We examine the extent to which interfirm wage differentials are associated with technology and foreign ownership and seek explanations for these differentials. Further, an attempt is made to discover the extent to which these wage differentials are associated with certain internal market factors, institutional and human capital factors. One important task of the empirical analysis is to examine the extent to which all three of these sets of variables are interrelated in their effect on wages.

In practice, because of data deficiencies and the complexity of some of the interrelationships between explanatory variables, rigorous tests could not be undertaken. But it is possible to examine the extent to which the pattern of wage differentials and various factors contributing to wage differentials are consistent with the general propositions advanced in this chapter.

The empirical examination of wage differentials in Indonesia is undertaken at two levels. Chapters Four to Six provide an overview of labour supply conditions, wage differentials and general institutional and historical influences on the wage structure in Indonesia. The survey conducted in these chapters examines at a very general level some of the propositions raised in this chapter. It also identifies several characteristics of Indonesian labour markets and wage systems - especially the influence of public sector wage systems, regional and male-female wage differentials and general institutional forces - which need to be taken into account in our more rigorous analysis of survey data in later chapters.

In Chapter Seven several specific hypotheses concerning the causes of wage differentials in the three industries are tested. Specifically we test (i) the extent to which wage differentials are associated with capital intensity and foreign ownership, (ii) the influence of human capital and some institutional variables on wages and (iii) the extent of the interrelationships between all these variables. The hypotheses are derived from the framework developed in this chapter and also take into account some of the specific characteristics of Indonesian labour markets discussed in Chapters Four to Six. The propositions are tested with survey data collected from three industries - weaving, machine made cigarettes and hand made kretek cigarettes - in Java.

Chapters Nine and Ten examine the relationships between several of these explanatory variables and their combined influence on wages in greater depth. Chapter Ten also investigates the extent to which high wages in capital intensive and foreign firms are associated with low rates of turnover and absenteeism. A concluding chapter discusses the major findings of the empirical analysis. It links this to both broader labour market patterns in Indonesia and to some of the major propositions raised in this chapter.

CHAPTER FOUR

AN OVERVIEW OF LABOUR MARKET CONDITIONS AND WAGE DIFFERENTIALS IN INDONESIA

Chapters Two and Three examined a variety of influences that have contributed to interfirm wage differentials in manufacturing in LDCs. We also suggested a framework of analysis for examining the influence of these factors on wage differentials.

This chapter raises some of the general issues discussed in the previous two chapters. It analyses secondary wage data collected in surveys and censuses in Indonesia. The chapter examines intersectoral, and interindustry and interfirm wage differentials and their association with new patterns of 'modern' sector growth and foreign investment. It deals with both the level and form of wage payment. The analysis is set in the context of an overall surplus supply of unskilled labour and a shortage of skilled labour in Indonesia and especially on Java. It also takes into account the influence of recent patterns of labour demand on manufacturing wage differentials.

Our survey of secondary data on wage differentials in Indonesia indicates that it is not possible to answer some of the major questions raised in Chapter Three from secondary data alone. A more rigorous testing of some of these ideas must await an examination of the findings of our field survey.

This chapter also provides a review of some of the major sources of wage data in Indonesia. There is no

such review of various surveys of wages in the literature on labour markets in Indonesia. Such a review is necessary both because of the wide range of source of data on wages and also the low quality of much of this data (see below). Although this survey in no way purports to cover all major sources of wage data,[1] it aims to provide a balanced summary of the major survey data pertinent to the questions raised in this thesis.

The chapter is divided into five major parts. The first two parts describe current labour supply and labour demand patterns with particular reference to Java. In the third part some major sources of intersectoral, interindustry and interfirm wage differentials are examined. In the fourth we look at interfirm differences in the form of wage payment. The final part investigates some labour supply influences (especially regional factors and male female differences) on wage differentials.

I. Labour Supply Conditions with Special Reference to Java[2]

Java is in many respects a classic example of a labour surplus economy. A high proportion of its population is employed in low productivity activities in agriculture and

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1 Since we are primarily concerned with interfirm wage structure, two major subjects in the field of wages - occupational wage differentials and changes in the level of wages over time - are given scant attention in this survey chapter.

2 Because our micro-study deals with wages in two industries in Java, this chapter will focus primarily on labour demand and supply patterns on Java.

non-agricultural activities in rural areas. The manufacturing sector is still relatively small and mainly encompasses small scale, labour-intensive activities in rural areas. Compared with many other LDCs, in the past 15 years urban growth has been relatively slow except for a few large centres of administration and trade. The major urban areas are characterised by much higher rates of unemployment than is recorded for rural areas. A plethora of low income 'informal' sector activities abound in Java's major cities. However, despite overall conditions of labour surplus, there continues to be a shortage of skilled and professional manpower.

Since approximately two-thirds of Indonesia's population is concentrated on Java, these patterns of labour surplus also apply to the majority of the Indonesian people. But the less sparsely settled outer islands differ significantly from Java in employment structure and in overall levels of rural and urban poverty. In this part we summarise the main features of labour surplus in Java: the concentration of employment in the agricultural sector and in low productivity activities in rural areas; high levels of seasonal demand for labour; and underutilisation of labour in both rural and urban areas. In addition we discuss briefly the problems of scarcity of skilled and professional manpower. A survey of these underlying patterns is essential for an understanding of the operation of labour markets and the determination of wages in the manufacturing sector.

1. Conditions of Labour Surplus and the Sectoral Distribution of the Labour Force

Surplus labour had already emerged as a major problem in Indonesia and especially on Java as early as the beginning of the 19th Century. Even at this time the small island of Java appears to have supported a population of 6-10 million with population density of 45-75 persons per square kilometre (McNicoll and Mamas, 1973:4; Pelzer, 1963:114-5). In the following century and a half Java's population increased at least sevenfold to reach 76 million in 1971 with an overall population density of more than 500 persons per square kilometre.

The very high levels of population density on Java are an important indicator of the low level of economic development mainly because a high proportion of the population is still engaged in the agricultural sector. The process of adaptation and overcrowding in agriculture on Java is well portrayed by Geertz in the term 'agricultural involution' which describes the development of increasingly labour-intensive and intricate methods of cultivation on 'lilliputan' Javanese farms (Geertz, 1963a). Throughout the colonial period a small proportion of the population left the agricultural sector in Java for high productivity activities especially in manufacturing or transmigrated to the outer islands. The proportion of the labour force in manufacturing in Indonesia (most of which is concentrated in Java) may have actually fallen between 1930 and 1961 and it has increased only slowly over the past 15 years. In September-December 1976 this sector still accounted for less than 10 percent of the employed population (Table 4.1).[1] It is not possible to give an accurate figure on the changes in the proportion of the labour force employed in agricuture over the

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[1] This proportion is slightly lower than the proportion of the labour force in manufacturing in neighbouring South-east Asian countries with large agricultural export sectors. For example, the proportion of the labour force in manufacturing in the Philippines was 11-12 percent (1971-72) and Thailand 11.0 percent (1976) (ILO, 1974:395-6). Although the broad dimensions of the distribution of the labour force between sectors and regions in Indonesia are fairly clear, consistent quantification of these magnitudes is complicated enormously by changes in definitions of the labour force, enumeration conducted at different stages of the agricultural cycle and different methods of coding data in successive censuses since 1931 (see Jones, 1966, 1974, 1978). The problem of seasonality is particularly important for the SUPAS (intercensal) labour force data which was collected in the busy agricultural period of March compared with the 1961 and 1971 Censuses and the national labour force data (SAKERNAS) which were all collected in the relatively slack period September-December.

Table 4.1: Proportion of employed population by sector, 1971-76[1]

Sector	Java		Outer Islands		Indonesia	
	1971	1976	1971	1976	1971	1976
Agriculture	62	58	76	68	67	62
Trade	13	16	7	11	11	14
Services	11	11	9	10	10	11
Manufacturing	8	9	4	7	7	8
Other	6	6	4	4	5	5
Total	100	100	100	100	100	100
N (million)	24.7	31.9	12.9	15.4	37.6	47.3

[1] Cases in which sectors were unknown allocated pro rata between all sectors. Data for 1976 excludes parts of West Timor, Maluku and Irian Jaya.

Source: Indonesia, Population Census 1971, Series E; SAKERNAS (1978):Table 14

intercensal period 1961-71.[1] But it is clear that the absolute number of people employed in agriculture has continued to rise in both Indonesia as a whole and Java.[2] However, probably as a result of relatively rapid rates of economic growth, the proportion of the employed population in agriculture appears to have begun to decline quite significantly over the past 5 years (see Table 4.1).[3]

2. Distribution of Employment Between Urban and Rural Areas

The high concentration of non-agricultural employment in rural areas in Java may be viewed as one indication of how the

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1 The figures are unreliable mainly because of changes in the census definitions of employment. The 1961 census defined employment as those currently working or having worked 2 out of the past six months. In 1971 the definition of working was changed to include only those working two days or more in the week prior to the census; in addition a question was asked to take account of agricultural seasonality by asking the respondents whether they worked in agriculture (at all) in the last season. Comparison of the 1961 agricultural employment figure (which takes seasonal employment in agriculture into account) and the 1971 one week reference period figure suggests that the population engaged in agriculture fell by as much as 7.5 percent over the ten year intercensal period for Indonesia as a whole (and by 5.8 percent for Java). However an adjusted figure estimated by Jones (1978:19, 24) which also takes into account seasonal employment in agriculture in 1971, suggests that the proportion of the work force in agriculture was virtually unchanged at 73 percent over the 1961-71 period.

2 The most conservative estimate of all Indonesian employment in agriculture in 1971 (according to the one week reference period) records an increase of the agricultural work force of 1.2 million compared with 1961. Over the following five years the agricultural work force is estimated to have risen a further 4 million to reach 29.1 million in September-December 1976 (Central Bureau of Statistics, 1978b:Table 14).

3 Table 4.1 also shows that a relatively high proportion of non-agricultural employment was in trade and services. These proportions were larger for Java than the outer islands and probably reflect both the concentration of modern sector activity in Java and also the spillover of surplus population into relatively low income informal sector activities.

population has responded to increasing population pressure and, until very recently, relatively slow rates of economic growth.[1] In 1976 just over two-thirds of Java's population employed in activities outside agriculture lived in rural areas. The proportion was highest for manufacturing (77 percent) and trade (73 percent) (Table 4.2). A higher proportion of non agricultural employees living in rural areas suggests greater population pressure on agricultural resources in Java compared with the outer islands. The contrast between Java and the outer islands was especially marked in the quite large trade sector.[2]

There are other indicators which suggest that urban employment has played a relatively unimportant role in labour absorption in Java over the past 15 years. Despite the rapid growth of a few centres - primarily Jakarta and Surabaya - urban growth in Java appears to have been slow compared with other regions of Indonesia and many other LDCs. Over the entire intercensal period 1961-71 the proportion of the Indonesian population in cities with populations of 100,000 or more increased only slightly (9.9 to 11.4 percent). Much of this growth was due to quite rapid expansion of several outer island cities and a few major cities in Java. On the other hand, quite a large number of cities in Java recorded rates of population growth of less than the overall Java average (approximately two percent) for the 1961-71 period (McNicoll and Mamas, 1973:29-32, 47).[3]

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1 Of course the relatively high percentage of the non-agricultural labour force living in rural areas is partly the result of a large proportion of the total labour force living in rural areas.

2 However the differences between the provinces of Java were not large. The data appears to suggest that to the extent that the concentration of non-agricultural employment in rural areas is a reaction to conditions of rural poverty, this response has been relatively uniform throughout Java.

3 Only three of 14 outer island cities with populations of 100,000 or more recorded growth rates of two percent or less and just on half achieved growth rates of three percent or more. This contrasts with 11 of the 15 Javanese cities which

Table 4.2: Percentage of non-agricultural employment in rural areas, 1976

Region	Major sectors				All non-agricultural employment[1]
	Manufacturing	Trade	Transport	Services	
	Percentage of all non-agricultural employment situated in rural areas				
Central Java	88	81	74	68	80
Yogyakarta	88	67	47	65	74
West Java	81	84	66	69	78
East Java	73	80	59	62	72
All Java[2]	77	73	55	56	68
Outer Islands	80	62	52	54	62
Indonesia	77	70	54	56	66

[1] Excludes 'other'

[2] Includes Jakarta

Source: SAKERNAS (1978):Tables 14.6-14.9

Given the slow rate of growth of population in urban areas in the period 1961-71, it is reasonable to expect that employment in urban manufacturing would not have grown very rapidly over this period. Indeed it is clear that recent growth in employment in urban manufacturing has had little effect on the share of the non agricultural work force living in urban areas.[1]

3. Seasonality

Seasonal changes in employment and hours of work are another important characteristic of labour markets in Indonesia.[2]

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3 (continued)
recorded growth rates of two percent or less and only two cities (Jakarta and Surabaya) which registered growth rates of three percent or more (McNicoll and Mamas, 1973:47).

1 Surprisingly, the 1971 Census recorded a decline in the absolute size of the urban work force employed in manufacturing. Although manufacturing employment in urban areas has probably grown quite slowly, it is unlikely that it declined over the period 1961-71. Several factors help account for the unexpected decline recorded in the official figures. Changes in the definition of employment and in classification procedures in 1971 could have led to understatement of the size of the total population and the manufacturing work force in both urban and rural areas in 1971. Sundrum (1975) has also suggested that 'spillover' of manufacturing employment into rural areas may help explain the pattern. Another explanation may be found in Hugo (1978: 98-115) who stresses the role of commuting and circular migration in urban employment patterns in West Java. It is quite likely that, partly as a result of the growth of transpc facilities, these patterns of employment have increased considerably since 1961 and that many commuters and circular migrants were enumerated in rural areas (or were assigned back to rural areas because of a six month rule of residence).

2 The overall importance of seasonality on employment patterns may be seen from (1) comparison of the 1971 Census data on employment in agriculture in the last week with employment recorded for the last season, and (2) comparison of the March 1976 SUPAS (busy season) data on the total agricultural population with the September-December SAKERNAS (slack season) findings. Although comparisons of these sources suffer from several drawbacks because of data problems (see above), the magnitude of seasonal changes in agricultural employment which they record are so large that they leave no doubt as to the importance of seasonal labour demand patterns on employment structure in Indonesia.

The 1971 Census question on whether respondents had worked in agriculture in the past season provides the broadest possible definition of agricultural employment; responses to this question recorded a dramatic 50 percent increase in the proportion of the agricultural work force in Java compared with the number employed in agriculture according to the one week reference period.[1] The data suggests that seasonality in agricultural employment is much higher in Java than in the outer islands.[2] This probably reflects the concentration of smallholder, annual crops (which are likely to suffer more from seasonal patterns than estate production and perennials) and also a much more fluid labour market in Java.

Several points should be noted concerning these seasonal patterns. First, a large proportion of the increase in seasonal employment in agriculture consisted of women. In all cases women accounted for approximately 60-70 percent of the total increase in agricultural employment (yet women comprised only 30-40 percent of total employment in agriculture in relatively slack periods). Second, in 1971 nearly 80 percent of the increase in employment according to the 'last season' question were not included in the labour force at all for the one week reference period; this suggests that a high proportion were probably housewives and to a less extent students or were classified as 'other'. They were not employees previously

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1 The difference between the slack season September-December and the busy season March 1976 enumerations of the agricultural work force was much smaller. Nevertheless, they suggest higher agricultural employment in Java of approximately 24 percent in the busy period March (23.2 million) compared with September (18.6 million).

2 The proportion of the labour force recorded in agriculture in Java in the last season was fifty percent higher than that recorded in agriculture during the one week reference period. In contrast, in the outer islands the recorded increase for the last season question was less than 25 percent higher than for the one week reference period.

working in other sectors (Jones, 1978:20-2). Finally, a high percentage of seasonal employees in agriculture appear to be unpaid family workers. Contrary to what one might assume, increased labour demand at certain periods in the agricultural cycle is not dominated by a marked increase in demand for wage labourers relative to other kinds of agricultural labour.[1]

One other important aspect of seasonality in labour demand in agriculture is the relative underutilisation of labour in slack periods. The contrast in hours worked in agriculture in the busy period in March 1976 compared to September-December 1976 illustrates this point. In the relatively busy period of labour demand in March 1976 less than six percent of all agricultural workers were recorded as working less than 10 hours a week and 27 percent worked less than 25 hours; in September-December the proportion working less than 10 hours had almost tripled and almost 40 percent worked less than 25 hours (Indonesia, Central Bureau of Statistics, 1978a:Table 16; 1978b:Tables 5.7-5.9).

4. Underutilisation of Urban and Rural Labour

Underutilisation of labour is one salient feature of labour markets in LDCs and particularly in overpopulated, labour surplus economies. In many LDCs there is a familiar pattern of relatively high rates of open unemployment in urban areas and underemployment in rural areas (Turnham, 1971). This pattern is also found in Indonesia and particularly in Java. Here we will examine some dimensions of these problems with special reference to conditions in Java.

Open unemployment is considerably higher in urban than in rural areas in Indonesia as a whole and also in Java. In 1976

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[1] Although as we shall see in later chapters, seasonal demand for labour in agriculture had quite a marked effect on the supply of labour available for employment in segments of the weaving and kretek industries.

overall unemployment in urban areas was recorded at 5-6 percent with males registering rates of unemployment closer to 7 percent and females much lower rates.[1] Although these unemployment rates were well above those recorded for rural areas, they were not high by LDC standards.[2] The rather modest levels of unemployment in urban areas especially in Java may in part be the result of the very generous definition of employment used in both 1976 surveys.[3] But they may reflect also a wider range of 'informal' sector earning opportunities in Java's cities compared with many other Third World cities especially in Africa and the Pacific Islands.

Unemployment was not distributed evenly within the provinces of Java. Paradoxically, higher rates tended to prevail in the more rapidly growing regions of Jakarta, West Java and East Java than in Central Java and Yogyakarta.[4]

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1 The urban unemployment rates recorded in the 1976 intercensal survey in the relatively busy season (March) were slightly lower (5.5 percent for both sexes for all Indonesia) than recorded in the relatively slack months of September-December but the difference was small.

2 Owing to differences in definitions and in the months and years of coverage, international comparisons of unemployment are likely to be of limited usefulness. Nevertheless, bearing these shortcomings in mind, we mention data from several countries to place the Indonesian figures in some international perspective. Several countries (India, Thailand, Taiwan) have recorded urban unemployment rates of less than five percent but in several others rates of 10-15 percent are more common in urban areas. For example, the Philippines recorded rates of 10.8 percent (including 12.4 percent for males) in 1972, Malaysian unemployment was 11.6 in metropolitan towns (1967) and Sri Lanka recorded rates of as high as 15 percent for all urban areas (1969) (ILO, 1974:6; Turnham, 1971:49, 57).

3 Respondents were enumerated as unemployed if they worked at least one hour in the reference week.

4 In September-December 1976 urban areas in West Java recorded the highest rates (6.7 percent) followed by East Java (6.4 percent) and Jakarta (6.1 percent); these regions contrasted with the lower rates for Central Java (4.5 percent) and Yogyakarta (3.7 percent). The 1972 labour force survey found considerably higher unemployment rates in the three major cities of Java (Jakarta, Bandung and Surabaya) than recorded for urban areas in any province of Java in 1976. According

The difference between various urban areas of Java may partly be explained by the higher proportion of more educated people in these cities (unemployment rates tended to be higher among the more educated, see below). But it probably also reflects the greater willingness of the urban population (and rural urban migrants) to endure open unemployment in the hope of obtaining a high paying urban job sometime in the future. Thus a very superficial overview would tend to suggest that the Harris-Todaro model of rural urban migration may help to explain differential rates of unemployment in urban areas in Java.

Underemployment (measured by hours of work) does not appear to have been a major problem in Java's cities. In September-December 1976 only 7.6 percent of the urban workforce were employed for less than 25 hours a week. Indeed long hours of work were recorded by a much higher percentage of urban employees: nearly 30 percent of Java's urban employees worked 60 hours or more during the reference week (Table 4.3).[1] This pattern of long hours of work was much more marked in Java than in the outer islands. In Java there are probably greater opportunities than in most outer island provinces for relatively low paid jobs with long hours of work in the informal sector.[2]

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1 (continued)
to this survey, unemployment rates were 14 percent in Bandung, 12 percent in Jakarta and 9 percent in Surabaya (Lembaga Demografi, Universitas Indonesia, 1974:16). The large difference with the 1976 figures is partly accounted for by the broader definition of employment used in 1972 which covered a minimum of two days work in the reference week.

1 Although there were not marked differences in hours worked in towns in the various provinces of Java, the capital Jakarta recorded slightly lower underemployment and also a slightly smaller percentage of persons working long hours. As might be expected, the relatively poor region of Central Java recorded the highest proportion (31 percent) of employees working 60 hours or more a week.

2 The 1972 survey of Java's three major cities supports these findings of long hours of work in Java's urban areas. It found that 29 percent of the employed work force in Jakarta and Bandung and 23 percent of Surabaya's urban employed worked more than 60 hours a week (Lembaga Demografi, Universitas Indonesia, 1974:33). In all three cities the highest

Table 4.3: Hours of work a week in urban areas, Java and the Outer Islands, Sept.-Dec.1976

Hours of work	Male	Female	Both sexes
	Percentages		
Java			
< 25	5.4	12.6	7.6
25-34	7.0	10.4	8.0
35-59	62.3	44.9	56.9
60 +	25.3	32.1	27.5
Total	100	100	100
Outer Islands			
< 25	6.6	17.8	9.3
25-34	9.2	18.6	11.5
35-39	63.6	48.8	59.9
60 +	20.6	15.0	19.3
Total	100	100	100
All Indonesia			
< 25	5.8	14.0	8.3
25-34	7.8	12.8	9.2
35-39	62.8	46.1	57.9
60 +	23.6	27.1	24.6
Total	100	100	100

Source: SAKERNAS (1978):Tables 15.1-15.9

The characteristics of the urban unemployed in Indonesia were also similar to those reported in other countries (Turnham, 1971:47-56). A high percentage of all unemployment occurs in the 10-24 and to a lesser extent the 25-29 age groups. In these two age groups unemployment was much higher for both males and females than for any other age group. In September-December 1976 the age group 15-24 accounted for approximately 75 percent of all unemployment in urban areas (Indonesia, Central Bureau of Statistics 1978b:Table 6.1). Unemployment rates were also much higher for the secondary educated in urban areas than for those with primary or less than primary education.[1] Poorer, uneducated and older workers with families cannot afford the luxury of unemployment in most LDCs.

Several other dimensions of the problem of surplus labour in Java's cities cannot easily be quantified. Several writers have drawn attention to the importance of rural urban links for many employees living in both urban and rural areas. (See especially Hugo, 1977, 1978; Papanek, 1974; Temple, 1975; Jellinek, 1978a.) It appears that employment through commuting and circular migration is a major source of income especially of people living in villages close to the major cities or for others who are prepared (or forced) to leave their villages in search of jobs. Incomes earned

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2 (continued)
proportion of employees working long hours was recorded among own account workers and unpaid family workers. These groups are most likely to be found in informal sector activities.

1 Jones has observed that the cut off point tends to come at the level of completed primary education above which unemployment rates rise considerably, especially for the lower and upper secondary educated (Jones, 1978: 23-4).

by these urban workers appear to make a major contribution to the welfare of their families living in rural areas.[1] Improved transport facilities have probably increased the possibility of rural people earning incomes in larger cities. Nevertheless the majority of rural households has probably been little affected by new income earning activities in urban areas.

As has been mentioned above, patterns of rural underutilisation of labour differ considerably from those in urban areas. Rates of rural unemployment recorded in SAKERNAS in 1976 were only one-two percent in both Java and the outer islands. However approximately 20-22 percent of the rural employed worked less than 25 hours a week and 36-40 percent worked less than 35 hours. A much smaller percentage of the employed in rural areas worked long hours compared with hours of work recorded in urban areas.

Overall it appears that underutilisation of manpower was a much more serious problem in rural than in urban areas. In Table 4.4 we have computed a summary measure of rural underutilisation.[2] Overall rates of underutilisation were 22 percent for males and a much higher 37 percent for females if

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1 Hugo (1978:264-76) found that 30 percent of all income earned by circular migrants in West Java was spent on remittances to their families in rural areas and that these payments contributed approximately half of all household income in the recipient households. The contribution of permanent migrants to their families who remained in the village was smaller (though still quite substantial) and that of commuters understandably slightly higher. See also Papanek (1974:17- 8) and Jellinek (1978a:152).

2 In addition to the unemployed and underemployed, data on the proportion of the work force recorded as temporarily not working are also included in Table 4.4. In rural areas this figure probably includes many of the seasonally unemployed.[2] The proportion of the workforce temporarily unemployed is very much higher than the percentage recorded as unemployed but much smaller than the percentage of

Table 4.4: Unemployment, temporary unemployment and underemployment in rural areas in Java, Sept.-Dec. 1976

Unemployment/underemployment	Male	Female	Both sexes
	Percentage of labour force		
Unemployment	1.6	1.0	1.3
Temporarily unemployed[1]	6.1	8.3	6.9
Underemployed: < 25 hours work	14.3	27.8	20.8
Sub total I	22.0	37.1	29.0
Underemployed: 25 - < 35 hours	12.6	17.7	15.7
Sub total II	34.6	54.8	44.7

[1] Normally employed persons temporarily not working because of leave, sickness, temporary closure of enterprise etc.

Source: SAKERNAS (1978):Tables 11.1-11.9, 15.1-15.9

less than 25 hours is used as the measure of underemployment; it was substantially higher if all those working less than 35 hours were recorded as underemployed.[1]

In this section we have attempted to describe the major characteristics of labour surplus in Indonesia and especially in densely populated Java. Such a task has been made more difficult both by the inadequacies of macro labour force data in Indonesia and, more importantly, by the shortcomings of macro data in adequately describing patterns of labour underutilisation.[2]

Despite these shortcomings, we can conclude that all major indicators - population density, the sectoral pattern of employment, rates of unemployment and underemployment - point to a relative abundance of unskilled labour especially in Java.

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2 (continued)
the rural labour force working low hours. It should also be noted that the percentage of the labour force recorded as temporarily out of work was much smaller in urban areas. Given the more formal nature of many employment relationships in urban areas it is likely that this figure includes quite a high proportion of persons on leave (either annual leave, special leave or leave owing to sickness) in urban areas.

1 Data from the LEKNAS 1976 survey of labour utilisation in three urban and rural locations in Java support these overall findings. Over half the surveyed males and over 70 percent of t females in rural areas were recorded as underutilised according to at least one of three criteria of labour underutilisation (unemployment, insufficient hours of work and insufficient income) used in the study (Redmana et al., 1977 104-5). Whereas relatively high rates of open unemployment were a major factor contributing to underutilisation in urban areas, low hours of work had a much greater influence on overall rates of underutilisation in rural areas; over 20 percent of underutilisation of males and females in rural areas occurred because of low hours of work alone.

2 The problems of comparability of data between countries and reliability of data on labour force and unemployment are discussed in Turnham (1971:25-7, 41-7).

In addition we have identified three major divisions within the labour market which are likely to be particularly relevant to this study of labour markets and wages. There were sharp differences especially in labour utilisation (1) between rural and urban areas (2) between various regions in Indonesia and within Java and (3) between males and females. The differences between rural and urban areas were particularly marked. Temporary unemployment and seasonal variation in hours of work and incomes, underemployment and even low incomes are all much more severe problems for the rural population than for urban dwellers. Although this study is principally concerned with the wage structure of urban workers, the rural sector is a major influence on the supply price of labour in urban areas and provides the pressure for urban and manufacturing jobs.[1] In the last section of this chapter we will look specifically at the nature of urban rural, interregional and male female wage differentials associated with the contrasting patterns of labour utilisation described in this section.

5. Shortage of Skilled and Professional Manpower

The relative scarcity of skilled and professional manpower is particularly relevant to the existence of wage differentials within the manufacturing sector. It was largely the result of policies adopted by the colonial government but has been greatly exacerbated by recent rapid economic growth and the inflow of new technology into Indonesia.

Because of data deficiencies it is difficult to document the extent to which there are shortages of skilled and professional manpower in Indonesia. This problem has been a continuing theme in studies of the Indonesian labour market since independence. The situation has probably worsened in a number of 'modern' sector occupations since 1967. We will briefly note the dimensions of this problem.

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[1] See the discussion of the Lewis model in Chapter Two.

The shortage of skilled manpower was exacerbated in the colonial period by policies followed by the Dutch government. Employment in skilled and professional jobs in the private sector were monopolised by Europeans (or Eurasians) until the end of the colonial era in Indonesia. Less than 20 percent of all upper level jobs (earning more than 100 guilders a month) were held by Indonesians and only 6 percent of the most senior jobs were held by Indonesians in the late 1920s (Kahin, 1952:30,35) Expansion of Western education opportunities increased the proportion of Indonesians in the public service especially in the 1930s. But at middle and upper levels they were unable to compete with Europeans (and Eurasians) who held almost 60 percent of middle level positions and over 90 percent of higher positions in 1938. On the estates Indonesians held lower administrative positions, learned trades as carpenters, mechanics and stonemasons. Some were appointed as foremen but very few Indonesians performed professional, supervisory or managerial jobs (Wertheim, 1956:209-10). The Dutch did attempt to expand technical training opportunities for Indonesians in the final years of colonial rule. But there were few opportunities for employment of graduates Furnival points out that such attempts were doomed to failure because of the failure of the Dutch government to promote modern sector development on a scale to absorb new graduates (Furnival, 1939: 372-4).[1]

Large wage differentials by skill level in some sectors give some indication of the relative scarcity of skilled manpower in Java. On estates the differential was only 2.0-2.5:1.0 between skilled and supervisory manpower and unskilled labour (Coolie Budget Commission, 1956:68-9). But in Batavia skilled manpower earned approximately three times

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[1] Despite quite a marked expansion of modern sector employment opportunities after 1935, skilled Indonesians still had to compete with Dutch, Eurasian and Chinese employees; Europeans were preferred by employers both in the private and public sectors (Kahin, 1952:33).

the wages of unskilled workers, and in Madura the differential was as large as 5:1 for some categories of skilled worker (NEI Central Bureau of Statistics, 1958:92-3; Pillai, 1947: 180-1). These differentials were similar to (or even a little larger than) differentials in other LDCs (Taira, 1966:286-7; Turner, 1965:16).

The exodus of Dutch and Eurasian employees, government spending on public works and construction, and efforts to stimulate Indonesian businesses all must have put upward pressure on the wages of skilled employees in the early independence period. Hawkins records skill differentials in various sectors of the economy of 3-4:1 in the 1950s (Hawkins, 1962:109-10). The expansion of schooling, especially of technical schooling and tertiary education, may have tended to counter forces which widened differentials in the 1950s. But the nationalisation of Dutch businesses and later of other foreign interests in Indonesia exacerbated the problem of shortages of skilled manpower. Both Lim (1962) and Hasibuan (1962:38) report that shortages of skilled manpower, especially of supervisory and managerial staff with appropriate experience and education, were a major problem on East Sumatran estates after nationalisation in 1957. Glassburner (1965:189) has noted the small proportion of the population that had received tertiary education in Indonesia by the early 1960s compared with several other LDCs. Government attempts to reduce skill differentials, the decline of real wages during hyperinflation and the increased welfare orientation of the wage system (which also tended to reduce differentials) must have all tended to further contribute to shortages of skilled labour during the late 1950s and early 1960s.[1]

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[1] The 1959 salary regulations covering all estate workers aimed at reducing skill differentials (Lim, 1962:12-3).

Since 1965 it is likely that differentials for skill, at least in the modern sector, have tended to widen. New investment in a wide variety of fields has brought a rapid increase in the demand for skilled labour. Scanty information from a variety of sources suggest that skill differentials continue to be 3-4:1 in the private sector of the economy. Acute shortages of highly skilled manpower - accountants, secretaries, specialist engineers - has probably contributed to greater inequalities between various groups of wage earners.[1] Difficulties in the recruitment of employees by large scale firms appear to have been most acute for technical, managerial and professional employees (ILO and Indonesia. Dept. of Manpower, 1975:36-7). A conference on problems of manpower in Indonesia in 1972 reported a shortage of a wide range of semi skilled and skilled manpower (carpenters, bricklayers, mechanics, draughtsmen) and professionals (surveyers, designers, architects, civil engineers). (Sinar Harapan, 27/7/72:14).[2] The problem is of both a qualitative and quantitative nature. The 1972 ARTEP report notes that low qualifications and the low quality of training received by skilled workers further contributes to the shortage (ARTEP, 1972:37-8). This helps explain the very high premium captured by skilled employees or professionals trained abroad or with international experience.

II. Changes in Labour Demand Patterns since 1965

The wage structure in Indonesia has been greatly influenced by the nature of labour demand patterns that have emerged since

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1 A recent government report (1977) quotes from a Business International report that qualified managers, entrepreneurs and secretarial and accounting personnel are all in short supply. As a result wages of skilled staff are, according to the report, 'surprisingly high, even by international standards

2 The conference recommended training of vocational graduates in firms, more vocational courses for SLA and SD graduates and the establishment of a vocational training institute.

1965. Since these labour demand patterns play a central role in the analysis of wage differentials in this thesis, it is necessary to summarise the main dimensions of recent economic change and to set them in the context of the existing economic structure especially in the manufacturing sector.

The major dimensions of Indonesia's economic recovery and growth since 1965 need be only briefly mentioned here.[1] Following a period of falling incomes and output in the period 1950-1965, national income rose by 6-8 percent (all rates in real terms) annually in the following decade. Manufacturing output, mainly directed towards import substitution, increased by approximately eight percent a year in the 1965-70 period and a much higher 15 percent in the following five years. Mining output rose even faster and increased from less than 3 percent in GDP in 1968 to nearly 20 percent in the mid-1970s; the latter was achieved partly by large increases in production and exports of oil and other major minerals but it was also partly the result of the boom in oil prices in the early 1970s.

These very rapid rates of growth compared with previous periods were associated with a dramatic increase in the share of investment as a proportion of GDP from approximately 5 to 20 percent. The rise in the investment/GDP ratio has partly been the result of rapid inflow of foreign private investment since 1967; these flows have been particularly significant in manufacturing (especially textiles and chemicals), minerals and forestry (McCawley, 1979:11). But relatively stable prices, easier credit and protection have also stimulated domestic investment which has grown rapidly in modern manufacturing since the domestic investment law came into force in 1968.

It is important to note, especially for the study of labour markets, that the new investment has been highly concentrated geographically. Jakarta has been the major

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1 The details of economic changes in the New Order period have been summarised by McCawley (1978) and in various surveys of recent developments in the Bulletin of Indonesian Economic Studies.

recipient of new foreign and domestic investment; just under one-third of foreign investment projects and 27 percent of domestic investment under the domestic investment law have been located in the capital (McCawley and Manning, 1976:36).[1] Jakarta and West Java together received approximately 50 percent of all these new investment projects, a further 20 percent going to the other two provinces of Java and approximately 30 percent going to the Outer Islands of Indonesia. Jakarta and Java's share of manufacturing investment is even higher as almost all new investments in mining and forestry are located in the Outer Islands and there has been little new manufacturing investment in most of these regions. The Java-Outer Islands contrast in manufacturing development is both a reflection of concentration of consumer demand and better infrastructure, and also a relative labour surplus in Java. In all three major categories of industrial workers - large and medium, small and cottage industries - Java has considerably more employees in manufacturing relative to its population than any of the major Outer Islands (McCawley, 1979:20-1.)[2] McCawley (1979:19) concludes that in most provinces in the outer islands 'there is hardly any modern industrialisation to speak of at all'.

Not only has the modern sector grown considerably since 1965 but the character of dualism has changed. Paauw's description of the modern sector mainly consisting of plantation agriculture and mining is no longer apt (Paauw, 1963:172). Enclave investment in oil, mining and timber has become much more important to the economy than in the 1950s and 1960s. But foreign investment now also plays a major role in banking and in the services sector. More relevant to this study, foreign

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1 It should be noted that all figures on foreign investment exclude the important oil and banking sectors.

2 Even in the large and medium category the proportion of the population engaged in manufacturing compared with total population was over six times higher in Java than in Sumatra and Kalimantan, and 17 times higher in Java than in Sulawesi (McCawley, 1979:22).

investment and technology now play an important role in manufacturing especially in the major cities in Java. The new investment has brought modern technology into established sectors such as weaving, batik (printing) and rubber (crumb rubber), and has also flowed into a wide range of newer, relatively capital intensive (by Indonesian standards) activities.[1]

Despite these differential rates of growth between relatively modern and more traditional industries, a high proportion of the manufacturing work force continues to be employed in the more traditional and agricultural based industries. In the large and medium scale sector, the seven traditional and agricultural industries mentioned above (including more capital intensive investment in weaving, batik and rubber) accounted for just under half of all employment in Indonesia and 55 percent of employment in Java in 1974-75 (McCawley, 1979:26).

The importance of traditional labour-intensive activities in the manufacturing sector is apparent from the very high proportion of the manufacturing work force concentrated in cottage industries. In 1974-75 the various industrial surveys found that just under 80 percent of the manufacturing work force was in cottage industries, seven percent in small scale establishments and only 13.5 percent in large and medium establishments.[2] Cottage industry was heavily concentrated

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1 The direction of the investment may be seen by the quite dramatic increase in production of selected industrial products in metals and machinery (especially batteries, light bulbs and assembly of cars, motor cycles, and TV sets), 20-30 percent annual growth rates of major chemicals (fertiliser, cement, paper, tyres) and quite rapid increases in yarn and cloth production (McCawley, 1979:8). However growth has been much slower in traditional industries such as kretek, batik and small mechanised or non-mechanised weaving, and in the agricultural based industries - tobacco, rubber and tea.

2 The official definitions are as follows: large and medium cover firms with 20 or more employees, small covers those with 5-19 employees and cottage industries include firms with less than five employees.

in Java where just over two-thirds of the work force was employed in three industries - bamboo and rattan, coconut sugar and tahu and tempe (soya bean cakes) (McCawley, 1979: 25-8).[1] These figures are consistent with concentration of the manufacturing labour force in rural areas and the relatively high proportion of females employed in rural manufacturing. According to the intercensal labour force survey over 80 percent of the manufacturing labour force was concentrated in rural areas and slightly over half of these were female.

Thus modern manufacturing has been grafted onto a largely traditional, labour-intensive and low productivity manufacturing sector. The much larger modern manufacturing sector and the greater range in technology in manufacturing has contributed to a more dualistic structure compared with before 1965. However even with the reasonably rapid growth rates of modern manufacturing employment, the size of the work force in modern industries will continue to be much smaller than employment in traditional activities for many years. Moreover the impact of modern sector manufacturing development on overall employment structure and conditions of labour surplus especially on Java has not been large. As we have seen in the first part of this chapter, absolute employment has continued to rise in the overcrowded agricultural sector and the proportion of the labour force in total manufacturing has risen only slightly over the past decade.

The labour demand and supply patterns described above and in Section I of this chapter would be expected to exert opposing influences on the level and structure of wages. Rapid increases in labour demand in certain sectors and locations would be expected, at least in the short run, to widen interfirm wage differentials. On the other hand continuing labour surplus

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[1] These three industries alone account for just on half of total manufacturing employment in Indonesia and probably a slightly higher proportion of Java's work force.

is likely to provide a dampening effect on any wage increases, especially of unskilled labour. The extent to which the latter is effective in reducing interregional, intersectoral and interindustry differentials will depend, of course, on mobility within the labour market, and the extent to which labour demand patterns respond to labour market conditions.

In the following sections of this chapter we make use of secondary wage data to indicate the relative influence of some of these forces of supply and demand on the overall wage structure. In the next section intersectoral, interindustry and interfirm wage structure will be examined. We will then look briefly at forms of wage payment and in the final section at the influence of location and sex on wage structure.

III. The Structure of Wages

Several sources suggest that there is a wide range in wages between various sectors and between industries in the manufacturing sector in Indonesia. In the literature on wage differentials in Indonesia and in LDCs three major explanations are usually given for these large and often bewildering differentials. First, they are attributed to imperfections in the labour market, chiefly to slow and imperfect supply response owing to poor communications, imperfect knowledge and relative immobility of sections of the work force. The latter in particular may be influenced by familial, ethnic and other social forces influencing recruitment and labour allocation (Leiserson, 1974:349). Second, they are explained by the different rates of growth and differences in the nature of labour demand in various sectors of the economy and in different types of firm. Finally, some of the large variations have been accounted for by the low quality of data and research in the field of wages. In most countries accurate wage data are extremely difficult to obtain. In Indonesia this problem is

compounded by the plethora of allowances and fringe benefits made available to workers, and the poor quality of much of the research that has been carried out in this field.[1]

In this section we examine the degree to which different demand patterns by sector and industry play a role in determining wage differentials.[2] There is some evidence that imperfections and social constraints on the supply of labour have affected the wage structure. But overall it appears that labour supply is responsive to wage differentials and job opportunities. Unfortunately most studies of wages do not provide sufficient information on the skills of employees and other characteristics of firms which might enable an examination of the importance of demand factors. Some data on wage differentials by ownership group suggest that foreign investment does have a major influence

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1 Secondary wage data present two major problems. First, the coverage of various allowances, payments in kind, bonuses, overtime and the value of facilities provided by firms varies considerably from one source of data to the next; even for the same survey the anomalies in data suggest that in many cases individual firms have reported these items differently. The problem is likely to be greater for large scale surveys and for those that collect data on a wide range of occupational differentials. Given the great variation between firms in the proportion of total wages paid in the form of basic rates, allowances and other fringe benefits (see below), differentials within and between samples need to be interpreted with considerable care. Second, data collected regularly by the Department of Manpower and in various surveys are often based on quite different samples and tend to exhibit certain biases in the samples chosen. Wage data collected regularly by the Department of Manpower provincial offices and compiled in Jakarta appear to vary greatly in their coverage - some include only domestic owned firms, others include a high proportion of foreign enterprises. Almost all surveys tend to be biased towards larger firms in urban areas and few make their sampling methods explicit. An appendix to this chapter gives details of the various sources of wage data used and the shortcomings of each.

2 This task was made difficult by the poor quality of much of the secondary data on wages. We attempted to guard against inconsistancies in the data and the biased or inadequate coverage of wage surveys by looking at all possible sources on a particular subject.

on wage structure but we are unable to take the analysis much further than this. This task will be taken up in the analysis of micro data in later chapters.

1. Intersectoral Wage Differentials

There are quite large intersectoral wage differentials in Indonesia. Several sources indicate that wages in agriculture are considerably lower than in other sectors of the economy. On the other hand, wages in mining and, to a lesser extent, in banking and finance are much higher than in other sectors. The differentials generally conform with the experience of other countries (Berg, 1969) and with what might be expected from the discussion of rural urban differences in employment patterns in the first section of this chapter.

In Table 4.5 we present minimum wage data from a sample of large scale, 'modern' sector firms which indicate the extent of these intersectoral wage differentials for 1970/71 and 1975/76.[1] By far the highest minimum wage for the two periods in question was recorded in the mining sector. The lowest was recorded in the agricultural estates sector. The differentials between agriculture and several other sectors (trade and banking, communications, services, manufacturing and construction) were lower than for mining but still ranged from 2-4:1 in the two periods.[2]

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1 The data are collected by the Dept. of Manpower from a small sample of large scale firms (many of which were foreign owned) with the intention of showing short run changes in wages over time. They give some indication of modern sector wages but are not representative of the economy as a whole.

2 As might be expected, differentials in minimum wages within sectors were quite large even for this group of modern sector firms. Unpublished data collected by the Dept. of Manpower from a similar sample of firms recorded intrasectoral differentials in minimum wages of over 3:1 in banking, approximately 2:1 in mining, manufacturing, services and communications, and lower differentials in other sectors.

Table 4.5: Average minimum monthly wages by sector in Indonesia,[1] 1970/71 and 1975/76

Sector	1971/72[2]		1975/76[2]		Percentage increase 1970/71-1975/76 (money wages)
	Rp'000 month	Differential (Estates=1.0)	Rp'000 month	Differential (Estates=1.0)	
Mining	20.9	5.2	43.8	5.2	110
Trade & banking	8.6	2.1	31.1	3.7	263
Communications	9.4	2.2	25.4	3.0	170
Services (hotels, theatres)	9.0	2.3	24.9	3.0	176
Manufacturing	8.7	2.3	24.0	2.9	174
Construction	7.0	1.7	18.1	2.2	160
Electricity	nd	-	14.3	1.7	-
Civil service	3.9	0.97	13.4	1.6	246
Estate agriculture	4.0	1.0	8.4	1.0	109

[1] Wages in cash and kind of an employee with two children.

[2] Average wages for selected months (January, July, October) over two (calendar) year period. In 1971 for July and October only.

Source: Nota Keuangan dan RAPBN, 1971/72, 1976/77, 1977/78.

The Table suggests that there have been some major changes in the intersectoral wage structure over the five year period.[1] With the exception of the mining sector, differentials between estates and all other sectors widened considerably over this period.[2] These changes in intersectoral wage differentials accord with our general knowledge of changes in the economy over this period. New foreign and domestic investment especially in banking, manufacturing and services have probably greatly contributed to widening wage differentials relative to agriculture. Very large increases in the cash components of civil service salaries (these increased almost tenfold over the period 1969-75 for lowest paid civil servants) explain the great improvement in the relative wage position of civil servants (Booth and Glassburner, 1975:19).

The contrast between the wages of agricultural employees and those engaged in other sectors is quite marked even when data are broken down by rural and urban locations. Data on incomes of male employees in Table 4.6 show that a much higher proportion of agricultural workers earn low incomes than rural workers in other sectors.[3] Over 40 percent of agricultural workers earned Rp 5,000 or less compared with 21 percent in rural trade, 17 percent in rural manufacturing and closer to 10 percent in rural construction and transport.

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1 The period 1970/71-1975/76 is particularly important in terms of expansion of labour demand in the modern sector of the economy; many of the new foreign and domestic investment projects began operation during this period.

2 In the case of communications, services and manufacturing, differentials appear to have widened by nearly 50 percent: from just over 2:1 to approximately 3:1. The largest increases in these differentials relative to the estate sector were recorded in trade and banking and in the civil services. In both these latter sectors money wages had increased by approximately 250 percent over the five year period.

3 Data for males only are presented in the table in order to eliminate the influence of a high incidence of part-time and low hours of work among females, especially in rural areas.

Table 4.6: Monthly incomes of male wage and salary earners in agriculture and several rural, non-agriculture sectors of the Indonesian economy (March 1976).[1]

Income class (Rp/m^2)	Industry				
	Agriculture	Trade	Manufacturing	Construction	Transport
	Percentage of male wage/salary earners				
<5000	43	21	17	10	9
5001 - 10,000	44	42	47	39	41
10,000 - 30,000	12	34	35	49	45
30,001 +	1	3	1	2	5
Total	100	100	100	100	100
N (000)	3156	118	638	464	339

[1] Excludes 'not stated'.

Source: SUPAS (1978):Table 19.

The table also shows that a much smaller percentage of agricultural workers earned high incomes. Only 13 percent of agricultural workers earned more than Rp 10,000 compared with a range of approximately 36-50 percent in these other sectors.[1]

Overall, the picture that emerges from the data on intersectoral wage differentials broadly conforms with what we might expect. Wages were high in the relatively capital-intensive minerals industry, roughly in the middle of the range (although with considerable variation between firms) in manufacturing and much lower in agriculture. Skill differentials probably have a considerable influence on these differences. But it is also likely labour supply conditions are much more important in determining wages of unskilled labour in agriculture than in the other sectors. In the next section we shall see that much lower wages are recorded in certain agricultural based industries than in the manufacturing sector as a whole. This is an indication of the relatively unskilled nature of many of these operations and their integration with the 'mass' labour market particularly on Java.

2. Manufacturing Sector Wages

Given both the overwhelming concentration of the labour force in traditional manufacturing industries and the recent rapid growth in production in several modern sector activities, it is reasonable to expect a relatively wide dispersion of wages in manufacturing industries in Indonesia. This is broadly confirmed by wage data collected in the Census of Manufacturing Establishments of 1974-75. The differential between the highest (beverages) and lowest (tobacco) wage industries was just under 5:1 (Table 4.7). High wages were recorded in several industries that have been major targets for new foreign and domestic

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[1] It could be suggested that these differentials might be exaggerated because of seasonal patterns of underemployment in agriculture. However, since the intercensal survey was carried out in May (which is a major rice harvesting month in in Java) it is unlikely that the differentials are overstated because of seasonality factors.

Table 4.7: Average monthly wages of large and medium establishments in major industries, Indonesia, 1974-75[1]

	No. of establish-ments	No. of employ-ees (000)	Average monthly Wage (Rp000)	Index (Beverages = 100)
Beverages	60	4.7	22.1	100
Footwear	31	5.0	17.3	78
Transport machinery	112	14.5	17.3	78
Electrical machinery	66	12.2	16.4	74
Other chemicals	228	24.0	15.3	69
Cement and lime	216	11.3	14.4	65
Glass	50	5.1	13.5	61
Wood & wood products	322	18.9	12.7	57
Furniture	85	3.3	12.3	56
Paper & paper products	60	7.2	12.2	55
Machinery	68	7.3	12.2	55
Metal products	259	23.2	11.8	53
Industrial chemicals	66	4.7	11.0	50
Rubber & rubber products	468	45.7	10.2	46
Printing	229	14.6	9.1	41
Foodstuffs	1,538	136.0	8.1	37
Plastics	137	9.2	7.0	36
Wearing apparel	72	2.5	7.5	34
Leather	27	1.5	7.5	34
Ceramics	20	1.0	7.4	34
Textiles	1,936	162.4	7.2	32
Struct.clay products	194	6.7	6.0	27
Tobacco products	769	127.6	4.8	22
All industries	7,091	655,821	8.9[2]	40
SD			4.3	

[1] Includes payments in kind but excludes overtime, annual bonuses, pension and other contributions.

[2] Unweighted mean Rp 11,484.

Source: Indonesia, Industrial Census, 1974-75.

investment. These include beverages, transport and electrical machinery, other chemicals (pharmaceuticals, cosmetics), cement and glass.[1] At the other extreme, wages were relatively low in two of the large traditional industries - tobacco and textiles - which account for over 40 percent of all employees in large and medium manufacturing.

It is also reasonable to expect that the dispersion of the wage structure may have increased compared with the pre-1965 period. Although data for the 1963 Industrial Census are not directly comparable with the 1974-75 data, we have made a rough comparison of the structure of wages recorded in both.[2] The data suggest that there probably was an increase in the variability in interindustry wages over the period. The coefficient of variation increased from 0.30 to 0.36 (Table 4.8).[3] Several industries (beverages, transport machinery, electrical machinery, foodstuffs, tobacco and textiles) retained their rank as relatively high or low wage industries. However there was an improvement in relative position of several industries (for example chemicals) which have grown considerably over the period. Several other industries (textiles, wearing apparel, non metallic minerals, transport and electrical machinery) recorded above average wage increases over the period 1963-1974. On the other hand several industries (printing, leather goods and tobacco) that do not appear to have been greatly affected by the new investment, fell in relative

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1 However relatively high wage industries covered only a small proportion of the large and medium sector work force. Less than 10 percent of employees were in the top five industries with average monthly wages of Rp 15,000 or more and less than 20 percent were in the top 11 (just under half of all industries) with average wages of over Rp 12,000.

2 The definition of large and medium size firms was narrowed in 1974-75 to include only firms with 20 or more employees. Previously this group had included non-mechanised firms with 10 or more employees and mechanised firms with five or more workers.

3 Given that the 1974-75 data covered a smaller range in terms of size of firm (owing to changes in the definition of large and medium), these figures probably understate the increases in dispersion over the period.

Table 4.8: Average monthly wages in major manufacturing Industries, 1963-1974/75 (Rp000)[1]

	1963[2]	1974-75	
	Monthly wages	Monthly wages	Rank
Machinery	5.7	12.2	10
Beverages	5.2	22.1	1
Printing	4.5	9.1	14
Transport machinery	4.3	17.3	3
Leather goods	4.1	7.5	16
Electrical machinery	3.7	16.4	4
Wood & wood products	3.6	12.7	7
Rubber	5.6	10.2	13
Paper	3.6	12.2	9
Metals	3.6	11.8	11
Chemicals	3.4	14.6	5
Furniture	3.0	12.3	8
Foodstuffs	3.0	8.1	15
Wearing apparel	2.9	14.0	6
'Other' industries	2.7	19.1	2
Non-metallic minerals	2.4	11.6	12
Tobacco	1.8	4.8	18
Textiles	1.7	7.2	17
Mean (unweighted)	3.5	12.4[3]	
Mean (weighted)[4]	2.6	8.9	
SD	1.0	4.4	
Coefficient of variation	0.30	0.36	

[1] Includes goods in cash and kind

[2] Old rupiah (Rp 1,000 = Rp 1 new rupiahs)

[3] The difference between the unweighted mean recorded here and that recorded in Table 4.7 (Rp 11,484) may be explained by the exclusion from this Table of several industries included in Table 4.7 (these industries were not recorded separately or did not exist in 1963).

[4] Weighted by number of employees

Source: Indonesia, Industrial Censuses 1963, 1974-75

importance (or wages in these industries increased considerably less than the average for all industries over the 1963-1974 period.)[1]

Are these quite large interindustry wage differentials associated with marked differences in the skill of employees, average size of firm, capital-intensity or varying ownership patterns in different industries? Such comparisons are hazardous because of the marked dualistic structure of some industries. To minimise these problems we have chosen several industries in Java classified at the four and five digit level, and compared some rough indices of size, skill composition and capital-intensity in each.[2] A high, medium and low wage group of major industries was chosen.

Data presented in Table 4.9 indicates that the group of high wage industries differed from the other two groups in the percentage of workers not directly engaged in production (a proxy for skill), in two of the measures of capital intensity (average expenditure on spare parts and percentage of firms mechanised) and in value added per employee.[3] Average number of workers per firm was also much higher in this group than in

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1 However, some changes - the fall in the relative importance of machinery and the rise in the importance of the category 'other industries' (including sporting goods, toys, stationary and jewellery) - cannot be easily explained by recent changes in industrial structure.

2 Even when data are broken down by four and five digit industrial classifications, there are still some marked contrasts in the size and technology used by firms within several industries. The contrast between size and technology used by modern sector weaving establishments and hand loom operations is one outstanding example; the division of the batik industry into three distinct segments (batik tulis, batik cap and printing) is another.

3 See also Appendix Table 4.1. Owing to the rather crude nature of the explanatory variables especially for capital intensity (electricity consumed per employee, expenditure on spare parts) we did not attempt any regression analysis of these relationships.

the medium wage group but (owing to the large average size of kretek firms) not greatly different from the low wage group of firms. Electricity consumed per employee varied considerably between all groups. Overall, the Table suggests that wage levels are related to capital intensity and the skill of employees but not to size of firm. A more definite conclusion requires breaking the data down to establishment level and the use of more reliable indicators of the key explanatory variables. This will be one of the major tasks of the micro-level analysis carried out in later chapters.

Unfortunately the industrial census wage data are not broken down by industry and type of ownership; it was therefore impossible to test the extent to which interindustry wage differentials may be associated with foreign investment. However, average wage cost data recorded in the census for all large and medium firms in the industrial sector do suggest that foreign firms pay substantially higher wages than either government owned or domestic, private owned firms.[1]

Thus the 1974/75 Industrial Census indicates quite large differences in wages between industries and suggests that factors associated with labour demand (capital intensity and ownership) may play an important role in determining these. But the data may be questioned on the grounds that they cover average wages only and thus ignore the influence that differences in skill (and in the interindustry occupational structure) may have on wage differentials. Nevertheless, the findings on ownership

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[1] Overall, wages in foreign firms were more than twice as high as those for all firms. As might be expected, the wages of government enterprises were also considerably higher than in domestic private firms. The very much smaller size of domestic, private firms compared with foreign and government enterprises may partly account for these differences.

Table 4.9: Various characteristics of selected groups of low, medium and high wage industries, Java 1974-75

Characteristics	Wage Low[1]	Medium[2]	High[3]
Wages (Rp 000)[4]			
mean	4.5	7.4	16.7
range	3.3-5.8	6.3-8.9	11.9-25.7
No. of employees			
mean	232	98	250
range	70-515	37-206	106-460
Indicator of skill[5] (Percent. of production workers)			
mean percentage	87	88	79
range	73-94	79-96	72-83
Indicators of capital intensity			
i) Electricity consumed per year per worker (000 KHW)	0.3	1.4	5.9
ii) Av. annual expenditure on spare parts per employee (Rp '000)	2.0	2.7	9.2
iii) Percentage of firms mechanised			
mean	44	58	87
range	11-68	15-88	55-99
Value added per worker (Rp)			
mean	477	360	861[6]
range	153-689	220-466	617-1341

1 Includes tea-processing, kretek, tobacco drying/processing.

2 Includes printing, plastics, weaving, batik.

3 Includes cigarettes, footwear, structural metals, machinery, spinning.

4 Wages and salaries in cash and kind.

5 Production workers as a percentage of all employees.

6 Excludes extreme value (Rp 8067) for cigarettes.

Source: Indonesia. Industrial Census 1974/75 (see also Appendix Table 4.1).

are supported by survey data disaggregated by occupation.[1] In Table 4.10 data are presented on average wages in a range of occupations in foreign, domestic private and state owned firms in a selection of cities and industries in Java.[1] Wage differentials between domestic state and domestic private corporations were quite small for most occupations. But there were large differentials between foreign and domestic owned firms: differentials between foreign and state owned corporations ranged from 5-1:1 and between foreign and domestic private firms from 6-2:1 for different occupations. Only in two cases - unskilled labour in state enterprises and skilled labour in domestic private firms - were the differentials less than 2:1. The differentials were particularly marked for managers and for professional employees (secretaries and accountants) and foremen. This suggests that foreign firms place particular importance on the quality of professional and supervisory personnel and are prepared to pay much higher wages than domestic firms to recruit these employees.

The much higher wages, especially of professional and supervisory staff in foreign enterprises compared with domestic firms, also contributed to much greater inequality within enterprises in the foreign firms. The contrast is most marked between foreign and state owned enterprises. The average

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[1] This survey undertaken for preparation of the Second Year Plan (REPELITA II), covered a wide range of industries (and sectors) and locations in Indonesia. See Appendix 3.1 for a note on the coverage and reliability of this survey. Four industries - food and beverages, textiles, tobacco and chemicals - in six locations (Jakarta, Bandung, Solo, Semarang, Malang and Surabaya) are covered in Table 4.10. The six cities were chosen because they are the major centres in which foreign, domestic private and state owned firms in the four industries competed.

Table 4.10: Mean monthly wage of selected occupation groups in several manufacturing industries by ownership group, 1971 (Rp 000)[1]

Occupation	Foreign	Domestic	
		State owned	Private
No. of firms	22	12	256
Av. no. of employees	282	501	113
		Mean monthly wage (Rp 000)[2]	
Director/manager	137.5	28.7	21.8
Production chief	45.9	18.3	18.0
Secretary of manager	45.6	12.1	14.4
Accountant	87.3	21.7	15.3
Clerk	19.6	6.0	8.5
Typist	16.7	6.4	7.4
Foremen	26.6	8.6	7.6
Skilled	13.6	6.9	7.2
Semi-skilled	12.3)	4.5)	5.8)
	) 10.4	)5.6	)4.8
Unskilled	8.5)	6.6)	3.8)

[1] Covers food and beverages, textiles, tobacco products and chemicals, all industries in which foreign, domestic state owned and domestic private firms compete. The industries were located in six cities: Jakarta, Bandung, Solo, Semarang, Malang and Surabaya.

[2] Mean wage includes payments in cash and kind but excludes the value of facilities (housing, transport etc.) and social contributions given to employees. Data presented in this table were aggregated from basic data compiled by province, industry and type of ownership (e.g. state owned textiles in Jakarta etc.). The aggregate data were weighted by the number of firms in each category but not by the number of employees. Not all firms provided data for all occupations.

Source: Computed from data included in the report by Indonesia, Dept. of Manpower (1973:Appendix I).

differential between both unskilled and semi-skilled employees on the one hand and professional employees on the other, was especially small in state enterprises compared with foreign firms (Table 4.11).[1]

To some extent these differentials may be explained by the concentration especially of private, domestic owned firms in low wage industries such as tobacco (especially kretek) and the higher proportion of these firms in low wage regions of Central Java (or, conversely, the relative concentration of foreign firms in Jakarta and in Surabaya). But even taking these interregional and interindustry differences into account, the differentials between foreign and domestic firms are still large. For example, data for chemicals, food and beverages in Jakarta show that wages for almost all occupations were higher in foreign compared with domestic firms in each of these three industries (see Appendix Table 4.2). These results are not inconsistent with our more general hypotheses concerning the influence of labour demand patterns and industrial structure on wage differentials. Unfortunately, the data do not permit more in-depth analysis of these wage differentials by size of firm, technology and various human capital characteristics of employees. This task will be taken up in our analysis of micro data in later chapters of the thesis.

IV. The Form of Wage Payment

We have seen in Chapter Two that form of wage payment as well as the level of wages may differ considerably between firms.[2]

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1 However, the relatively small differentials in wage payments in state firms may in part be compensated by the generous facilities (cars, housing, travel allowances etc.) offered to managerial and professional personnel. Owing to anomalies in the classification of unskilled and semi-skilled employees, the results are much more plausible if the unskilled and semi-skilled categories are combined.

2 For example, wage increases according to seniority, and various fringe benefits were offered mainly by large scale firms in Japan in an attempt to minimise labour turnover.

Table 4.11: Selected occupational monthly wages and salaries as a multiple of unskilled and semi-skilled wages in several major industries in Java, 1971

Occupation	Ownership group: Multiple of unskilled and semi-skilled wages		
	Foreign	Domestic	
		State	Private
Director/manager	13.2:1.0	5.1:1.0	4.5:1.0
Production chief	4.4	3.3	3.8
Secretary of manager	4.4	2.2	3.0
Accountant	8.4	3.9	3.2
Clerk	1.9	1.1	1.8
Typist	1.6	1.1	1.5
Foreman	2.6	1.5	1.6
Skilled	1.3	1.2	1.5
Semi-skilled/unskilled	1.0	1.0	1.0

[1] See Table 4.12 for industries and regions covered, and definitions used.

Source: Indonesia, Dept. of Manpower (1973:Appendix 1).

In studies of the Indonesian wage system the form of wage payments has been given some attention because of the inhibiting effects that some wage payments (especially payments in kind and family allowances) have had on incentives and labour productivity.[1] In this section of the chapter we will provide some data which suggest that needs based payments are not as widespread in the private sector as some of these studies imply. Quite a wide range of fringe benefits are given by state enterprises and by some large scale, modern sector firms. But there is little evidence that they are a major element in the wage systems of the majority of medium and small scale enterprises. In the early 1970s the major fringe benefits were not given by a high proportion of enterprises in manufacturing, and payments in kind were not a major share of labour costs in most manufacturing industries. Even where fringe benefits have contributed significantly to wage costs, these payments have not necessarily been offered merely as welfare payments to workers. Indeed several types of fringe benefit are likely to have had a positive effect on incentives and labour productivity.

In this section we will look first at the wage and salary systems (including the nature of salary scales, prevalence of seniority benefits, rules regarding promotion and rank in the enterprise etc.). This will be followed by a discussion of both the incidence of fringe benefits and of their contribution to total wage payments.

1. Wage and Salary Systems

At the outset it should be noted that the influence of public sector wage systems on forms of wage payment in the

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[1] See especially Arndt and Sundrum (1975); Gaffney (1976); and ARTEP (1972).

private sector in Indonesia has probably been quite uneven. In some private firms the basic salary system is even more oriented towards seniority than the government system.[1] The basic wage system in public enterprises (set by law) follows closely the government system. Although these enterprises do have some freedom to set payments in kind and other allowances, as in the civil service, seniority and education play a major part in determining rank.[2]

But the Dept. of Manpower Report (Indonesia, Dept. of Manpower 1973:29-30) notes that the government salary system has had much less influence on foreign and small scale firms. In foreign enterprises, wages tend to be set for certain jobs and for tasks performed rather than according to seniority or education. Systems of wage payment among small scale labour intensive firms probably have even less resemblance to those used in the public sector. The ARTEP (1972:44) Report notes that few small-sized firms pay their workers on the basis of fixed salary scales (this is also likely to be the case in a high proportion of medium-sized enterprises).

The importance of salary scales and increments according to seniority in the domestic private sector and in public enterprises can be exaggerated. Two major qualifications

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1 The Dept. of Manpower Report (Indonesia, Dept. of Manpower, 1973:28-9) quotes the example of one firm with a salary scale which increases the wages of the lowest paid employee by more than sixfold over a twenty-five year period; after 25 years such an employee would receive a higher basic wage than an employee at the highest level with 9-10 years experience. It is likely that such welfare-oriented wage systems are much more important among pribumi rather than non-pribumi firms (this point is taken up later in our micro study).

2 See Government Regulation No.22, 1967 and McCawley (1971a) for rules governing public enterprise wage systems.

to the above discussion should be borne in mind. First, even in the civil service the basic salary may account for only a small proportion of an employee's total salary.[1]

Second, seniority benefits based on fixed salary scales are only given to relatively permanent monthly employees in many firms. These systems do not apply to the quite high proportion of daily and piece work employees in many enterprises.

2. Allowances or Payments in Kind

The 1971 Dept. of Manpower Survey (Indonesia, Dept. of Manpower 1973:70, 82-3) found that some fringe benefits were given fairly uniformly in different sectors and regions in Indonesia. Health care and social welfare contributions (contributions for marriage, death and other major family life-cycle events) were the most common fringe benefits (Table 4.12). But most fringe benefits were not given by a high proportion of firms. A rice allowance was given by only about to one-third of all firms in different regions and a much smaller percentage offered family allowances. Transport was also made available only to managers or workers in 15 percent of firms, and housing in less than 10 percent of firms.

Differences in the incidence of fringe benefits given to various kinds of firms become more apparent when the data are

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[1] Other payments distributed regardless of rank (in kind allowances, family allowances etc.) and payments more closely related to responsibility in the enterprise (job allowances and fringe benefits such as housing and transport) may reduce the overall impact of salary scales on worker performance. The relatively large job allowances (tunjangan jabatan) for senior civil servants is a good example of such an allowance. The allowance was introduced in March 1977 and provides civil servants with an additional allowance ranging from Rp 10,000-120,000. In several cases this allowance is likely to be greater than a civil servant's basic salary plus work allowances. See Kompas, 21 and 23 March 1977. See also Gray (1979) for a survey of the variety of emoluments received by civil servants.

broken down by ownership class. As might be expected, state enterprises gave a much higher proportion of almost all fringe benefits than foreign and domestic private owned firms (Table 4.12). Except for rice allowances, a higher percentage of foreign firms gave fringe benefits than domestic private enterprises.[1] Thus, high wages are associated also with quite a high incidence of fringe benefits.

Although quite a high proportion of enterprises provide certain fringe benefits, there is no presumption that these are distributed evenly among employees or that particular fringe benefits are given to all employees. More disaggregated data collected in the 1973-74 Manpower survey (ILO and Indonesia, Dept. of Manpower 1975:Vol.II, Tables VIII 9-16) show that both managers and professional employees tend to receive more fringe benefits than other occupational groups, and that unskilled workers receive considerably less of certain fringe benefits than other employees. Managerial and clerical employees were especially favoured in the distribution of family allowances, transport and housing, meals and medical coverage. A much smaller proportion of firms gave these fringe benefits and also annual bonuses to unskilled employees.[2]

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1 Unfortunately, the data are not broken down by size of firm so it is not possible to compare foreign and domestic firms in the same size classes.

2 This unequal distribution of fringe benefits within the firm underpins an important point concerning the effect of fringe benefits on occupational differentials and incentives. Fringe benefits may be convenient method of disguising wage differentials within the firm both for tax evasion purposes and also to minimise potential conflict within the firm. The latter motive may be particularly important in LDCs because occupational differentials tend often to be very large and may cause resentment especially from low paid, unskilled workers. The need to hide such differentials may be especially felt in societies like Indonesia where pronouncements concerning social goals of achieving greater equality are common in public statements and documents.

Table 4.12: Percentage of firms giving various fringe Benefits in manufacturing in three cities by ownership group,[1] Java 1971

Allowances	State	Foreign	Domestic private
Family allowance	68	41	6
Goods in kind:			
Rice	64	31	36
Sugar	32	11	3
Work clothes	32	18	18
Midday meal	25	32	29
Medicine	18	25	13
Facilities:			
Housing: manager	32	18	4
workers	18	14	5
Transport: manager	18	7	10
workers	18	14	8
Other benefits:			
Medical care	97	93	85
Social welfare contribution	79	71	50
Bonuses	65	43	32
N	28	28	346

[1] The three cities were Jakarta, Semarang and Surabaya; selected because of a sufficiently large sample of domestic private, state owned and foreign manufacturing firms in each.

Source: Indonesia, Dept. of Manpower (1973).

What is the contribution of fringe benefits to total wage costs and workers' incomes? Two sources suggest that payments in kind were approximately 25 percent of wage income in all large scale establishments in major centres in Java.[1] But they were much lower in medium scale establishments and payments in kind were also found to be less important in several outer island cities compared with Java.[2] But, although medium sized firms on average paid a much smaller proportion of their wages in kind than larger firms, there was not a marked difference in the importance of these payments between industries with varying average sizes of firms. (see Appendix Table 4.3).

Industries which paid a higher percentage of wages in kind also appeared to offer slightly higher wages than the sample as a whole. But as Appendix Table 4.3 indicates, the difference in the importance of fringe benefits between high and low wage industries was not great. The lack of a strong relationship between these two variables - size of firm and wage levels - and payments in kind indicates that historical and locational factors specific to certain industries have probably been a major influence on the incidence of payments in kind.

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1 Two major sources of information on this subject are the cost of living surveys conducted in 1968/69 and 1970/71 and the 1970 Survey of Manufacturing Establishments conducted by the Central Statistics Bureau.

2 These quite high figures on the value of payments in kind hide a wide range in the value of these payments between industries and firms. For different industries this may be seen from data collected in the 1970 Survey of Manufacturing (See Appendix Table 4.3). The percentage of wages in kind in large and medium sized firms in various industries ranged from 53 to five percent. All except six of the industries recorded a percentage lower than the mean score (22.7 percent) and in one-third of all industries payments in kind contributed less than 10 percent of all wages.

This brief survey highlights the considerable interfirm and interindustry variation in the size of payments in kind. Manufacturing firms which offered a high percentage of wages in kind tended to be concentrated in certain industries: they were particularly important in industries where government ownership plays an important role (for example, cement, sugar, spinning and finishing, and paper were all major areas of public investment in 1970). They were also concentrated in agricultural-based industries (sugar, tea-processing, coconut oil, rubber and rubber products) where payments in kind, especially to estate workers, have been traditionally high.[1]

Closely related to payments in kind is the payment of family allowances. These payments appear to have contributed significantly to wage differentials within the government sector.[2] However there is very little information on how important family allowances are in the private sector. Arndt and Sundrum

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1 Although it is difficult to find data on the trend in payments in kind over the past decade, all evidence suggests that they have probably begun to decline in importance with the achievement of more stable prices, and owing to greater reliance on the price mechanism and economic efficiency; they have probably declined also because of a much less powerful trade union movement compared with before 1965.

2 However, between 1968-72 the wage differentials owing to family size declined substantially. In 1968 an employee with four children on the lowest rung of the civil service received twice the earnings of a married man at the same level with no children. By 1972 the differential had halved (ARTEP, 1972:51). McCawley (1971a) notes that a differential for family size existed in the PLN similar to that prevailing generally in the government sector in 1968. These differentials have probably fallen even further with the abolition of kind payments to more than three children in large families.

(1975:374-5) and Gaffney (1976) draw upon data from the 1968/69 cost of living surveys to suggest that family allowances make a major contribution to the total wages of Indonesian employees.[1]

This conclusion is not supported by the other survey data. As we have seen, the 1971 Dept. of Manpower survey indicates that family allowances are far less important in private enterprises than in the public sector: only 13 percent of all enterprises (and only six percent of private domestic enterprises) offered family allowances in cash and only one-third of all firms offered rice allowances. The latter would have been offered in many cases only to the monthly employees and, moreover, in several firms they are likely to have been only made available to more senior employees.

It is difficult to find reliable aggregate data on the value of other fringe benefits. The 1974-75 Industrial Census of large and medium establishments records that annual bonuses were a major expenditure in most industries and amounted to just under eight percent of total wage expenditure in all industries in Java. Contributions to pension funds and other social contributions together accounted for a further ten percent of total wage costs.

Survey data on expenditure on employees' health care and other social welfare payments show very wide variations by region and by industry.[2] In part this must be attributed to rather inadequate data. Reporting of these wage components

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1 In seven cities a single man received approximately twelve percent of his income in kind, a married man with two children approximately 17 percent whereas a family with six children or more received 25-30 percent of their income in kind (Gaffney, 1976:10). In Jakarta the differential in incomes according to family size was even greater.

2 The 1974-75 survey of wages in various provinces of Indonesia found huge variations in the value of these payments between industries in the same region and also between regions for the same industry (Indonesia, Dept. of Manpower, 1975a: Table 6).

appears to be even less reliable than of wages in cash and kind. But in part these variations may also reflect even wider differentials between different kinds of firm (large, capital intensive and foreign versus small, labour intensive and domestic) in the payment of these fringe benefits. Unfortunately, the data do not allow us to examine this possibility further.[1]

From this survey it may be concluded that fringe benefits have played an important role especially in public remuneration systems in Indonesia. However, their significance in the private sector has probably been overestimated by some commentators on the wage structure. It is not easy to evaluate the effects which fringe benefits might have had on incentives. Nevertheless it is probable that the welfare effects of such payments have also been given too much emphasis in the literature. In the government sector, fringe benefits are important both at junior and senior levels. At lower levels they do provide employees with guaranteed wage increases with seniority and some protection from the effects of inflation. For senior civil servants additional benefits such as housing and transport may be seen as one means of maintaining parity with wages in equivalent private sector positions. They cannot, therefore, be classified purely as welfare payments. At the same time they perform a useful role from the government's point of view - they tend to hide the large (and probably growing) wage inequalities within the public sector.

In the private sector the two single most important fringe benefits were annual bonuses and medical care. Both of these payments are not unrelated to labour productivity. Annual bonuses are not always set at a flat rate but are frequently determined according to performance, especially of more senior

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[1] This possibility is examined further in our micro-study, see especially Chapter Eight.

employees. Provision of medicine and payment of employees' health bills are certainly not pure welfare transfers to workers in a country where medical care is so inadequate and so costly relative to average incomes.

Other fringe benefits - payments in kind, family allowances, transport etc. - are given quite generously in a small proportion of firms in the manufacturing sector, especially by state enterprises and some foreign firms. Undoubtedly their effect these enterprises has been to reduce the incentive element in the wage system. But these fringe benefits are not widespread in the private sector, they do not contribute to a high proportion of total wage costs and in many firms are only offered to more senior employees.

From the available data it is not possible to evaluate the affect that fringe benefits have on incentives and labour productivity. It is quite reasonable to expect that some firms offer fringe benefits with the objective of increasing labour productivity, in others they may have adverse effects. This issue of the relationship between forms of wage payment and labour productivity in different kinds of firm will be examined more fully at a micro level in Chapter Eight.

V. Labour Supply Influences: Interregional, Urban-Rural and Male-Female Wage Differentials

In Chapters Two and Three we noted that in addition to the factors which influence labour demand, wage differentials between firms and industries may also be affected by labour supply factors. Location of firms in different regions or in rural and urban areas, and the employment of male or female employees are three labour supply influences which are particularly relevant to the study of wage differentials in Indonesia. Secondary data on each of these aspects of wage differentials will be examined in this section of the Chapter.

1. Interregional Wage Differentials with Special Reference to Java

Wage differentials between Java and the outer islands in particular have received some attention in literature on interregional wage differentials in Indonesia. They reflect the relative surplus of labour on Java compared with most other islands in Indonesia. But they also provide evidence of relative immobility of labour on Java. There are also important regional differentials within Java which partly reflect the greater population concentration in some regions (especially Yogyakarta and Central Java). These are partly a consequence of the relatively rapid recent growth of labour demand especially in Jakarta.

Data collected by BAPPENAS on wages paid to various categories of workers on public works (INPRES) projects indicates the quite large wage differentials between various provinces in Java (and between Java and the major outer island groups) for unskilled workers (Table 4.13). The differential between Jakarta and other provinces (with the exception of Yogyakarta) in Java declined slightly over the four year period 1971/2-1975/6. However, wages in Jakarta were still 50 percent higher than in East Java, nearly 70 percent higher than in Central Java and well over twice as high as in Yogakarta in 1975-76. Wages in West Java were also considerably higher than in other regions although these differentials also appear to have declined since 1971-72.[1] The table suggests that wages in Jakarta are more in line with average wages in Sumatra than with the rest of Java.

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[1] Of course these overall provincial averages hide considerable intra-provincial variation in wage rates. These differentials were partly influenced by the relatively high wages in major urban centres (especially in West and East Java) compared with other kabupaten (see discussion on rural-urban wage differentials below). Excluding provincial capitals, wage differentials between kabupaten in Java (excluding Yogyakarta) were 2.0:1 in East and Central Java and lower (1.6:1) in West Java.

Table 4.13: Daily wages of unskilled workers in INPRES projects in provinces of Java and in the Outer Islands, 1971-72 and 1975-76[1]

	1971-72		1975-76		Regional price index 1972-74[2]
	Wages (Rp)	(Jakarta=100)	Wages (Rp)	(Jakarta=100)	
Jakarta	200	100	400	100	100
West Java	155	78	323	81	101.4
East Java	118	59	275	69	94.0
Central Java	95	48	237	59	95.7
Yogyakarta	85	43	167	42	89.2
All Java	131	66	280	70	96.1
Kalimantan	315	157	509[4]	127	134.3
Sumatra	232	116	382	96	118.4
Sulawesi	159	80	275[5]	67	120.4
Other[3]	113	57	360[6]	88	115.9
All Indonesia[3]	205	103	358	90	116.3

1 All data by province is an unweighted mean of wages collected at kabupaten level. All Indonesia and Outer Island data are unweighted means of provincial averages.

2 Mean of three years 1972-74, total figures weighted by province only.

3 Includes Bali and Nusa Tenggara Barat and Timur but excludes Irian Jaya and Maluku.

4 Excludes West Kalimantan.

5 Excludes North Sulawesi

6 Maluku only

Source: Arndt (1972); Arndt and Sundrum (1975); and unpublished data, BAPPENAS, 1976.

The differences in money wages were partly but not completely offset by regional price differentials (see the last column in Table 4.13). Yogyakarta recorded the lowest cost of living index for the three years 1972-74 but prices were only slightly more than 10 percent below those recorded for Jakarta. The regional price index (which covers only the capital city in each province) is almost certainly an understatement of price differences between Jakarta and some parts of the other provinces in Java. It is doubtful, however, that the real provincial average would be sufficient by high to compensate for the quite large wage differentials.[1]

These differentials are probably partly the result of concentration of a high proportion of large foreign and public owned enterprises in relatively modern sectors in Jakarta. Many low wage, traditional industries e.g. batik, kretek, tobacco processing are, on the other hand, located mainly in Central and East Java and in Yogyakarta. There is evidence also of quite substantial wage differentials even when data are broken down by ownership class, industry and occupation in different regions. In Table 4.14 data are presented from the 1971 Dept. of Manpower survey for domestic firms in four industries, (chemicals, textiles, food and beverages) in several major cities in Java. There was a large wage differential between Jakarta and other regions for production workers (with the exception of the semi skilled group in Bandung) and to a lesser extent for clerical workers. The differentials between Bandung and the Central Java cities

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[1] The real wage differential is much smaller if wages recorded in the provincial capitals of Bandung and Surabaya (rather than for the province as a whole) and adjusted for cost of living differences and compared with Jakarta. The money wage indices for these two cities compared with Jakarta (100) were 94 and 88 in 1975-76. But for Central Java and Yogyakarta the differences with Jakarta were still large even if wages for Semarang and the municipality of Yogyakarta were compared with the national capital and adjusted for cost of living differences.

Table 4.14: Average wages of various occupations in private domestic owned firms in selected industries in Jakarta, Bandung, Semarang and Solo,[1] 1971 (Rp 000/mth)

Occupation	Jakarta	Bandung[2]	Semarang[3]	Solo[3]
No. of firms	89	35	31	23
Av. no. of employees	86	76	73	47
Manager/director	23.1	25.6	28.6	12.2
Production chief	20.4	12.4	27.1	11.2
Secretary of manager	17.6	7.2	10.6	18.1
Accountant	18.6	9.4	16.1	17.5
Clerk	10.5	7.4	5.3	6.4
Typist	9.3	5.9	5.0	4.9
Foreman	9.3	6.4	4.1	5.2
Skilled employees	9.7	6.7	6.3	3.7
Semi-skilled	4.7[4]	6.9	2.9	3.3
Unskilled	4.7	3.1	2.8	2.4

1 Industries include chemicals, textiles, food and beverages. Data for each industry is weighted by the number of firms only.

2 Only one firm in beverages and two in chemicals.

3 Only one firm in textiles.

4 Excludes food, data unreliable.

Source: Indonesia, Dept. of Manpower (1973).

is also quite consistent with the INPRES data. But there appear to be much smaller regional differentials in managerial and professional salaries. The latter result is not surprising given the greater nationwide scarcity of some of these skills; many of the tasks of managerial and professional personnel are likely to be much more firm-specific and their wages more determined by internal market considerations than is the case for other occupations.[1]

2. Urban rural wage differentials

We have seen in Chapter Two that urban rural wage differentials are a major factor contributing to high rates of rural urban migration and urban unemployment in many LDCs. Given relatively slow rates of overall urban growth, short distances between rural and urban areas and an abundance of short distance transport, it might be expected that urban rural wage differentials would not be large in Java.[2] Although wages appear to be relatively high in some of the rapidly expanding large cities, the general expectation of narrow urban rural wage differentials is supported by the secondary data.

The extent of urban rural wage differentials has been estimated from INPRES data on wages in both the provincial capital and all kotamadya (municipalities) compared with all

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1 See also Chapter Seven. It is probable that the total value of wages of employees in these senior positions are likely to consist of a wide range of special facilities not necessarily recorded in figures on wage incomes. It is also likely that many of these senior and trusted employees may receive a significant share of their salaries out of profits or in the form of annual bonuses which may not be registered in company records.

2 See Hugo (1978:99-104) for a description of the wide range of short distance transport servicing Jakarta and Bandung from nearby towns and rural areas.

kabupaten (regencies). These data are presented in Table 4.15.[1] Th table shows that daily wages of construction employees are not always higher in kotamadya than in all kabupaten in Java (or Sumatra). Indeed, the opposite is more often the case. Among the provinces of Java, average wages were significantly higher in all kotamadya only in West Java. For Java as a whole the kotamadya and kabupaten averages were very similar. In contrast to the quite large interprovincial wage differentials these data suggest that Java's work force is relatively mobile over short distances between rural and nearby urban areas.

But although overall urban-rural wage differentials appear to be quite small, differentials between the major cities in Java and all kabupaten were quite marked. Money wages in Jakarta, Bandung and Surabaya in particular were all considerably higher than the average for all kabupaten in West and East Java, and also higher than for Java as a whole.[2] The difference was most marked in East Java: daily wages in Surabaya were 25 percent higher than the average for all

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1 It should be noted that wage differentials between all kabupaten and kotamadya may be considered only a rough measure of urban rural wage differentials. The advantage of these data over other sources on urban rural wage differentials is that they provide a comparison of unskilled employees in similar occupations in rural and urban areas. Comparison of average wages or average incomes, or incomes of employees in different occupations or industries is likely to be much less valid. However, kabupaten-wide wages are likely to be also influenced by urban wage rates in these kabupaten. Despite this problem, these data are probably one of the most comprehensive sources of information on urban rural wage differentials. Leiserson (1974:351) used the 1971/72 data from the same series to estimate rural-urban wage differentials.

2 A similar pattern may be seen for Palembang and Medan in South and North Sumatra respectively.

Table 4.15: Urban-rural wage differentials, unskilled workers in INPRES construction projects, 1975-76[1]

Province/island	Daily wages (Rp)				Urban rural index (All kabupaten = 100)	
	Provincial capital (1)	Other kotamadya[2] (2)	All kabupaten[3] (3)	All kotamadya and kabupaten {(1)+(2)+(3)} (4)	Provincial capital {(1)÷(3)} (6)	Other kotamadya {(2)÷(3)} (7)
Java						
Jakarta	400	(400)*	-	(400)	-	-
West Java	375	356	316	323	119	113
East Java	350	266	280	275	125	95
Central Java	250	227	242	237	103	94
Yokyakarta	150	(150)*	280	225	88	(88)*
All Java (incl. Jakarta)	305	273	270	269	113	101
All Java (excl. Jakarta	281	267	270	268	104	99
Sumatra	369	340	393	378	94	87
Kalimantan[5]	567	513	403	429	141	127

* Only one city in province

1 All data based on kabupaten totals, not weighted.

2 Excluding provincial capitals.

3 Excluding provincial capitals and kotamadya.

4 Excluding provincial capitals.

5 Excluding West Kalimantan.

Source: BAPPENAS (1976).

kabupaten in this province. This result suggests that relatively rapid growth especially of manufacturing in these urban centres has probably had a major influence on urban rural wage differentials.[1]

The picture of relatively small, overall urban rural wage differentials is further supported by data on incomes of wage earners collected in the 1976 intercensal labour force survey. Although quite large urban rural differences were apparent at extreme levels of income, a high proportion of both rural and urban employees earned incomes in the middle of the range (Rp 5,000-15,000 for men and Rp 3,000-7,000 for women) (Table 4.16).

3. Male-Female Wage Differentials

In contrast to the narrow urban rural wage differentials, the secondary data suggest that there are quite large differences in the wages of males compared with females. We saw in Chapter Two that male-female wage differentials contributed to interindustry wage differentials in several empirical studies of other LDCs. It is reasonable to expect that the interindustry and interfirm wage differentials discussed above may partly be associated with the concentration of female employees in certain industries.[2]

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1 Of course, the cost of living is likely to be higher in these larger cities than in other urban areas. However, interprovincial differences in the cost of living (see Table 3.15) suggest that cost of living differences may not be large enough to outweigh the 20-25 percent higher wages in Bandung and Surabaya compared with all other kabupaten in West and East Java, or to outweigh the even larger differential between Jakarta and other kabupaten in Java.

2 The subject male-female wage differentials is particularly relevant to this study because of the high concentration of female employees in two of the three industries (weaving and kretek) included in our micro survey.

Table 4.16: Average monthly income of wage and salary earners in urban and rural areas in manufacturing, 1976

Income group (Rp'000)	Male		Female	
	Urban	Rural	Urban	Rural
	Percentage of employees			
≤3	2	7	30	57
>3-5	6	10	28	20
>5-7	10	19	14	13
>7-10	24	28	11	6
>10-15	23	20	8	3
>15-30	25	15	6	1
>30	10	1	3	0
Total	100	100	100	100
N[1] ('000)	362.8	638.0	157.6	327.0

[1] Excludes not stated

Source: SUPAS (1978) Table 19.

Quite large differences in incomes of female compared with male employees in manufacturing are demonstrated in Table 4.16 above. In urban areas less than two percent of males earned lower than Rp 3,000 and only eight percent earned less than Rp 5,000 compared with 30 and 58 percent respectively for females. In both urban and rural areas few females earned more than Rp 10,000 (16.5 percent in urban areas and 4.2 percent in rural areas) compared with over half of all urban males and 36 percent of rural males.[1]

The much lower incomes of females in manufacturing appear to be explained partly by the concentration of females in low wage, low productivity industries. Although we have a breakdown of the manufacturing labour force by sex and industry group only for large and medium scale enterprises up to 1971, the data indicate that female employees were concentrated in 6 major industries: tobacco, textiles, tea processing, foodstuffs (excluding tea), rubber and other chemicals (pharmaceuticals, jamu, cosmetics etc.) (Table 4.17). Only 'other chemicals' (excluding jamu) out of these industries may be regarded as a relatively modern industry. These industries accounted for 93 percent of all female employment in large and medium scale manufacturing in 1970 (see column (2) in Table 4.17).[2]

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1 Although there is no breakdown of hours worked by income and industry, it seems reasonable to attribute some of these differences to lower hours of work among female employees. This is especially true of rural areas where nearly 30 percent of females in manufacturing were recorded as working less than 25 hours a week and almost 50 percent worked less than 35 hours a week compared with 12 and 21 percent of male employees respectively. However, the differences between the sexes in hours worked were much smaller in urban areas (only 12 percent of females worked less than 25 hours compared with five percent of males).

2 The concentration of females in these industries is a little less surprising if the concentration of all employees in these industries is also noted - 87 percent of all employees were employed in these six industries in 1970. Data was computed for 1970 (rather than for 1971) because this is the last year in which data was broken down by large and medium scale categories.

Table 4.17: The proportion of female employees and average wages in selected industries in large and medium firms, Indonesia, 1970, 1974-75

	Female employment as a percentage of industry's work force in 1970	Percentage of all female employment in manufacturing in 1970	Mean monthly wages (Rp'000)[1] 1970	1974-75
Tobacco	75.5	41.6	2.0	4.8
Tea processing	41.2	8.0	2.9	5.9
Textiles	34.9	18.4	3.1	7.2
(Weaving)	(34.7)	(12.0)	(2.4)	(6.5)
(Batik)	(46.9	(3.3)	(1.6)	(6.5)
Sub total	53.5	68.0	2.6	6.1
Other chemicals	47.1	3.3	6.3	15.3
Rubber	23.9	8.7	3.8	10.2
Food (excluding tea)	18.8	12.5	3.4	8.4
All other industries	21.1	7.5	5.2	13.1
Sub total	22.0	32.0	4.1	11.3
All industries	36.7	100	3.4	8.9

[1] Wages of both males and females

Source: Indonesia, Industrial Statistics 1970, Industrial Census 1974-75.

In three of these industries (tobacco, textiles and tea processing) which accounted for close to 70 percent of all female employment in 1970, wages were very much lower than the overall average for the industrial sector both in 1970 and 1974-75.[1]

It should also be noted that although a large proportion of women were employed in low wage industries, in several industries in which a high percentage of females worked, wages were relatively high. For 1970 and also 1974-75 other chemicals and rubber (both included separately in Table 4.17 were relatively high wage industries. Several other small industries with a high proportion of females - electrical machinery, paper and glass - were also high wage industries. Thus a high proportion of all female employment in low wage industries is not inconsistent with high wages in several industries in which a small proportion of all women work.[2]

There does however appear to have been a preference for employment of a higher proportion of males in relatively modern, high wage industries. This may be attributed to several factors influencing the cost of labour in full-time shift work

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1 Lowest average wages were recorded in the tobacco industry (which includes both kretek and tobacco drying and processing) where over 40 percent of all women employed in large and medium establishments worked in 1970. Although the wage level was a little higher in textiles, it was still considerably below the average for total manufacturing in both 1970 and 1974-75; this was particularly true of weaving and batik, the two major sub-sectors of female employment in textiles.

2 It is necessary to be careful with the interpretation of these wage differentials between sexes. They do not necessarily imply wage discrimination on the basis of sex. Although average female wages are much lower than male wages, this is mainly a consequence of concentration of females in low wage, traditional industries. But wages are high in several 'modern' industries in which quite a high proportion of the work force is female.

in modern industry. These include laws restricting the employment of females at night, generous menstruation and maternity leave, the employers' expectations of greater labour turnover among females.[1] Unfortunately, the data do not allow more in-depth analysis of these questions. They also will be taken up in our micro study.

Summary and Conclusions

In this chapter we have attempted a broad survey of the current wage structure in Indonesia. This has been set in the context of overall surplus labour supply conditions in both rural and urban areas especially on the island of Java. It is clear from this survey that despite pressing problems of labour supply there are quite large wage differentials between (1) various sectors (especially between mining and agriculture), (2) different manufacturing industries, (3) different kinds of firm (in particular between foreign and domestic owned firms), (4) between various regions (especially between Java and the outer islands, and between both Jakarta and other major urban centres, and other areas in Java) and (5) between the sexes.

Owing to insufficient information it was not possible to investigate the causes of wage differentials in any depth. Nevertheless, the data presented in this chapter are not inconsistent with some of the major propositions raised in Chapter Three. Intersectoral and interindustry wage differentials - especially high wages in mining and banking and in several modern industries - appear to be associated with new relatively large and capital intensive investment and, in many cases, with foreign ownership. The rapid expansion of these types of investment especially in the major urban areas of Java has probably contributed to wider wage differentials between these areas and areas of less rapid growth.

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[1] In the following chapter we will discuss this labour legislation more fully.

Marked differences in the average wages of males and females may be partly explained by discrimination against females in employment in many modern sector industries rather than merely discrimination in wages between the sexes.

In part, quite large wage differentials between various segments of the economy may be explained by imperfections in labour supply - especially poor information and communications - inhibiting response of Javanese labour to high wage opportunities in the outer islands and in relatively high wage sectors and firms. Low mobility of some sections of the Javanese population may be attributed in part to extreme poverty and an inward looking response to population pressure. Relatively good communications in Java and the strong connections between urban and rural labour markets (evidenced by the relatively small urban rural wage differentials and the prevalence of commuting and circular migration), suggest that at least a section of the population is highly mobile over short distances in search of new jobs and better earning opportunities.

We have given some attention in this chapter to interindustry and interfirm differences in forms of wage payment. The importance of various fringe benefits appeared to have some correlation with levels of wages, but this relationship was not strong. State enterprises in particular offered more fringe benefits. To a lesser extent this was also the case among larger and foreign firms. The effects of a high proportion of wages paid in kind or paid in the form of other fringe benefits, could not be generalised. Much depends on the kind of fringe benefits offered and to which employees they were extended. It is not necessarily true that a large number of fringe benefits reduces incentives and negatively affects labour productivity. Much more information than was available in the secondary sources is required to make definitive statements concerning these effects of fringe benefits.

As we have mentioned, sufficient information is not

available from secondary sources to explain the quite large wage differentials identified in this chapter. It is clear that both foreign and state owned enterprises have an influence on the level and form of wage payment. But most data on intersectoral, interindustry and interregional wage differentials do not permit an investigation of the extent to which these differentials may also be the result of differing capital intensities, sizes of industrial establishments or different ownership patterns. It is not possible from the available data to examine the extent to which wage differentials between industries and firms may be the result of differences in skills and tasks performed, or of different labour management patterns. We were not able to test whether institutional factors were a major cause of these differentials. Thus some of the interesting questions raised in Chapter Three concerning the existence of internal labour markets in modern sector firms, and labour market segmentation in dualistic manufacturing sectors in LDCs, could not be dealt with adequately.

As in many countries, secondary data in Indonesia are not sufficiently comprehensive to test the extent to which wage differentials represent differences in efficiency wages for similar quantities and quality of labour. Partly the difficulty rests in the quality of wage data. They do not always cover comparable skill categories or include all components of labour income. In addition it is generally not standardised for variations in days and hours of work between firms. We need also to know much more about the human capital characteristics of employees - especially education and experience - and also more about labour performance in order to draw meaningful conclusions concerning efficiency wage differentials.

The quite large wage differentials between various groups of employees (despite abundant unskilled labour) do suggest

that more in-depth analysis of the causes of wage differentials is warranted. This task will be taken up in our micro study of the wage structure of two industries in Java.

CHAPTER FIVE

INSTITUTIONAL INFLUENCES ON WAGES IN INDONESIA

In Chapters Two and Three we gave some attention to the subject of institutional (mainly government and trade union) influence on the wage structure in LDCs.[1] It was suggested that their influences on wage differentials has probably been exaggerated in the literature on labour markets in LDCs. Nevertheless, in Chapter Three we suggested that these institutional factors are likely to be one of several influences which contribute to high modern sector wages. In this chapter we examine several of the major institutional forces which are relevant to the study of wage differentials in Indonesia.

The extent of trade union influence on wages partly depends on the attitudes of the government to trade union activities. In many LDCs, including Indonesia, the activities of trade unions are tightly controlled by the government. We shall see that even during the Soekarno period when unions were given a considerable amount of political freedom, the Indonesian government was concerned to curb the activities of unions.

In the first section of the chapter we look briefly at the influence of institutional forces on wages during the colonial period and in the early independence period (1950-65). There have been some major changes since 1965. But it is clear that

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1 As we have noted in Chapter Three, we define institutional forces to include government and trade union actions which have a direct or indirect influence on wages and wage costs. It will be useful to distinguish between the influence of institutional forces on the level of wages from their influence on wage costs. Minimum wage legislation, public sector wage policies and trade union bargaining all have an effect on the level of wages. But several other institutional influences affect wage costs but not necessarily the level of wages. These include labour legislation pertaining to conditions of work and employment (leave and holidays, hours of work, safety and other conditions of work, freedom to dismiss workers, etc.). In this chapter we are concerned with both kinds of influences.

although the political and economic climate has altered considerably, there is continuity in the policies of successive Indonesian governments towards the determination of wages and working conditions in the private sector. Despite the greatly diminished political influence of trade unions, their impact on wages has not changed markedly since the Soekarno era.

In the second part of the chapter we look at government and trade union influences on wages and working conditions since 1965. Several new policies have been introduced to improve wages and working conditions. But despite these changes government influence on wages would appear to be small in Indonesia. As in the period before 1965, the influence of trade unions and government on wages continues to be restricted largely to the small modern sector.

I. The Influence of Government and Trade Union Policies on Wages Before 1965

1. The Colonial Period

During the colonial period the Dutch government made little attempt to regulate the wages and working conditions of 'free' (non-contract) wage labourers in Indonesia. The main efforts of the colonial government in the field of labour protection were directed towards the protection of contract workers on estates and of Europeans. Regulations demanded that coolie contracts specify the level of wages, hours of work, duration of the contracts and methods of recruitment. A labour inspectorate was established to supervise the execution of contracts and the safety and health conditions on estates which employed indentured contract labour (Thompson, 1947:144-58). Various regulations were also passed concerning the methods of recruitment of Europeans and their conditions of employment, forms of wage payment etc. (Tedjasukmana, 1961:255-62). But the large majority of wage labourers in Java received no protection concerning hours of work, holidays, the level or form of wages

or any social insurance except for workman's compensation (set by law in 1939).[1]

Tight control over the activities of trade unions also allowed management a free rein in setting wages and working conditions in most industrial establishments. Fear of the potential political power of unions led the government to place strikes which disturbed the public order under penal sanctions as early as 1923 (Tedjasukmana, 1959:13-5). The strongest unions were in the public sector (especially railway employees) but the activities of these unions were tightly controlled after 1926 when many of the politically active union leaders were exiled and restrictions on the right to assembly were introduced. Total union membership was less than 100,000 in 1939; official statistics record that an average of only 20 enterprises and 1,250 workers were involved in strikes annually over the period 1936-40 (Thompson, 1947:160).

Thompson sums up the relatively powerless state of the union movement before the war:

> Even the small size of union membership ... did not accurately reflect the insignificant status of unionism in the islands ... promotion of measures to improve working conditions came principally from government employees, who possessed by far the largest number of unions and were naturally concerned simply with improving their own status ... The NEI [Netherlands East Indies] government did not favor joint negotiations by employers and employees for the regulation of working conditions. No public machinery existed for the arbitration of management-labor differences' (Thompson, 1947:160-1).[2]

Although there is a paucity of data on the structure of wages during the colonial period, it appears that the absence

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1 Two other exceptions were the 1925 law which aimed at protecting women and children from night employment and legislation passed in 1930 covering conditions of work in mines (Tedjasukmana, 1961:388-97).

2 However, in 1937 conciliation machinery was provided for disputes involving railway employees.

of significant government intervention in the determination of wages and working conditions and the extreme weakness of the trade union movement contributed to a relatively homogeneous wage structure compared with that described in Chapter Four.[1] In particular there is little evidence of markedly higher wages in the foreign sector. Incomes on estates (which were mainly foreign owned) tended to be slightly higher than in nearby farming areas but these differences were small except for Central Java (Coolie Budget Commission, 1956:46-7). Overall, wages on estates were little higher than those paid in the traditional industries and, indeed, appear to have been slightly lower than those paid in the traditional batik industry (Thompson, 1947:140-3; Pillai, 1947:180-1; Coolie Budget Commission, 1956:61-73).

Wages and working conditions were reported to be higher in the small number of foreign owned manufacturing firms that flourished in Java after 1935. However, even in these firms wages do not appear to have been much above those in traditional industries. Wertheim (1956:215) reports that: '... wages remained extremely low, working hours very long, social services practically non-existent and employers' powers excessive'. Similarly, wages, long hours of work and high levels of labour turnover and absenteeism were found in a foreign owned textile factory near Surabaya (Willner, 1961).

2. Early Years of Independence, 1950-65

With independence there was a total change in the institutional environment in which private enterprise operated. Successive governments in the 1950s declared their support for policies to protect and improve the welfare of the working class (see especially Tedjasukmana, 1961). A stronger trade union movement was given greater freedom to make claims for improvements in wages and working conditions.

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[1] Of course there were very large differences in wages between Europeans (and Eurasians) and Indonesians. The former dominated skilled jobs in the modern sector and in government. See Kahin (1952:29-36) and Furnival (1939:251-2).

Government legislation, especially in the area of labour protection, placed pressure on firms to improve wages and working conditions. The Basic Law on Labour Protection (Act No.1, 1951) limited hours of work, provided for holidays and rest days and ratified colonial legislation concerning restrictions on the employment of women and children. Other legislation was introduced covering workers compensation, collective labour agreements and labour inspection.[1]

Despite ostensibly pro-labour sympathies on the part of several early governments, government action to protect wage earners was slow in some major areas (Tedjasukmana, 1961:419-21, 448-95). This applied particularly to minimum wage legislation, legislation to protect labour against arbitrary dismissal and legislation dealing with various aspects of social security (especially health and accident insurance). New legislation had been drafted on these three subjects by the lat 1950s but further action was delayed by government officers wary of the burdens which the new legislation might place on private enterprise.[2]

The trade union movement emerged from the independence struggle highly politicised (Tedjasukmana, 1959). It was dominated by SOBSI (Central Labour Organisation of All Indonesia) which saw foreign capital as an agent of imperialism. SOBSI's demands for better wages and working conditions were bound up with a wider political struggle to rid Indonesia of foreign economic domination. A wave of strikes, especially in the plantation sector in 1950-51, led to government emergency legislation aimed at controlling industrial unrest.[3] Although

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1 See Act No.2, 1951, Law No.21, 1954 and Law No.3, 1951.

2 A new law providing protection against individual and mass dismissals was introduced only in 1964 and legislation on minimum wages and accident insurance came into operation under the New Order more than a decade later (see below).

3 See Emergency Act No.16, 1951; this was superceded by Law No.22, 1957 which is the basis for present-day arbitration of labour disputes.

the number of strikes was never large by international standards (especially if they were compared with the number of industrial disputes settled by arbitration),[1] they were an important feature of labour relations in the 1950s and declined significantly only after 1957 following the nationalisation of Dutch interests and even tighter measures brought in to prevent industrial action (Hawkins, 1963:264-8).

Although trade union membership was quite large, the movement continued to be divided along political and ideological lines throughout the 1950s and early 1960s (Hasibuan, 1968).[2] Unions competed for membership within enterprises and it was not uncommon for several unions to be represented in certain enterprises.

Thus both in the liberal period of the early 1950s and later during guided democracy the trade union movement was more oriented towards political rather than welfare objectives.[3] By the early 1960s the major trade unions had become closely involved in the wider political struggle between the army and the communist party (PKI). Under such conditions the large membership of trade unions was not a true indication of their economic influence. Few unions concluded collective labour agreements and, indeed, the government appears to have had little faith in the capacity of unions and management to negotiate at enterprise level. Both the 1957 law regarding labour disputes and the 1964 law governing dismissals contributed to more centralised decision-

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1 See Richardson (1958:69).

2 Altogether there were at least 12 labour federations in Indonesia in 1957-58 with an overall membership of over two million. Approximately half of these were affiliated to SOBSI (Hawkins, 1963:259-61).

3 See especially Hasibuan (1968:Ch. 6) on how economic objectives of the unions played only a minor role in their activities in the estate sector in North Sumatra in the early 1960s. Willner (1961:Ch. 6) describes the political orientation of the SOBSI affiliated SBT (Textiles Union) in an East Java textile factory.

making and took the initiative away from managers and unions (Hasibuan, 1968:231-40; Tedjasukmana, 1961:386).

The overall effect of union activity and government legislation in the 1950s appears to have been to increase wage differentials within the economy, in particular between foreign firms (and sectors dominated by foreign capital) and domestic enterprises. Tedjasukmana (1961:211-3) refers to the development of 'dual labour relations' where the more active unions were found in large scale, foreign owned firms which offered higher wages and better working conditions: 'Trade unions were stronger, more militant and aggressive and workers' demands more ruthless than in Indonesian enterprises where conditions were less favourable'. Lack of staff made it virtually impossible to ensure implementation of labour legislation in small firms but labour unions appear to have insisted that larger firms follow the provisions of the code (Hawkins, 1963:263-4).

Fragmentary information on wages in foreign firms tends to support this conclusion. Willner notes the vast improvement in working conditions in the textile firm she studied near Surabaya compared with the 1930s.[1] Stanvac petroleum company had greatly expanded its training programme and provided a wide range of social services not available to employees during the colonial period (Center for International Studies, 1957).

However the gains made in wages and working conditions even in the foreign sector were for the most part shortlived. Two factors contributed to declining real wages from about the middle of the 1950s: first, in 1957 the government nationalised the Dutch firms and in the early 1960s almost all foreign firms were nationalised; second, after 1956 the rate of inflation increased substantially (Paauw, 1963:202-6). Government

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[1] Ownership of this firm moved to Indonesian hands after the revolution but management continued to be controlled by foreigners (Willner, 1961).

management of former foreign enterprises suffered a plethora of problems, not least a shortage of capital, skilled labour and managerial personnel (Lim, 1962; Hasibuan, 1962:37-8). Even without high rates of inflation, the new managers might have been hard pressed to maintain the level of wages. Galloping inflation made it almost impossible to prevent a decline in real wages. A similar fate was experienced in the civil service and in various industries that were still dominated by private ownership (for example, kretek, dock workers, construction and harbour workers) (Hawkins, 1966:268-71; Blake, 1962:113-7).

One important effect of this period of economic instability and falling wages appears to have been the much greater reliance on payments in kind than in previous periods.[1] But these payments were also the result of the expansion of government investment in various sectors. McCawley (1971a:100, 111) notes that in 1960 the PLN (State Electricity Company) paid a rice allowance to its employees which amounted to approximately 15 percent of the total wage of an employee with three children (the percentage would have been slightly higher for a single employee). This rice allowance was later paid in kind and in addition to payments to the head of the household, each dependant was also granted a rice allowance. A similar situation appears to have prevailed in other parts of the public sector. These rice allowances which were also offered in public owned estates also helped to protect workers from declining real wages.

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[1] Wages in kind rose from approximately 20-30 percent of total wages of various groups of workers (workers on rubber and sugar estates and harbour workers) in Java in the early 1950s to 50-60 percent by 1961 (Hawkins, 1963:262); the percentage of wages paid in kind probably had risen even further by the mi 1960s. In North Sumatra the percentage of wages paid in kind was already high in 1951 (64 percent) and had risen to over 80 percent by 1964 (Hawkins, 1966:268-9). The incomes of employees were to some extent insulated from price increases in firms where payments in kind played a major role. But in some sectors (for example kretek) payments in kind were not introduced and workers suffered an even greater decline in real incomes (Hawkins, 1963:262; 1966:268).

Greater government participation in the economy also appears to have increased the 'welfare' nature of the wage system. In addition to payments in kind, family allowances were common in the public sector. These allowances played an increasing role in wage differentials within the PLN during the 1960s and this was probably the case in other public sector employment as well (McCawley, 1971a:117).

Overall, wage differentials between different kinds of firm in the period 1950-65 probably increased slightly in the early period of the 1950s and then declined as a result of nationalisation, the increased role of the public sector in the labour market, higher rates of inflation and general economic stagnation. It also appears that there was a decline in wage differentials between various occupations. In the PLN the differential between the lowest and highest paid employees declined from 25:1 to 10:1 over the period 1960-67. A regulation in the newly nationalised estates in 1959 attempted to reduce differentials between lower and upper level personnel (Lim, 1962:11-2).

To sum up, significantly increased government attempts at labour protection and much greater freedom of trade union activities following Indonesian Independence did bring some major improvements to wage earners. The new labour laws probably overcame some of the worst abuses suffered by workers during the colonial period. Quite large and active trade unions assisted in the implementation of the new laws.

However the majority of Indonesia's wage earners benefited little from the new legislation and trade union activities. The new labour laws tended to be implemented only in the relatively small modern sector. Trade unions also were active mainly in modern sector firms. Thus, consistent with the experience of many other LDCs, government and trade union intervention in the labour market

probably contributed to wider wage differentials between various groups of wage earners.

In the later years of guided democracy several forces tended to counter these pressures for wider wage differentials. High rates of inflation, relative economic stagnation, nationalisation of foreign enterprises and increased government participation in the economy probably all slowed down the tendency towards increased modern-traditional sector wage differentials. Our analysis of secondary wage data in Chapter Four suggests that intersectoral, interindustry and interfirm wage differentials may have begun to widen again with the inflow of foreign investment and rapid economic growth since 1965. The next section examines the extent to which these differentials have been influenced by the government and trade unions. We shall see that, as in the period before 1965, these institutional forces have probably only had a minor influence on wage differentials in Indonesia under the New Order after 1965.

II. Institutional Influences on the Wage Structure under the New Order

This section will briefly review the influence that institutional forces have had on the structure of wages under the New Order in Indonesia. The major issue is whether the pattern of wages described in Chapter Four has occurred primarily because of government or trade union intervention in the labour market or whether there are other explanations for interindustry and interfirm wage differentials. It is argued that the high wages in relatively capital intensive industries, and in large and foreign owned firms, cannot be attributed simply to the influence of these 'institutional' forces. In some areas - especially minimum wages and social welfare legislation - there has been greater intervention in the labour market than before 1965. But several of these policies are very recent and their effects on the labour market are not yet visible. Moreover control of trade union activity has been tighter and more

effective than in the Soekarno era. Overall, there has not been a major change in the policies of either government or trade unions towards wages and working conditions in the private sector. We must search for other factors to explain the wide wage differentials which were obtained in the early and mid-1970s.

It is commonly believed that there has been a decline in the influence of these 'institutional' forces accompanying attempts to encourage a more laissez faire economy since 1965. This impression has been created by an exaggerated picture of the influence of both government and trade unions on wages in the private sector in the Soekarno period. As noted in the previous section, new labour legislation introduced in this period only had a significant impact on wage and working conditions in a small segment of relatively modern, highly unionised enterprises. Successive governments did not give high priority to new labour legislation.

The first two sections examine the changes in labour legislation since 1965 and indicate the extent to which this new legislation and existing legislation might have affected wages and working conditions. The next section discusses the impact of trade unions.

1. Minimum Wages

Direct intervention by the government in wage determination is relatively new in Indonesia. Minimum wages received some attention in efforts to extend labour protection in the 1950s but legislation has been initiated in a coordinated government programme only since 1975-76.[1] Nevertheless, the government

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[1] Laws had already been drafted in the 1950s to set up Central and Regional Wage Boards to introduce minimum wage legislation. However the legislation was never enacted (Tedjasukmana, 1961:421, 448:51). Little was done until the early 1970s when following the example of the Jakarta Provincial Administration, several provinces (Central Java, Bali, East Nusatenggara, North Sumatra) set minimum wages for employees in the government sector. These wages were not binding on the private sector but were intended to provide a benchmark for private sector wages (McCawley and Manning, 1976:44-5).

has continued to move cautiously, in the scope of its legislation, the pace of its introduction and in the criteria which it has adopted for the setting of minimum wages.[1]

The government has opted for regional-sectoral minimum wages (minimum wages set for individual sectors in each region) rather than more ambitious regional or even a national minimum wage. This is seen as a first step towards regional and sectoral minimum wages and, in the longer term, a national minimum wage. Although there has been much discussion of the importance of introducing needs criteria measured by minimum physical requirements (KFM) in the setting of minimum wages, in practice these have not played a major role in determining minimum wage levels.[2] Much greater attention has been given to

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1 The procedures and principles for minimum wage legislation were worked out in a series of tripartite meetings between employers representatives, trade unions and government officials from 1974-76. The most important of these were the Lokakarya Pengupahan Nasional (National Workshop on Wages) held in Yogyakarta in August 1974 and Lokakarya Pengupahan (Wages Workshop) held in Medan in January 1976. The broad principles underlining minimum wage policy are set out in the opening speech of the Minister of Manpower at the Lokakarya Pengupahan in Medan.

2 For several years the Department of Manpower has collected detailed data on monthly minimum physical requirements (Kebutuhan Fisik Minimum, KFM). The KFM are based on minimum nutritional requirements worked out by the Directorate of Nutrition in Jakarta. They also include estimates of the costs of fuel , housing, clothing and other items in various regions of Indonesia. The food item accounts for a major share of the KFM (in Jakarta in mid-1976 it contributed 51 percent for a single man, and 73 percent for a married man with 3 children, to the total value of the KFM). However, it is unlikely that several items (meat, fruit, lighting, rent and various household goods) would be included in the regular budget of low income groups. Appendix Table 5.1 presents data on KFM for several regions of Indonesia for 1974. These may be compared with Sayogyo's (1974) poverty line (30 kg of rice a month, approximately Rp 3000-3500 in 1974 for a single man in urban areas). Such a comparison indicates that the KFM for Jakarta was approximately four times the poverty line; in most other regions the KFM was lower but still significantly higher than the poverty line. The ARTEP Report (1972:65) compared the KFM in Jakarta in 1972 with household

current wage structure, and the capacity of small scale firms to pay. Broad statements of principles underlying minimum wage legislation emphasise that the government is concerned that minimum wages should not be set at a level which threatens the existence of small scale, low wage enterprises.[1]

In April 1976 the Minister of Manpower issued a decree calling on Regional Wage Research Councils in each province to carry out surveys of the wage structure and to submit proposals for minimum wages in seven major industries: textiles (including batik), cigarettes and kretek, estates, forestry products, minerals, construction and other major light manufacturing industries in certain provinces.[2] By the end of 1977 several sectoral-regional and two region-wide (Central Java and North Sumatra) minimum wages had been ratified by the Central Government (Table 5.1). The minimum wages cover a wide range of industries according to their importance in different provinces (sawmills in West Kalimantan, coconut oil in North Sulawesi, kretek in East Java,

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2 (continued)
budget data on expenditure on food and other items in Jakarta in 1968-69 and concluded that the KFM were 'unattainably high'.

1 For example, this point is stressed in the statement of the conclusions of a meeting on the technical aspects of minimum wages in Semarang: 'The minimum wage ..... must assist in raising the standards of living especially of workers on very low wages but it must not threaten the existence especially of small scale, weak enterprises' (Indonesia, Department of Manpower, 1976:1, original in Indonesian, my translation).

2 The machinery for introduction of minimum wages was established in 1969 with the creation of a Central Government Wage Research Council (Dewan Penelitian Pengupahan Pusat) entrusted with the task of conducting research on wages and advising the Minister of Manpower on wage legislation. In 1974 and 1975 Regional (provincial) Wage Research Councils were set up throughout Indonesia to investigate wages in their respective provinces and to advise their Governors on legislation to be submitted for approval by the Minister of Manpower.

Table 5.1: Daily minimum wages in various industries and regions, 1977

Province	Decision	Sector	Year	Rp/ day
I. Approved prior to April 1976 decree				
Sumatra				
South Sumatra	Minister	Textiles	1975	400
Jambi	Minister	All sectors	1975	350
Java				
Jakarta	Governor	Public sector	1975	438
West Java	Governor	Textiles	1974	125
East Java	Governor	Public sector	1975	260
East Indonesia				
Bali	Governor	Public sector	1975	198
Husa Tenggara Timur	Governor	Public sector	1975	288
Irian Jaya - North	Governor	Public sector	1975	300
- South	Governor	Public sector	1975	270
II. Approved after April 1976 decree				
Sumatra				
North Sumatra	Minister	All sectors	1976	431
Lampung	Minister	Construction	1976	350
South Sumatra	Minister	Logging	1976	1250
West Sumatra	Minister	(1) Textiles	1976	350
		(2) Construction	1976	400
Kalimantan				
West Kalimantan	Minister	Sawmills	1976	700
South Kalimantan	Minister	(1) Crumb rubber	1976	350
		(2) Sawmills ply-wood	1976	400
Java				
Central Java	Minister	All sectors	1977	175
East Java	Minister	Kretek	1977	250
West Java	Minister	(1) Biscuits, bread, cakes	1977	350
		(2) Estates	1977	350
East Indonesia				
Bali	Minister	(1) Canned food-stuffs	1977	600
		(2) Kretek	1977	650
South Sulawesi	Minister	Construction	1977	350
North Salawesi	Minister	Coconut oil	1977	350
Nusa Tenggara Barat	Minister	Agriculture	1977	300

Source: Monthly and Quarterly Reports of Indonesia, Dept. of Manpower (Laporan Pelaksanaan Program Kerja), 1974-1977.

estates in West Java etc.). The large variations in minimum wages between sectors and regions indicate the government's concern to establish minimum wage rates which are broadly representative of market rates.

These new minimum wages represent a significant new step in Indonesian government intervention in the labour market. But, although it is too early to evaluate the impact of the new legislation, it appears unlikely that it will have a major effect on wages, either in the small scale sector or in large scale establishments. As noted, the government has attempted to set wage levels which do not jeopardise the existence of small scale firms. Even if minimum wages are higher than prevailing wages in small scale firms, it is unlikely that the legal minimum will be strongly enforced.[1] Unionisation is low in such firms and government enforcement of legislation is difficult and costly. In large scale firms where unionisation tends to be higher and government supervision more intensive, wages are likely to be already above the statutory minimum.[2] The burden of the new legislation will probably be felt most by medium scale firms.

2. Labour Protection and Welfare

Two major new laws concerning labour protection and welfare have been introduced since 1965. First, in 1970 a law on labour safety was introduced setting certain safety standards to be followed by firms.[3] Second, new legislation establishing a social insurance fund (Asuransi Sosial Tenaga Kerja, ASTEK) was passed in 1977. This law is likely to be of considerable significance for workers' welfare and also for wage costs.[4] The

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1 One report on wages in the kretek industry in East Java notes that approximately one and a half years after minimum wage legislation was introduced, only 30 percent of firms paid wages equal to or above the minimum wage set for the industry (Kompas, 21/2/79).

2 We will take up this issue again in our discussion of wages in the two sample industries in Chapter Ten.

3 See Basic Law No.1, 1970.

4 See Government Regulation No.33, 1977.

law applies only to firms with 100 or more employees or a wage bill of more than Rp 5m/month. The insurance fund provides workers' compensation, pensions and certain social contributions (payments to the families of a deceased employee, or for a marriage or a birth in the family). The fund is to be financed mainly by employers' contributions, supplemented by a small contribution from employees to a pension fund.[1]

ASTEK is likely to be particularly important for employers and employees in medium scale firms (with approximately 100-300 workers) where social insurance is much less comprehensive than in many large scale firms. It is also likely to be more important in these medium scale firms because ASTEK is levied on wage costs and, owing to more labour intensive techniques, wage costs are likely to be a higher proportion of total costs in these firms. Although ASTEK excludes the large majority of workers who are employed in manufacturing firms with less than 100 employees, it undoubtedly increases the number of wage earners receiving social welfare benefits.[2]

In addition to safety regulations and ASTEK, the government has encouraged collective labour agreements (CLAs) and work agreements (peraturan kerja) as a means of promoting the welfare of workers. The policy of encouraging the former (CLAs) has only had limited success: the Chairman of FBSI reported that up to January 1976 only 50 CLAs had been signed between

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1 For most manufacturing industries the firm's contribution ranges from seven to 11 percent of wages and the individual's contribution to one percent of wages. The firm's contribution in the service sector is much lower (on average four percent) and in mining, timber and open sea fishing considerably higher. The overall range for all industries is two to four percent of wages. In most manufacturing industries the firm's contribution is five to eight percent of the wage bill for accident insurance, 1.5 percent for pensions and 0.5 percent for death insurance.

2 According to the chairman of FBSI (Federation of Indonesian Trade Unions), over 300,000 workers were eligible for coverage by ASTEK in 1977 (Sudono, 1977).

employers and employees (Pelita, 6/1/76).[1] Owing to the slow spread of CLAs, in 1976 the Department of Manpower instructed all firms with more than 50 employees to draw up a list of work regulations covering wages and conditions of work. These were to be submitted to the department for approval. By May 1977 just over 2,000 such agreements had been approved with slightly under half of all agreements being concluded in Jakarta and West Java (Indonesia, Department of Manpower, 1977a). Although this covers only a small proportion even of large and medium sized firms, it represents the implementation of labour legislation on a wider scale than has hitherto been the case in Indonesia.

3. Implementation of Labour Protection Legislation

It is commonly believed that in several areas labour legislation has a significant effect on wage costs and labour allocation in Indonesia. These effects of the legislation have probably been exaggerated.[2] Moreover, their impact on wages differs considerably between large and small scale firms. We will look briefly at four subjects covered by labour laws which are relevant to this study. These are: (a) restriction of hours of work, and confinement and menstruation leave among female employees, (b) restrictions on hours of work of children, (c) restrictions placed on hours of work of all employees, and (d) limitations placed on the rights of employers to dismiss workers.

Employment of females. Regulation of child and female employment in Indonesia dates back to the colonial period (see Section I).[3] Female employment is not permitted at night under

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1 Two and a half years later the Chairman of FBSI noted that only 1600 of 110,000 firms in Indonesia were covered by CLAs (Tempo, 29/7/78:48). It is not clear how this situation compares with 1976 since in several industries one CLA covers many firms in some regions.

2 This point has also been made by Leiserson (1978:63-6).

3 Unless Basic Laws (Undang-Undang) are enacted in new legislation, the clauses of the legislation are not valid. This is the case of much of Indonesian labour legislation and

the 1951 Basic Law. However new legislation allows special permission to be granted.[1] It appears that it is not difficult to obtain permission for night work provided that the firm can guarantee the safety of female employees especially in travelling between their homes and the factory. However in some regions social pressures militate against female employment at night and shortages of such workers appear to be quite common.[2] These difficulties in obtaining female employees to work night shifts may help to explain a preference for male employees in many large scale firms.[3]

Three months confinement and maternity leave on full pay and two days leave during menstruation are both additional costs which must be borne by firms employing female employees.[4] Although it is unlikely that these regulations are implemented in small scale firms, they are quite important in the modern sector. These two articles of the labour law probably contribute to employment of less females in the modern sector.

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3 (continued)
as a result old Dutch laws continue to apply despite major changes already foreshadowed in the Basic Laws.

1 See Decision No. 559/DD/II/Dpnpt/72 of the Directorate of Labour Protection and Maintenance (1972). The legislation states that it is necessary to grant permission for females to work at night because of increased labour demand especially in tourism; permits will be granted after taking into account the needs of increased production and weighing them against social and cultural considerations.

2 For example, despite quite high rates of female unemployment in the city of Bandung, several large scale firms offering relatively high wages have been unable to recruit a sufficient number of female employees to work shifts involving employment at night (Kompas, 4/3/76).

3 For example, in contrast to the situation in several other Asian countries (especially Japan), modern sector firms in textiles in Indonesia appear to have a preference for employment of males. One employer in Pekalongan (north Central Java) explained that in contrast to Japan it was not socially acceptable to house young girls in dormitories or to allow them to work at night.

4 See Article 13, Basic Labour Law No.1, 1951.

Employment of children. The colonial laws regarding child employment continue to apply in Indonesia. In theory, firms are not permitted to employ children under the age of 12 and may not employ children aged 12-18 on night work (Soepomo, 1975:45-54). In practice, child labour is common in several industries and the plight of child labour has received considerable attention in popular literature on conditions of work in Indonesian manufacturing. The kretek industry is notorious in this respect, but the press has also noted that employment of children below the age of 12 is widespreasd even in large cities such as Bandung and Solo (Kompas, 4/3/76, 6/3/79; Suara Karya, 21/11/75). Despite this attention, the government has not raised the minimum age even to 14 in accordance with the Basic Law of 1951. It appears that policy makers are aware that it is extremely difficult to prevent the employment of child labour in traditional industries such as kretek and batik. Thus for example, the head of Bandung Manpower Office suggests that children below the age of 14 should be allowed to continue to work in jobs which do not require heavy or dangerous work (Kompas, 4/3/76). Moreover many people probably share the view expressed by a Member of Parliament that it is socially unjust to prevent children of poor families from working to assist family income (Nusantara, 16/8/73:1,3).

Hours of work. Indonesian labour law prescribes a 40 hour, six day working week.[1] Special permission must be granted for an extension of hours of work to a maximum of 54 hours a week (nine hours a day). Rates of pay for overtime are set according to rules laid down by the Department of Manpower.[2] In practice

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1 Firms wishing to work a five day, 40 hour working week must obtain special permission from the local Manpower Office.

2 Employees may work a maximum of nine hours a day at one and a half times the normal rates for the first hour and twice the normal rates for the second hour. On Sundays and holidays employees are entitled to double pay for up to seven hours work and triple pay for overtime (see Decision No.2, 1972 of the Director of Supervision of Work Norms). During 1975-76 the Department of Manpower records that approximately 100-200

there appears to be little difficulty in obtaining a permit to work more than the stipulated 40 hours. Implementation of these regulations is another area of difference between large and small enterprises. Various reports suggest that many small scale firms do not pay overtime in accordance with the regulations and some do not pay overtime at all.[1]

Dismissals. Quite stringent laws restricting employers' rights to discharge workers have been frequently mentioned as an obstacle to more rational allocation of labour in Indonesia. The labour law requires that unless either the worker or the worker's union agrees to a dismissal, individual dismissals must be permitted by regional disputes committes (P4D).[2] Mass dismissals involving 10 or more workers must gain the approval of the Central Government Disputes Committee (P4P). The law regulates separation payments and long service payments that should be paid to discharged workers.[3]

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2 (continued)
firms were given special permission to work overtime each month (Dept. of Manpower, 1975b, 1976b).

1 For example, in October and November 1974, the Department of Manpower reported a total of nine weaving firms were fined for working longer than 40 hours a week (one firm worked a total of 71 hours without permission) (Indonesia, Dept. Manpower, 1974b). Similar reports appear from time to time in press reports of conditions of work in firms in Jakarta and other regions (see for example, Sinar Harapan, 29/12/75, 9/2/76; Kompas, 25/7/72, 31/8/72).

2 There seems to be some confusion in Indonesian law and in the interpretation of the law concerning the conditions under which employers must obtain permission from the P4D to execute an individual dismissal. Basic Law No.12, 1964 (Articles 2 and 3) clearly states that permission is not needed if agreement between the employer and employee (or his union) is reached. This is contradicted by a later decision of the Department of Manpower on the execution of the 1964 Law (see Decision of the Director General of Protection and Maintenance of Manpower, No.362, 1967; see also Soepomo, 1970:125). In practice, if agreement is reached between employer and employee on the dismissal, it is not generally taken to the P4D (see for example the statement of the Head of Jakarta Manpower Office, Kompas, 28/6/76).

3 Separation payments are set according to the duration of employment with the firm in question (the maximum payment is four times the employees wage). Long service payments are payable after six years of service and may amount to as much

The limitations which this legislation place on employer decision-making can be exaggerated. A high proportion of individual dismissals are settled between the employer and employee without recourse to the disputes committees. Even if a dispute does occur it appears that the legislation is administered relatively efficiently.[1] In the words of one commentator the legislation '... now appears to be administered in a prompt and reasonable fashion. Requests for dismissal of superfluous or indisciplined workers are usually accepted and consent given within a week' (Leiserson, 1978:65).[2]

Mass dismissals are a much more sensitive issue in Indonesia. The negotiations over these may take time and cause considerable cost to the firm (Arndt and Sundrum, 1975). But as with other aspects of the labour law, special P4P permission for dismissal in practice applies only to large modern sector firms and especially to foreign enterprises. It is rare that the P4P does not agree to the company's demands provided that suitable separation payments are made. Two cases among foreign enterprises (Caltex and British American Tobacco) have received some attention in the press in recent years. But both were

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3 (continued)
as five months wages for employees with more than 25 years service (see Regulation of the Minister of Labour No.9, 1964).

1 The reports of the Department of Manpower do not record disputes going before all P4D. Only a small number are recorded for Indonesia during 1975 and the first six months of 1976. On average only 60 disputes, a high proportion involving cases of dismissal, are recorded as going before P4D each month over this period. On average the P4D reached decisions on 45 of these disputes each month (see Laporan Pelaksanaan Program Kerja, January 1975-June 1976).

2 Interviews with labour officials in Bandung suggested that employers, especially of large firms, were often supported by the P4D committees because of their contacts with powerful (military or civilian) groups who could influence the decisions of the committees. In addition to quite flexible administration of the law, firms are given leeway in their hiring and firing policies by a three month probationary period and by provisions for the employment of contract labour.

settled relatively quickly once compensation payments were agreed upon.[1]

Owing to a shortage of manpower and facilities, enforcement of labour law is largely restricted to the modern sector in Indonesia. In 1969 a Department of Manpower Official reported that there were only 132 job safety officers for all Indonesia compared with an estimated need of 700 to inspect each of the 25,000 (large and medium sized) enterprises once a year (Indonesia Raya, 10/12/69:2). Other problems are lack of transport facilities and general financial support for labour supervision activities. Bastos' (1968:20) observation still adequately describes the problems of implementing labour protection legislation in Indonesia:

> Enforcement of labour regulations is impeded by low budgetary allotments and a shortage of qualified personnel. The Labor Inspection Service and Labor Safety Inspection Service have only a token work force for the number of establishments to be covered. They are further handicapped by distances and shortages of transport facilities. As a consequence, the application of labor legislation is restricted almost entirely to large foreign owned concerns which the government regards as more able to absorb the cost of implementing such legislation.

In conclusion, labour legislation covering all four subjects (employment of women and children, hours of work and dismissals) discussed in this section has tended to have greater influence in modern sector firms. These firms are more closely watched by the Department of Manpower Officials and given greater attention by trade unions and the media. For example, these modern sector firms are more sensitive to charges of exploitation of child labour, or of failing to adequately guarantee the safety of women employed on night shifts. The Department of Manpower and unions are quick to act on any reports of improper payment of overtime allowances or excessive hours of work in modern sector firms. It is also more difficult for these firms to dismiss workers.

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[1] The Caltex case involved 1,356 workers and British American Tobacco 512 employees (Berita Yudha, 15/4/69; Nusantara, 22/4/69).

As Bastos has suggested, these aspects of the labour law tend to have even greater impact on foreign firms. Nationalist criticism of foreign investment is still strong in Indonesia and exploitation of Indonesian workers is one charge to which foreign firms tend to be singularly sensitive. Dismissal cases in foreign firms in particular receive considerable public attention and may drag on for several months.[1]

The greater influence of these aspects of the labour law in modern sector firms undoubtedly contributes to higher wage costs in these firms. They probably also result in even wider differentials in wage costs between firms and industries than the wage differentials described in Chapter Four. But they are unlikely to account for the large interfirm and interindustry wage differentials identified in that chapter.

4. The 'Development' and Control of Trade Unions

Since 1965 the trade union movement has had even less influence on wages and working conditions in the private sector than during the Soekarno era. Steps taken to reduce the political influence of trade unions after 1965 greatly weakened the movement. The banning of SOBSI which was the largest and most active trade union in the country imprisonment of many of its leaders and discrimination against ex-members dealt a severe blow to the trade union movement. Although the disappearance of SOBSI did not signify an end to trade union activity in Indonesia, the remaining unions were not united and received little government support. Following reorganisation of the political parties after the general elections in 1971 the badly splintered trade union movement was merged into a large, government-supported labour front. In this section we trace the steps leading to the creation of this new organisation and, in

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1 See for example press reports on the closure of the British American Tobacco plant in Surabaya in 1972 (Pedoman, 17/4/72: 2; Berita Buana, 25/5/72:2).

general terms, discuss its impact on wages and working conditions in Indonesia.[1]

The large number of trade unions that continued to operate in Indonesia after the 1965 attempted coup continued to have some influence on wages and working conditions in areas where they (and the political parties to which they were affiliated) had traditional support (especially in parts of West Java and the Outer Islands). However, in Central and East Java (and in large public sector unions such as the railway workers) where SOBSI affiliated unions had been strongest, tight control over trade union activities and fear of association with SOBSI prevented the development of effective trade union representation for several years. Even in areas where trade unions survived, continued domination by political parties ensured that they remained mainly vehicles of political action and advancement.[2] This was particularly true in an atmosphere in which many of the issues involving the rights of workers were sensitive politically because of their association with the platforms of the former left wing unions. Infighting between members and needless competition at enterprise level, as in the period before 1965, contributed to a relatively weak and divided labour movement.

The New Order government introduced two major changes to the industrial relations scene in an attempt to create a stronger, 'development-orientated' labour movement. First, it introduced the notion of '<u>Pancasila</u>' labour relations based on cooperation and conciliation on a tripartite basis between

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1 There has been virtually no research on the development of trade unions in Indonesia after 1965. The following sections are based on newspaper cuttings, various Department of Manpower reports and interviews with government officials and trade union leaders.

2 One outstanding example of the domination of trade unions by political parties was the direct intervention of the leaders of the Muslim Party, NU, in the election of the leadership of its affiliate labour organisation SARBUMUSI in September 1969 (Nusantara, 11/9/69).

employers, employees and the government.[1] This was to replace the confrontative attitudes of both unions and firms which prevailed prior to 1965. Second, the government encouraged unified union management of the labour movement. The amalgamation of various unions in February 1973 into FBSI (The All Indonesia Labour Federation) appeared as an independent decision of the major trade unions.[2] In reality this unification was mainly achieved through encouragement and behind-the-scenes pressure from the government.[3]

The formation of FBSI in 1973 ushered in a new era for the labour movement and labour relations in Indonesia. It changed the essentially political nature of the movement to a much more functional one. The new federation of trade unions was not directly tied to any one political party and its leaders were

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1 Although the exact nature of 'Pancasila labour relations' is rather vague its stated aims are cooperation among employers, employees and the government in raising production, sharing profits and carrying out responsibilities to God, society, the worker's family and to the firm. These goals are to be implemented through tripartite and bipartite bodies, collective labour agreements, a workers' court, regulations protecting workers, worker education and other special avenues (see especially Ali Murtopo, 1975:17-31; Decision of the National Seminar on Pancasila Labour Relations, Jakarta, December 1974).

2 FBSI was not the first body set up to represent the trade unions since 1965. KABI (Kesatuan Aksi Buruh Indonesia) was formed in 1966 to assist other mass organisations in the overthrow of Soekarnoist forces. KABI had only short term political objectives and was superceded by MPBI (Majelis Permusyawaratan Buruh Indonesia) consisting of 21 labour unions. MPBI functioned as a coordinating body and, from time to time, spokesman for the trade union movement. It did not greatly reduce the independent and often quite competitive activities of individual members.

3 As early as 1968 the Minister of Manpower had suggested that Indonesia needed a unified trade union movement (Sinar Harapan, 6/11/68; Nusantara, 14/12/68). This opinion was reiterated several times by the new minister (Sadli) (see for example Berita Buana, 18/9/72:2). It is likely that the presidential advisor Ali Murtopo (who appears to have played an important role in developing the ideas of Pancasila labour relations) played a key role both in persuading various trade unions to join FBSI and also in supporting certain factions for leadership of the new organisation.

from several different political parties and unions.[1] But the new organisation was not a strong independent force: it owed its existence to government support; all its leaders were approved by the government; in its early years it depended almost entirely on the government for funds; and its structure was unwieldy and bureaucratic.

The constitution of the FBSI provides for democratic election of trade union leaders at various national and regional congresses. But initially FBSI leaders appear to have been chosen on the basis of musyarwarah (mutual consultation) between existing unions, the government and various extra-governmental agencies involved with security and political development. At all levels, trade union leaders had to be approved by local internal security agencies and police. Quite a high proportion of its leaders are ex-military men or even businessmen and many have little or no experience in trade union affairs. At enterprise level new leaders must be approved by the Regional Council on the recommendation of the branches. In practice managers of enterprises tend to play a major role in the appointment of enterprise union leaders. In many firms union leaders are managers or supervisors.[2]

The government is wary of the potential political power of such a large organisation. Only in 1977 was a law passed giving FBSI the right to collect dues from its members through a check-off system (deducted from salaries and paid by the firm).[3]

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1 The General Chairman of FBSI is from the Muslim trade union, GASBINDO. In the 1977 general elections FBSI remained independent and several of its Central Executive Council members stood for election in each of the three political parties (three stood for PPP, three for PDI and four for GOLKAR).

2 This information is based on interviews with trade union officials in Bandung and Majalaya. In Majalaya even at enterprise level union leaders need a clearance from local police officials.

3 Dues to be collected by the FBSI from its members are set out in a ministerial decision and range from Rp 25 for employees earning less than Rp 5,000 a month to Rp 500 for employees earning more than Rp 50,000 a month (see Decision of the Minister of Manpower 01/MEN/77).

In addition the government has successfully kept tight control of traditionally vocal, public sector employees. All public sector employees (including employees in all categories of public enterprise - perum, perjan and persero) are obliged to join a separate, employees organisation KORPRI (Korps Pegawai Republic Indonesia).[1] Since the representatives of KORPRI are usually senior civil servants or managers of the state enterprises, the organisation is more an employers organisation than a trade union (Hadisumanto and Salim, 1978). Government Law No.23 1967 controls the level of wages and general conditions of work in public enterprises and ministerial and enterprise laws are passed within these guidelines to suit conditions in individual public firms. There is no machinery for settlement of individual labour disputes and to mid-1978 no public enterprise had drawn up a collective labour agreement (Tempo, 29/7/78:48). It appears that many articles of the labour law are not followed by these firms.[2]

The FBSI is extremely top heavy and bureaucratic. It contains both industry-wide and regional hierarchies. The trade unions are organised primarily on an industry basis with 21 industrial unions organised at three levels: Central, Regional (in practice, Provincial) and Branch (cabang).[3] There is also a coordinating body for all unions at Central, Regional and Branch levels.

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1 See Presidential Decree 82, 1971.

2 Hadisumanto and Salim (1978:Appendix 3) list a range of activities in many state enterprises (employees on probation for six months or more, overtime work without a permit, no provision for indemnity allowances and no formal arrangements governing grievances) which are in conflict with basic articles of the labour law.

3 The industry-wide unions include agricultural and estate workers, oil and mineral industry workers, cigarette and tobacco workers, textile and clothing workers, etc. and also workers in several service and transport industries (trade, banking and insurance employees, employees in tourism, maritime workers, transport workers, health workers etc.).

Although on paper there has been a rapid expansion of FBSI since its founding in 1973,[1] it is doubtful that the new trade union organisation has had a great deal of influence on wages or working conditions at establishment level. Government legislation (for example, controls placed on the right to strike) limits considerably the scope of union activity. The government (including security and police officials) and employers have a great deal of influence over the appointment of trade union officers. As a result unions are more likely to be instruments of control over workers than champions of their rights. The relative weakness of the unions may be seen from the government emphasis on work agreements (set unilaterally by the firm) rather than collective labour agreements as a means of ensuring acceptable minimum wages and working conditions. In most firms, unions appear to be too weak to negotiate collective labour agreements with the management.

The relative weakness of trade unions has not, however, prevented isolated pockets of industrial unrest mainly in opposition to low wages and poor working conditions. The virtual ban on strikes has not completely contained Indonesian workers. The Department of Manpower reports approximately eight strikes in eight months of 1974, 16 strikes in 1975 and a further seven in the first seven months of 1976 (Laporan Pelaksanaan Program Kerja, 1974-76). Almost all of these strikes have been in support of wage claims and a small number arose out of annual bonus and Hari Raya payment claims.[2] A high

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1 The Department of Manpower reports just under 6,500 unions in all Indonesia at the end of 1977 (see Laporan Pelaksanaan Program Kerja, January 1978). At the Fourth Anniversay of FBSI its Chairman reported that FBSI had established 26 Regional Councils and 211 Branch councils. All 21 Central Industrial Union Bodies had been established and over 4,000 enterprise unions were in operation with a claimed membership of over four million workers.

2 Seven of the 43 strikes recorded over the period 1974-77 occurred because of dissatisfaction with bonuses or Hari Raya payments, several others occurred for a variety of reasons and the remainder because of wage claims.

proportion took place in Jakarta in relatively large firms, many of which were Japanese joint ventures.[1] However these few strikes have caused only minor disturbance to industrial peace.[2] Overall the government has been quite successful in controlling and directing the activities of trade unions and in limiting the amount of industrial unrest in Indonesia since 1965.[3]

Summary and Conclusions

In this chapter we have examined the influence of institutional forces on the wage structure in Indonesia over three historical periods. Three major conclusions emerge from this survey. First, despite the very different political and economic environments which prevailed in the different historical periods, government and trade union intervention in the labour market has had little influence on the wages and working conditions of the majority of wage earners. Surplus labour supply conditions which had already emerged in Java by the beginning of the 19th Century have been the dominant influence on the incomes and conditions of work of wage earners in each of the three periods.

Second, the influences of government legislation and policies and trade union activities have been mainly felt in modern sector firms and especially by the foreign sector. There is little evidence of significant foreign domestic wage differentials during the colonial period when these institutional forces were weak. These differentials begun to emerge only with the new labour legislation and trade union activities in the

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1 Approximately half of all disputes occurred in Jakarta, approximately 25 percent were in Japanese joint ventures and nearly half were in partly or totally foreign owned companies (Laporan Pelaksanaan Program Kerja, various months 1974-77).

2 However it should be noted that some strikes probably are not recorded in official statistics.

3 More recently there has been an increase in industrial unrest in response to price rises resulting from devaluation in late 1978. See for example, Kompas 25/5/79 which provides a report on the increased number of strikes in Jakarta in the first half of 1979. See also Tempo, 16/6/79:8-12.

1950s (although the tendency towards widening wage differentials was cut short by nationalisation, high rates of inflation and economic stagnation). Since 1965 institutional pressures have probably contributed to widening interindustry and interfirm wage differentials, in particular between foreign and domestic firms.

Since Independence the small scale sector appears to have been little influenced by either trade unions or government legislation. We find the paradoxical situation in which legislation has been introduced to overcome abuses by employers that occur chiefly in the small scale sector, but the government has neither the means nor the will (mainly because of the employment implications) to implement much of the legislation in this sector. Indeed, some legislation deliberately excludes small scale enterprises. Labour legislation is to some extent a charade in poor countries like Indonesia.

Medium scale firms (in which conditions are often well below those required by law) may be more affected by government legislation and trade union activities than the large or small scale firms. Even in medium scale firms institutional forces appear to be relatively weak compared with several other Asian countries with longer histories of minimum wages, more comprehensive labour protection laws and a greater administrative capacity to implement these laws (see Watanabe, 1976).

Third, despite the greater impact of institutional forces in the modern sector there is little evidence to suggest that the quite large differentials in wages that emerged in the post-1965 period have been mainly the result of these institutional forces. New government legislation and better implementation of legislation may have contributed to improvements in wages and working conditions in modern sector firms. Trade unions have undoubtedly had greater impact in the modern sector and among foreign firms in the post-1965 period. But there is little evidence that government policies account for the quite large differentials that have emerged. Moreover the trade union movement has been much weaker since 1965 than at any time during the previous 15 years.

It is difficult to demonstrate precisely how these institutional forces influence wages and working conditions. The relationship between government legislation, trade unions and changes in wages and working conditions is a complex subject which requires a study of its own, reaching beyond the confines of economics. The case-study which is the focus of this thesis explores alternative hypotheses which help to explain wage differentials within the manufacturing sector. The analysis of survey data supports the conclusions of the broad survey conducted in this chapter.

Before proceeding to the analysis of the causes of wage differentials, it is necessary to examine in Chapter Six the major economic characteristics and the nature of labour markets in the three industries that have been selected for intensive study. Several of the special characteristics of these three industries are important to an understanding of the wage structure and its determinants in the sample firms.

CHAPTER SIX

THE INDUSTRIAL STRUCTURE, EMPLOYMENT AND WAGES OF THREE INDUSTRIES: WEAVING, KRETEK AND CIGARETTES

In the previous two chapters we reviewed employment patterns, wage structure and institutional influences on wages in the manufacturing sector in Indonesia. This chapter describes the industrial structure, employment and wages in three industries - weaving, kretek (clove cigarettes) and cigarettes - that have been selected for our field survey. It provides an important link between the more macro aspects of the labour market discussed in Chapters Four and Five and the analysis of survey data in later chapters.

A major objective of the thesis is to examine the extent to which wage differentials in manufacturing are associated with certain features of industrial structure, mainly differences in technology, ownership and, to a lesser extent, size of industrial establishments. The industries included in the field survey were chosen with the aim of examining the influence of these three variables on wages. The three industries are characterised by considerable diversity in size, technology and ownership patterns. The weaving industry is the most heterogeneous. Firms in this industry exhibit large differences in all three features of industrial structure. The kretek industry is marked by relatively homogeneous, labour intensive technology. However in this industry there is a wide range in size of firm. Cigarette firms do not display a wide range in either size of firm or technology but they contrast in ownership patterns.

In this chapter we examine the main characteristics of industrial structure in each of the three industries and investigate other aspects of production and employment which are relevant to the study of wage differentials. These include the geographical location of firms, wage systems and the extent of employment of certain kinds of workers, especially female and rural workers. It is necessary to examine the industrial characteristics of the three industries in some detail because of

the central role which they play in our later investigation of the causes of wage differentials. The survey of these characteristics indicates a wide range in technology and size of firm which challenges the notion of a simple dualistic pattern. The examination of secondary data on wages and worker characteristics enables us to analyse the field survey data in a broader perspective. It also provides some valuable information concerning the process of wage determination in the three industries. This is essential for the interpretation of the survey data.

The chapter is divided into three main parts. The first two deal with the basic industrial structure, location of firms and nature of production in weaving, and kretek and cigarettes. The final part briefly examines the secondary data on wages and employment patterns in the three industries.

I. The Weaving Industry

The weaving industry is ideal for analysing some of the issues raised in earlier chapters. It is one of the oldest industries in Indonesia and one of the most complex. The industry is characterised by a wide range in technology and size of firm, and by diverse ownership patterns. Thus it enables us to study the influence of labour demand patterns associated with varying size, technology and ownership patterns on wages and working conditions. In this part of the chapter we examine the history of the industry and its current structure.

1. The Development of the Weaving Industry in Java

In Java the weaving industry developed beyond the household phase of production with the spread of the handloom (ATBM - alat tenun bukan mesin) in the late 1920s. From the earliest years handlooms had to compete with mechanised production which was introduced into West Java in the 1930s. Partly because of protection given by the government, ATBMs competed successfully with the mechanised sector in this period and also in the first 15 years of Independence (Palmer, 1968:213-32). Up to the mid-1960s it appears that handloom production of mass consumption cloth, particularly sarongs and cambric, continued to grow.

It has been estimated that in 1964 ATBMs provided employment for approximately four times the number of employees in the mechanised sector (Hill, forthcoming:Ch.4).

A major change began to occur in the structure of the industry after 1967. The changes may be attributed to the influence of several factors: the abolition of central yarn allocations (which had provided protection to the small scale sector), the admission and encouragement of foreign and large scale domestic investment and an improvement in the investment climate generally. Mainly due to the rapid increase in new relatively capital intensive investment, production of woven cloth expanded rapidly after 1967. The period 1967-76/77 registered an almost fivefold increase in cloth production (from 225 million metres to 1215 million metres). Foreign capital bagan to play an important, though by no means dominant, role in the industry.

Despite government policies which have encouraged the inflow of foreign investment and modern capital equipment, it is surprising that much of the investment in weaving in the post-1965 period has been in small scale establishments.[1] Continued investment in relatively small scale industry tends to question the common view that this sector cannot compete with large scale firms.[2]

Perhaps of even greater significance for the productivity of the weaving industry since 1967 has been the increased use of high productivity, automatic looms and the decline of the ATBM sector.[3] The use of handlooms began to fall rapidly after

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1 Over half of all new projects in weaving were in firms with less than 50 looms (in most of these, employment would have been much less than 100) and over 20 percent of the new firms had less than 20 looms (Indonesia, Direktorat Jenderal Industri Tekstil, 1976).

2 For example, Boucherie (1969:58) suggested that 'economic operation requires units of a minimum size of 200 looms'.

3 A few firms had imported automatic looms before 1965 but

government protection of the industry was withdrawn in 1967.[1] Hill (forthcoming:Ch.4) estimates that the number of ATBM in operation has probably halved for all Indonesia in the period 1968-75.

2. Industrial Structure: Size, Technology and Ownership

In this study we are concerned mainly with the relationship between two characteristics of industrial structure - especially technology and ownership of firms - and wages. Here we examine briefly the nature of each and also the size of firms in the weaving industry.[2]

Size of firm. Despite the changes in the structure of the industry since 1967, a surprisingly high proportion of firms reported in the 1974/75 Industrial Census were small scale or cottage. Throughout Indonesia 36,000 cottage industry and 2,200 small scale weaving establishments operated in 1974 compared with 400 medium scale and 170 large scale establishments. Cottage industries were mainly located outside Java whereas most large, medium and small firms operated in Java. Only 28 of the 570 mechanised weaving establishments were located outside Java.

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1 (continued)
these were an exception. Unfortunately there are no data on the proportion of new firms using automatic looms.

1 The proportion of handlooms in use compared with the total number of looms registered provides a crude but telling picture of this decline. The percentage of handlooms in operation in 1975 was only 36 percent (56,000) of all looms registered in Java. The percentage was even lower (less than 15 percent) in West Java (Hill, forthcoming:Ch.4).

2 The two major sources of data on the size, technology and ownership of weaving establishments used in this chapter are the 1974/75 Industrial Census and the list of all mechanised weaving firms published by the Textiles Directorate General (Indonesia, Direktorat Jenderal Industri Tekstil, 1976). For a discussion of various shortcomings of industrial statistics in Indonesia see McCawley and Tait (1979).

In Java the large majority of establishments are cottage and small scale ATBMs. But the majority of employees are in medium and large scale establishments (Table 6.1).[1]

But the industry is by no means concentrated. Few plants employ 1,000 employees in weaving alone (although there are quite a large number of integrated textile plants of this size). Hill has estimated that the top four firms produce well below 10 percent of the industry's total output.[2] According to this criteria of seller concentration, the industry was relatively competitive.

Technology. The division of the industry into mechanised and non-mechanised components highlights the dualistic nature of weaving in Indonesia. Recently, however, this dualistic structure has been further complicated by the introduction of modern automatic looms in many firms. The new technology is so much more productive than the semi-automatic ATMs that at least a threefold division is needed to describe the range

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1 Whereas ATBM employment was concentrated in smaller firms (mainly in firms with 10-19 and 20-49 employees), approximately 75 percent of all employment in ATMs was in firms with 100 or more employees. Overall, the cottage sector accounted for only seven percent of all estimated employment in the industry in Java, the small scale firms (5-19 employees) 17 percent, medium sized firms (20-99 employees) 32 percent and large scale firms 44 percent. Although the small and medium sectors are quite large their contribution to total employment in the industry is much less than it is for the manufacturing sector as a whole (see Chapter Four).

2 This level is well below the 40 percent of production in the top four firms which Scherer (1970:60) suggests is a rough indication of the presence of oligopolistic power.

Table 6.1: Estimated employment in weaving in Java by size of firm, 1974[1]

Size of firm (no. of employees)	ATBM			ATM		
	No. firms	Employees		No. firms	Employees	
		No. (000)	Percentage		No. (000)	Percentage
1. Cottage: 5	8,539	8.5[2]	16	-	0.1	-
2. Small: 5-19	2,070	21.1	39	5	0.1	0
3. Medium: 20-49	515	15.5	29	247	7.4	10
50-99	95	6.7	12	148	10.3	15
4. Large: 100-499	18	2.3	4	133	26.6	37
500+	-	-	-	36	27.0	38
Total	11,137	54.1[3]	100	570	71.4	100[3]

1 Figures on employment have been calculated by multiplying the estimated mean number of employees in each category by the number of firms. Estimated means are based on the mid-point or slightly less, with the exception of the last two categories (100-499, 500+). For the category 100-499 the estimated mean (200 for ATM, 125 for ATBM) was well below the mid point. The estimated mean for the largest category (750) may be a slight over estimate.

2 Actual employment.

3 Consistent with actual recorded employment for all large and medium firms in the 1974/75 Industrial census.

Source: Indonesia, Industrial Census 1974-75.

of technology used in the industry (Plates 6.1 to 6.6 show the wide range in technology in preparation and weaving activities in the weaving industry.)[1] The range in physical productivity and in labour inputs used per loom is shown in Table 6.2. Output per unit of labour from automatic looms is approximately 50 times that of handlooms and 10-15 times that of semi-automatic looms. The differences would be even greater if quality differences in output were taken into account.

From an international perspective, textiles is regarded as a labour intensive industry (see for example Lary, 1967). But from a domestic viewpoint the extent of labour intensity depends on which segment is being discussed. While the handloom sector is relatively labour intensive, automatic ATMs must rank high relative to many Indonesian firms in capital intensity. However, since the secondary data fail to distinguish these various subsectors in estimates of capital and other inputs used, interindustry comparisons from these sources are of limited usefulness.[2]

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1 Hill disaggregated a step further to develop a fourfold division of firms based on different technologies. He identified ATBMs, two classes of semi-automatic ATM and automatic ATM.

2 Electricity consumed and expenditure on spare parts per unit of labour is much lower than in spinning or in more capital intensive industries such as structural metals. These indicators of capital intensity rank much higher in weaving than in the predominantly labour intensive sectors such as batik, kretek or tobacco processing. Since the data fail to distinguish even between mechanised and non-mechanised sections of these industries, these differences are only of very general significance.

Plate 6.1
Close-up of handloom operator. (Pedan).

Plate 6.2
Large handloom factory. One operator 10-12 metres cambric per day. (Majalaya).

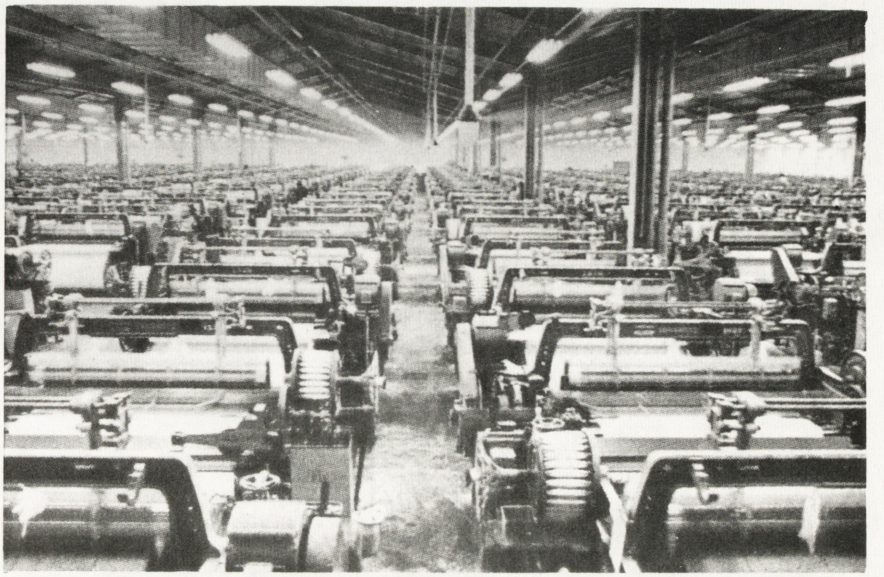

Plate 6.3
Japanese plant. One operator to 30 looms, 750 metres of cloth a shift. (Bandung).

PREPARATION OF YARN FOR WEAVING

Plate 6.4
Medium scale factory, semi-automatic machines. (Pedan).

Plate 6.5
Large scale cooperative, automatic machines. (Yogyakarta).

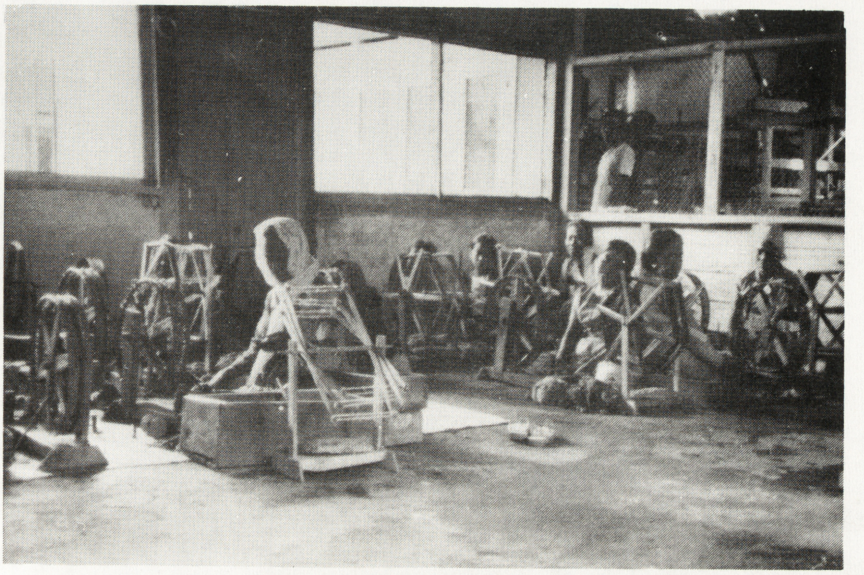

Plate 6.6
Non mechanised, handloom factory; young children and older women. (Majalaya).

Table 6.2: Number of operators per machine and labour productivity in weaving

Technique	Output/ machine shift[1]	Machines/ operators	Output per operator/ shift
Automatic looms	30	15-40	450-1,200
Semi-automatic looms	20-25	2-5	45-125
Handlooms	8-12	1	13

[1] Metres of blacu (cambric).

Source: Java Wages Survey 1975-76.

The new investment in the modern sector in weaving has created a demand for a range of new skills.[1] This is one industry that probably has been affected by the shortage of skilled and professional manpower in Indonesia (see Chapter Four). Modern sector firms also have had to train less skilled employees (especially machine operators) to operate the new machinery. There is a similar contrast in the tasks performed by other machine operators. But completely unskilled labour administrative and supervisory labour is likely to be less technology-specific. Loom operators in weaving who man 15-40 automatic looms in large scale establishments, require skills and perform tasks different from those of handloom operators in small scale factories.

Ownership patterns. In addition to wide variations in size of firm and technology, any study of the weaving industry is further complicated by diverse ownership patterns. These include foreign (joint venture) firms, state enterprises and cooperatives, and private domestic owned establishments.

By 1976 16 foreign firms (most of which were integrated spinning, weaving and finishing textile plants) operated weaving plants in Indonesia. These included 10 Japanese, three Hong Kong and one British and one American owned investment. All were joint ventures. With the exception of the British investment in

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[1] The relationship between technology and new labour demand patterns will be examined in detail in the analysis of our survey data.

East Java, all are recent investments under the 1967 foreign investment law.

By Indonesian (though not by international) standards, these foreign firms were relatively large: five operated more than 500 looms and nine more than 350. Although foreign firms accounted for one-third of all firms with 500 looms or more, their overall loomage was less than 10 percent of all looms and employment in ATMs. Employment was probably a slightly smaller proportion of total employment in mechanised firms.

Before 1965 12 state enterprises were in operation in the weaving industry in Indonesia. These included several nationalised private Dutch investments and large Dutch government plants, and also weaving plants attached to large government spinning plants established in the 1950s and 1960s. Several of these plants are now run directly by the Central Government (or PN Sandang, the national textile company). Several others (including four in Central Java) have been transferred to Provincial Governments.[1]

The large batik cooperative, GKBI (Gabungan Koperasi Batik Indonesia) and several other batik producing cooperatives entered weaving in the pre-1965 period with the objective of securing cheap and regular supplies of cambric (blacu) for batik producers. Eleven of these - including the large GKBI plant near Yogyakarta - invested in weaving plants before 1965 and a further

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[1] They vary considerably in size. At one extreme several firms own less than 100 looms and at the other, two owned more than 1,000. As we have mentioned above, the state sector now plays a much smaller role in the industry than before 1965. Only one small state owned unit has been opened under the New Order and total loomage and employment are probably lower than in the foreign sector.
It should be noted that PN Sandang is also involved in a joint venture with a Japanese company in a large integrated textile plant near Bandung.

15 plants have been established since 1965. These cooperatives are on an average, smaller than state or foreign owned firms. But, like state enterprises, they vary greatly in size. They are concentrated in the batik producing areas of Central Java (20 of the 26 cooperatives are located in Central Java).[1]

One other aspect of ownership which is likely to be of some relevance to labour management patterns is the division of domestic owned firms into pribumi (indigenous Indonesian) and non-pribumi (chiefly Chinese) groups. The competition between pribumi and non-pribumi entrepreneurs is a major issue of industrial development in Indonesia (see for example McCawley, 1979:68-73). There is a common belief in Indonesia (especially among pribumi) that non-pribumi entrepreneurs drive their workers harder and are less paternalistic than pribumi.

Weaving is one industry - like kretek and batik - where pribumi entrepreneurs have played a prominant role and have been able to compete with non-pribumi from the early years of the development of these industries in Java. However in the first major centre of the industry, Majalaya and Bandung, the non-pribumi from the earliest years, have threatened the position of pribumi businessmen. Almost all textile mills operating in Bandung were owned or financed by Chinese businessmen in 1976. The Chinese control of the industry in Majalaya appears to have strengthened since 1967.[2] One observer has described the

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1 In addition to its major plant near Yogyakarta, GKBI has also invested in a large Japanese joint venture producing high quality cloth near Pekalongan in Central Java.

2 In early 1976 only 30 percent of the 118 firms (or approximately 10 percent of all looms in Majalaya) owned by pribumi were still operated independently. The rest were either rented out or pribumi received work orders. Nearly two-thirds of all ATM looms in Majalaya were owned by non-pribumi. (Information from interviews with PERTEKSI officials in Majalaya, March-April 1976; See also Hill, forthcoming:Ch.4).

gradual withdrawal of many pribumi from textiles in Majalaya as the completion of a cycle beginning with involvement in agriculture, followed by movement to textiles and, finally, because of failure to compete wity non-pribumi, reinvestment again in agriculture.[1]

In Central Java - especially in Pekalongan on the north coast - pribumi appear to have fared much better than in West Java. Support from co-operatives, a more independent entrepreneurial spirit and a cohesive santri (muslim) trading community may have all contributed to the greater success of pribumi in Pekalongan (Price, 1977; Hill, forthcoming:Ch.4). Many Pekalongan businessmen appear to have made the successful transition from ATBM to mechanised production, and several of the smaller ATM factories established since 1967 have been in Pekalongan.

Businessmen in Pedan, another pribumi stronghold in Central Java, have been less successful. In Pedan only two firms have purchased ATMs in response to difficulties faced by ATBM production. Pedan pribumi have either had to be satisfied with a decline in their ATBM sales or have moved (or have been forced into other fields of investment (for example, minibus transport to the nearby towns of Klaten and Solo).

3. Geographical Dispersion of the Weaving Industry

Owing to the quite large inter provincial wage differentials described in Chapter Four, it will be necessary to take location of firms into account in our study of wage differentials. Location of the firm is important because although a few regions in Java contribute a high proportion of total output, the industry is nevertheless quite dispersed.

The major centres of the industry are in West and Central Java (Figure 6.1). Weaving on a large scale first developed in West Java and ATM production continues to flourish primarily

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[1] Indonesia. Dinas Perindustrian, Kabupaten Bandung (1975).

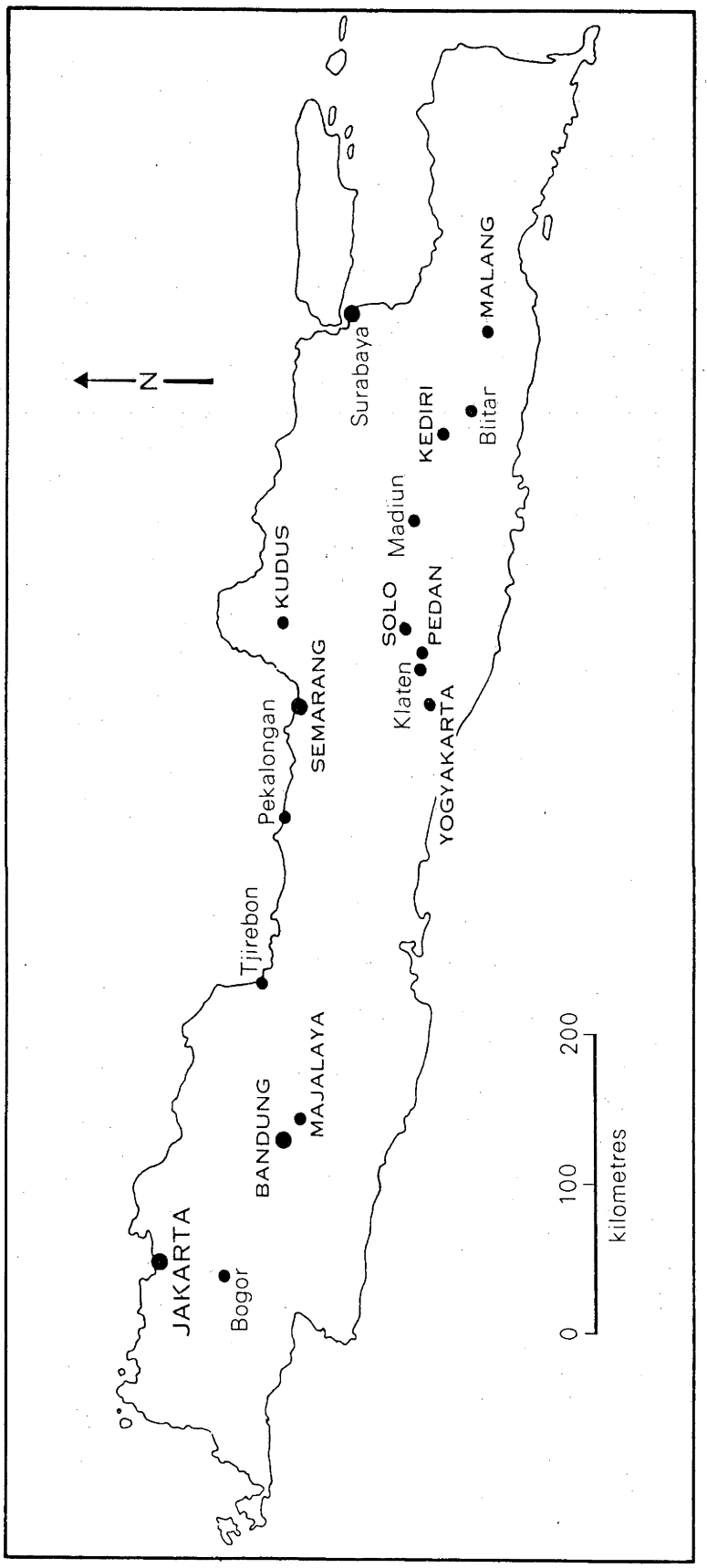

Figure 6.1: Java: location of major weaving, kretek and cigarette producing areas

in this region. The handlooms have been much more successful in Central Java.[1] Despite the large number of ATBMs (more than 10,000) registered in West Java, this province has only a small proportion of firms operating ATBMs and probably an even lower percentage of employment in this segment of the weaving industry.

The mechanised weaving industry continues to be concentrated in West Java which accounted for overhalf of total cloth output in early 1976.[2] Although ATM factories were not as geographically concentrated as the ATBM, most of these firms were also grouped in a few centres. Just over half of all ATM factories in Indonesia were located in or around Bandung or in the small town of Majalaya 30 kilometres south of Bandung. Within West Java these centres accounted for 85 percent of all ATM factories. Majalaya is by far the largest centre of small scale, mechanised weaving in Indonesia.[3] Pekalongan is the main centre of weaving in Central Java. Over half of all ATM factories registered

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1 Over 70 percent of cottage producers, over 60 percent of small scale ATBMs and just under half of all medium and large ATBMs were located in Central Java in 1974-75 (See Indonesia, Industrial Census 1974-75). Nearly 60 percent of all small scale ATBM operating in this province in 1974 were located in the two adjoining, southern kabupaten of Klaten and Sukoharjo (of which Pedan is the central weaving town).

2 Nearly two-thirds of all registered firms in 1976 were in West Java, a further 20 percent in Central Java and a small number in East Java, Jakarta and the Outer Islands (Indonesia, Direktorat Jenderal Industri Tekstil, 1976). A slightly higher proportion of smaller ATM firms (with less than 50 looms) were located in West Java, whereas the larger establishments were more evenly distributed closer to the large population centres of Jakarta, Bandung, Semarang and Surabaya.

3 One-third of all small scale factories in Indonesia were located in Majalaya. The number of looms (estimated) per factory in Majalaya (45) was much smaller than in other major weaving centres in West or Central Java.

in Central Java in 1975 (slightly less than 10 percent in Indonesia) were located in this town.[1]

II. The Kretek and Cigarette Industries

Cigarettes are produced in Indonesia in what (from the perspective of technology) may be considered two separate industries: kretek (clove cigarettes) and rokok putih (western 'white' cigarettes). Kretek are hand rolled, and contain cloves, tobacco and a mixture of spices. 'White' cigarettes are made purely from tobacco by imported cigarette-making machines (See plates 6.7-6.12 showing the techniques used in cigarette and kretek manufacturing). Like weaving, the production of cigarettes is divided into both non-mechanised and mechanised processes. Also similar to the weaving industry, there are considerable contrasts between the types of firm which are engaged in each of these manufacturing processes. The kretek industry is outstanding in Indonesia for the huge variations in the size of firm despite quite homogeneous, relatively labour intensive technology in production.[2] Mechanised production of cigarettes is carried out by both domestic and foreign owned firms which contrast both in the size of the firm and technology employed.

Despite the contrasts between production processes in the manufacture of kretek and cigarettes, their product markets are

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1 Whereas most of the small firms were located in the traditional weaving centres of Pekalongan, Solo and Klaten, larger scale establishments were more widely dispersed. Several were located in the large city of Semarang and others in or near other large towns in Central Java.

2 Over the decade 1967-77 all three of the major kretek companies have begun to produce machine-made kretek on a limited scale. But the majority of their employees continue to work in the production of hand-rolled kretek. Unless otherwise stated, the kretek industry is taken here to refer only to hand-rolled kretek.

KRETEK TECHNOLOGY

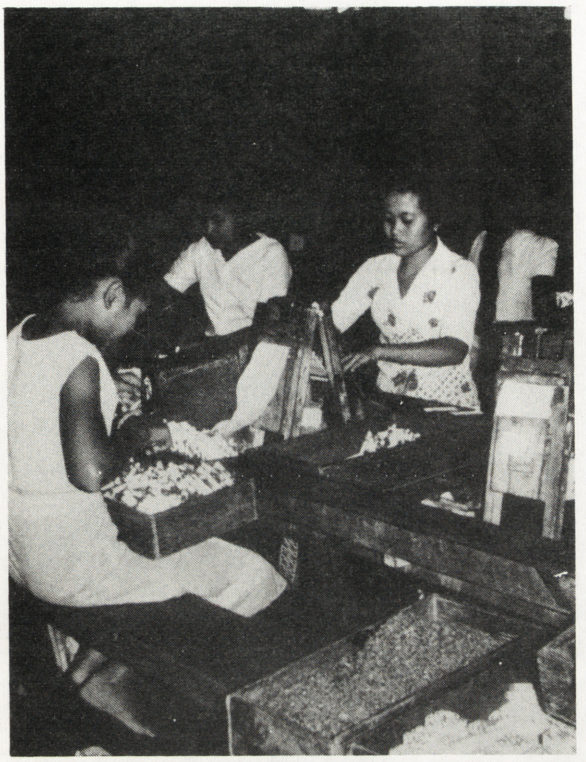

Plate 6.7
Kretek rolling machine, 3000-7000 kretek per operator per day.

Plate 6.8
Packing by hand, 500-1000 packets a day. (Solo).

Plate 6.9
Trimming cigarettes, usually performed by young children. (Solo).

EMPLOYMENT AND TECHNOLOGY IN KRETEK AND CIGARETTES

Plate 6.10
'Modern' factory, packing operations. 1500 workers in one room. (Kediri)

Plate 6.11
Domestic cigarette making machine, 1500 cigarettes per minute. (Solo).

Plate 6.12
Kretek rolling in 'giant' firm, over 1000 workers in one room. (Kudus)

closely related. They sell closely substitutable products in the same markets (usually in the same cigarette stalls) and there is a wide range in the quality and price of both types of cigarette. In the past cigarettes have tended to be smoked by more affluent, western-oriented consumers. However these divisions in the product market appear to be breaking down (see below).[1]

From the viewpoint of production techniques and employment patterns kretek and 'white' cigarettes should be considered different industries. However they have been included in this study partly because they are close competitors in the same product markets. The marked contrasts within the two industries in size, technology and ownership provide us with an opportunity to examine some of the major questions raised in Chapter Three.

The difference in size of kretek firms, and in technology and ownership in the 'white' cigarette industry (and the contrasts between the two industries in some of these features) have important implications for the structure of wages. In this section we will briefly review the history of the two industries in Java, and examine several of the structural characteristics (technology, size and ownership) and the geographical dispersion of firms in the two industries.[2]

A. The Kretek Industry

Like the weaving industry, the kretek industry has changed considerably over the past decade. Production has become more concentrated in a few non-pribumi firms and the industry has also become more concentrated geographically. But despite attempts to mechanise, the basic technology has remained unchanged. Indeed, with continued government protection, the industry has

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1 Unfortunately, there have not been any studies of the cross elasticity of demand for these two products.

2 In the following sections kretek will be denoted as kretek or kretek cigarettes and rokok putih merely as cigarettes or 'white' cigarettes.

been able to compete successfully with 'white' cigarettes. We will look briefly at these recent developments in the industry and the special characteristics of kretek production that are relevant to a study of wages.

1. Growth of the Kretek Industry

Kretek is one of the oldest industries in Indonesia. The industry began to develop at the end of the last century.[1] It flourished in the early part of the 20th Century in the heavily populated region of Central and East Java, especially in Kudus in northern Central Java and along the Brantas valley in south and central East Java (see Map 6.1). Availability of cheap supplies of labour, proximity to major tobacco growing areas in Central and East Java and a relatively developed 'smoking habit' were probably the major factors which influenced the growth of the industry in these regions of Java (Castles, 1967:26-8).

The industry began as home industry. This was followed by the putting-out system which developed on a large scale prior to the emergence of factory production as the dominant mode of production in the 1920s and 1930s. By 1929 the industry employed approximately 65,000 persons and was one of the major employers of labour in manufacturing in Indonesia (Castles, 1967:36).[2]

From the mid-1920s kretek producers faced competition from machine-made cigarettes. As in the case of weaving, the industry's survival was probably partly the result of protection provided by the colonial government.[3] Kretek production grew rapidly

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1 See especially Castles (1967:32-8) for a short history of the industry in the colonial era and Harahap (1952) for a discription of problems facing the industry in various regions before the Second World War and after Independence in 1949.

2 This was only slightly less than 70,000 employed in weaving (excluding cottage industries) in 1939 (Broek, 1942:81-3).

3 In the case of kretek, support took the form of a differential excise on cigarettes and limitations on increased investment in machine-made cigarettes. The excise was originally set at

before and after the war. It rose from around two billion cigarettes in the early 1920s to 15 billion in 1940 and to 20 billion in 1960s. At this time production was almost equal to the production of the cigarette industry. However under the New Order, production of kretek has grown at a faster rate than 'white' cigarettes. By 1975/76 production had already topped 30 million and by 1978 it exceeded 45 million compared with cigarette production which had reached only 20-25 million cigarettes. Castle's pessimism (he believed that the kretek industry would only be able to compete with cigarettes if it mechanised) concerning the future of the kretek industry has not been justified by the performance of the kretek industry over the past 12 years (Castles, 1967:39).

Part of the success of the industry since 1965 must be attributed to continued protection. The policy of differential excise taxes has been retained throughout the period of Independence.[1] In addition machine-made cigarettes production has been limited by application of strict licensing and several appeals by cigarette (and also kretek) factories to

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1 (continued)
a flat rate (20 percent) for both cigarettes and kretek but partly owing to protests from kretek producers, a differential excise (20 percent on kretek and 30 percent on machine-made cigarettes) was introduced (Harahap, 1952:210; Castles, 1967:30-7).

1 Since 1967 the excise has been set at 35 percent for kretek and 50 percent for cigarettes. However the protection afforded to the kretek industry has not only been by the level of the excise but also by the price at which it has been levied compared with the 'white' cigarette industry. Recently the government has attempted to reduce the discrepancy between market and banderol prices in the kretek industry (Tempo, 21/4/79:50-4).

use new machinery have been turned down.[1] However a switch in demand by the growing, relatively prosperous middle class away from cigarettes to higher quality kretek may also help to explain the rapid growth in kretek demand. Improved quality and vigorous advertising and promotional activities have enabled the larger kretek firms to expand their markets. Although there has been some expansion of machine-made kretek over the last five years, these are still only a small proportion of total kretek production. The government continues to oppose the widespread use of machinery in the industry.[2]

2. Industrial Structure: Size, Technology and Ownership

Size of kretek firms. Since 1967 the industry has become increasingly dominated by three giant kretek firms (Gudang Garam in Kediri, Jarum in Kudus and Bentoel in Malang). They manufactured over half of all kretek production in 1975. Employment in the three companies amounted to approximately 40,000 or close to half of all employees, (82,000 recorded in 267 large, medium and small firms in the kretek industry in 1974). Unlike the weaving industry, kretek production is highly concentrated in a few firms. According to the 'rule of thumb' measure of industrial concentration the industry can be described as relatively oligopolistic (Scherer, 1970:60). Other relatively large scale firms also play a major role in

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1 Castles (1967:107) reports two cases - one involving a kretek company and one involving British American Tobacco - in which applications for use of new cigarette-making machinery were rejected in the 1960s. More recently, British American Tobacco again failed in an attempt to introduce new machinery. The giant kretek company, Gudang Garam, has since 1976 only been permitted to use eight of its 28 new filter machines (Tempo, 21/4/79:51).

2 In 1972 the government gave permission to Bentoel in East Java to produce filter cigarettes for the domestic market. Subsequently two other companies have been allowed to produce limited amounts of kretek by machine for the export market. A Department of Industry spokesman reported that this was approximately 10 percent of total kretek production in 1978 (Merdeka, 26/8/78). We have estimated mechanised production

the kretek industry. Twenty four firms with 500 or more employees (including the three giant firms) accounted for approximately 75 percent of all employment in kretek in 1974 (Table 6.3). The average size (481) of all large and medium kretek firms was several times the national average (92) for all large and medium firms in 1974.

The concentration of production and employment in the three giant firms and a handful of large firms has resulted in the disappearance of many small firms from the industry over the past decade. Although Castle's (1967:139) figure (908) for the number of firms in the industry in 1961 is almost certainly an overestimate,[1] it is nevertheless revealing to compare this with 267 small, medium and large kretek firms recorded in the 1974/75 Industrial Census.[2]

Nevertheless, despite the current high level of concentration within the kretek industry, quite a large number of small firms were recorded as still operating in 1974 (see Table 6.3). Thirty-seven percent of all firms had fewer than 20 employees (although these accounted for less than one percent of total employment in the industry) and over half employed fewer than 50.

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1 (continued)
of kretek to be between three to four billion cigarettes in 1978, slightly lower than 10 percent of total national production of kretek in that year (Tempo, 21/4/79:51).

1 The figure given by Castles was collected from the OPS Rokok-Kretek (the producers organisation) in Jakarta and almost certainly refers to registered firms rather than those actually operating.

2 The situation in Kudus is illustrative of changes in the structure of the industry. Castles (1967:153-4) reports that the 10 largest firms in Kudus accounted for half of the total employment in the industry in Kudus of 20,000 in 1963. Another 200 firms employed the remaining 10,000 workers. Eight years later only 39 firms with a total labour force of 22,400 workers operated on a regular basis in Kudus. Nine large firms were responsible for over 75 percent of all employment. By January 1976 only 21 firms were actually in operation. Four of these - including Jarum - contributed 87 percent of all employment (25,000) in the industry in Kudus.

Table 6.3: Number of kretek firms in various size categories, Java and Indonesia, 1974

Size of firm	No. of employees	Number of firms				Indonesia	
		Central Java	East Java	All Java	Outer Islands	No. of firms	Estimated employment[1]
Small:	5-19	31	45	86	13	99	758[2]
Medium:	20-49	19	24	44	7	51	1,785
	50-99	14	18	32	3	35	2,625
Large:	100-499	28	25	53	5	53	17,400
	500+	11	11	22	2	24	59,351
All firms		103	123	237	30	267	81,919
Employment in large and medium firms		33,455	44,531	78,010	3,151[3]		

1 Calculated by multiplying mid point for each size each group for number of firms. Open interval was obtained by subtracting employment in other size categories from the total.

2 Actual employment.

3 Includes North Sumatra 1,335, Bali and Lombok 1,465 and Other Sumatra 351.

Source: Indonesia, Industrial Census 1974-75.

It is likely that many of these small firms operated irregularly according to demand conditions and supplies of working capital. Their share of total production is likely to be even smaller than their share of employment in the industry.

Although the causes of the increasing concentration of kretek production over the past decade are well beyond the scope of this study, some possible explanations may be advanced. Several factors - steadier supply of raw materials, easier access to capital (especially for large firms) and increased efforts in marketing and advertising - may all help to explain this trend.[1] Quite dramatic increases in the price of cloves over the period 1968-74 appear to have adversely affected many small scale producers who were unable to obtain sufficient capital to maintain their stocks of cloves.[2]

Technology. Despite the increasing scale of production in the kretek industry, the basic technology in making and packing cigarettes has remained almost unchanged.[3] Even in the largest firms rolling of cigarettes continues to be carried out with the

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1 In 1974 several large kretek companies began a huge advertising campaign by offering small gifts (generally a glass with the company emblem) for the presentation of a certain number (usually 10) empty cigarette packets at any retail outlet. This together with advertising campaigns in newspapers and in other media, and lotteries have probably all helped them to gain relative to small scale kretek companies.

2 The price of cloves rose sixfold in 1968-69 (Rp.250 to Rp.1500 per kilogram) and by another 300 percent in 1973-75 (Rp.1500 to Rp.5000 per kilogram). This meant an increase in the capital for cloves to produce 100,000 cigarettes (daily production of a small to medium sized firm) from about Rp.35,000 in 1968 to Rp.700,000 in 1974-75 (assuming the firm maintains enough cloves in stock for two months production).

3 This excludes the production of kretek by machine and also several innovations that have been introduced in the preparation of tobacco and cloves.

help of simple wooden rolling machines, trimming is done with scissors and packing and packaging by hand (see Plates 6.7-6.9). Nevertheless, although technology is relatively uniform throughout the industry, productivity varies according to the skill of various operators and the number of hours and days worked a month.

Table 6.4 gives some indication of the range in physical productivity in the kretek industry. Owing to the younger age and higher quality of employees in the large firms, there is a slight variation in average productivity per shift (column 4) in the three firms represented in the table (see Chapter Nine for a discussion of these patterns). However, because of large variations in hours of work, differences in physical productivity in different sized firms per month were much larger (column 2).[1]

Table 6.4 also shows the contrast in physical productivity between selected kretek and cigarette companies. The productivity of machine operators in cigarette is 50-100 times higher than kretek rollers. However, because of low levels of capital utilisation and a high proportion of auxiliary workers, the differential in physical productivity is lower when measured on a monthly basis. The margin narrows even further when the much higher average price of kretek cigarettes is taken into account. But productivity is still considerably higher in cigarettes.

A second feature of technology used in the kretek industry is the low proportion of labour costs to total costs, despite the relatively simple technology used in the industry. From this viewpoint, the kretek industry can hardly be considered labour intensive. Castles (1967:138) calculated that labour costs amounted to only 2.3 percent of the official retail price (and only three percent of the retail price excluding the 25 percent excise) in the early 1960s. Tobacco and cloves contributed by far

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[1] Productivity differences were even larger when measured on a value basis owing to the much higher price of the more popular brands produced in large firms.

Table 6.4: Comparison of physical productivity in kretek and cigarette firms

Firm type	Number of employees (1)	Output/labour ratio (000 cigs per month) (2)	Output/labour ratio (Rp 000 per month) (3)	Output per operator (000 cigs)[1] (4)
Kretek firm I	59	22	92	2-3
Kretek firm II	269	23	186	3
Kretek firm III	17,547	34	314	3-4
Cigarette firm I	97	161	333	176
Cigarette firm II	984	254	953	300

Note: Cases represented in this Table are chosen to illustrate some of the major differences in technology according to firm size. They are not necessarily representative of the sample of industry as a whole.

[1] Seven hour shift, cigarette making.

Source: Java Wages Survey, 1975-76.

the largest share of total costs. Labour union officials have estimated that wage costs had fallen to below two percent of the total in 1975 (Kompas, 29/12/75:9). Our own calculations (based on data collected by excise officials) suggest that despite the large increase in clove prices from 1968, the wage share has not changed greatly since 1963.

Table 6.5 shows the approximate contribution of various cost items to the average price of kretek at the end of 1974. These calculations suggest a wage share of approximately 2.4 percent of the market price of kretek.[1] Cloves comprised 35 percent of the retail price and were by far the most important cost item. Given the volatile nature of clove and tobacco prices, it is understandable that the cost of these items rather than labour costs are the major concern of entrepreneurs.

A third feature of the technology of kretek production is the high proportion of capital invested in stocks compared with fixed capital assets especially in large firms. We have already mentioned that the need for a minimum level of stocks has been a major problem facing small firms in recent years.
To make medium to high quality cigarettes tobacco needs to mature for one to three years. Most large kretek factories buy relatively cheaply at harvest and store most of their tobacco for at least 12 months. Although fixed capital costs may be a small proportion of total costs, kretek firms need to undertake very large investments in stocks of tobacco and cloves.[2]

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1 We may contrast this with the weaving industry in which labour costs as a percentage of total costs were approximately 20 percent for ATBM, 11-14 percent for medium scale ATM and eight to 12 percent for large scale modern firms (Hill, personal communication). In kretek wage costs were approximately four percent of total costs (excluding the excise and distribution costs).

2 In 1962 it was estimated that the current assets of a large kretek factory constituted over 90 percent of the value of total assets (Faruk, 1962:13). In Kudus in June 1976, one major manufacturer estimated that investment in tobacco and cloves amounted to four to five times the monthly value of production. Approximately 80 percent of the value of all

Table 6.5: Estimated contribution of various cost items to the retail price of one thousand kretek cigarettes, second half of 1974

	Rp000	Percentage of retail price to consumer
Raw Materials		
Cloves (0.7 kg @ Rp5000/kg)	3.6	35
Tobacco (1.4 kg @ Rp1000/kg)	1.4	14
Paper etc.	0.4	4
Sub total	5.4	
Wages	0.2	2
Profits and distribution costs	2.0	20
Retail Price (net of indirect tax)	7.6	75
Excise[1]	2.4	25
Retail Price to Consumer[2]	10.0	100

[1] Assume excise levied at harga banderol of Rp70.

[2] Price of Bentoel Premier.

Note: Although data is based on an official paper by the excise directorate, some adjustments have been made to this original data (in particular, the price of cloves is assumed to be Rp5,000 not Rp6,000 as in the original paper).

Source: Unpublished paper, Bea Cukai, Jakarta, 1975. Personal communications with officials in Department of Finance.

By this criterion also, kretek production is not as labour intensive as might appear from the nature of basic production activities.

However small scale firms, (because of shortages of working capital) do not have the capacity to maintain large stocks of raw materials or to extend large amounts of credit to wholesalers and retailers. It has been estimated that current assets were only slightly greater than 50 percent of total assets in small firms in Kudus in the early 1960s (Castles, 1967:137).[1] As a consequence of their low level of stocks, small firms are much more vulnerable to short run variations in the supply and price of cloves and other raw materials.

Ownership. Unlike weaving, the kretek industry is totally owned by private domestic entrepreneurs. There has never been any direct state, cooperative or foreign investment in the industry. But as in weaving, competition between pribumi and non-pribumi businessmen is also intense in kretek. However, like that of weaving, the history of the industry has been one of gradually increasing non-pribumi control.

In its early years the kretek industry was a stronghold of pribumi entrepreneurship in Java. But even in the colonial period Chinese posed a serious challenge to the pribumi. In East Java Chinese businessmen have dominated the kretek industry from the time the industry was established. The fall of Nitisumito, the largest pribumi firm in Kudus (indeed probably the largest pribumi firm in Indonesia before the war) marked the end of the era of

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2 (continued)
investment undertaken by the firm was in these two commodities (personal communication).

1 Many of the very small firms maintain little or no stocks of tobacco and depend upon current sales to provide sufficient capital to maintain production. Many of these only manufacture kretek irregularly according to supplies of capital.

pribumi dominance of the industry in this region. Castles (1967:85) succinctly describes the declining role of pribumi entrepreneurs in Kudus:

> Kudus therefore appeared to be one of the enclaves of indigenous entrepreneurship in an economy principally controlled by foreigners. .... The entrepreneurs of Kudus did indeed found a new industry to replace commerce as the basis of the towns economy. The most successful of them built factories larger than ever before owned by Indonesians. But the problem of Chinese competition nevertheless proved too great for them in the end. In the post independence period the share of indigenous businesses in the kretek industry is probably smaller than it has ever been.

In the early 1960s pribumi production in Kudus was less than half of the total for that region. Out of a total of 10 large firms which employed more than 500 employees, only three were pribumi (Castles, 1967:87,153).

The pribumi share has declined further since 1965. The three giant firms - Gudang Garam, Jarum and Bentoel - are all non-pribumi. The four largest firms in Malang (which produced over 90 percent of kretek in that region) were also all non-pribumi. Even in Kudus, pribumi accounted for only approximately 25 percent of all kretek produced in 1975-76. Not only is the pribumi share of production much smaller but, owing to the problems faced by small firms in the industry (most of which were pribumi), their number of enterprises has fallen considerably since 1965.

3. Geographical Concentration of Kretek Firms

This industry is much more concentrated geographically than weaving. It was initially centred in Kudus and Kediri which both accounted for almost 80 percent of total kretek production in 1934. By 1961 total production had almost doubled. However, the contribution of Kudus to the total had fallen substantially, Malang had become a major centre of kretek production and several other areas in Central and East Java - Semarang, Surabaya, Madiun, Solo - have emerged as important small kretek producing areas (see Figure 6.1). This situation changed considerably over the

next 14 years. A 50 percent increase in total production resulted from the more than doubling of production in Kudus and Kediri, and an increase of over 60 percent in Malang. Production in the various smaller centres of kretek manufacturing combined has almost halved over the past 10-12 years. Only in Solo among the major small kretek manufacturing areas in Java did absolute levels of kretek production increase.

B. The Cigarette Industry

The structure of the cigarette industry is very different from kretek. A small number of mechanised firms, including several foreign owned enterprises, employ only 6,000 workers. But they produce half to two-thirds as many cigarettes as the kretek industry. The industry does not depend primarily on supplies of cheap labour from Java. Quite a large proportion of total output is manufactured in North Sumatra. The rest is produced in several major cities in Java.

As in the kretek industry, production of cigarettes is concentrated in a few firms. From the colonial period the industry has been dominated by two firms: British American Tobacco (BAT) and the Belgian-owned Faroka.[1] In the 1950s a number of domestic owned, mainly Chinese firms were established but these were mostly small scale and never produced a major share of total cigarette output.

By 1974 the number of cigarette companies in operation had dwindled to only 15. BAT accounted for about one-third of all output in the industry and BAT and Faroka together produced over half of all cigarettes. Recently a Chinese owned firm in North Sumatra, STTC, has begun to provide strong competition for the two large foreign firms.[2] Three other foreign firms - all recent

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1 Castles (1967:20-1) reports that three firms - BAT, Faroka and Industria - accounted for over 65 percent of production in the industry in the 1950s and probably an even higher share before the war.

2 In 1975 this firm produced approximately one-fifth of all cigarette output in Indonesia.

investors - contributed less than 10 percent of all cigarette production in Indonesia in 1974.[1] According to the 'rule of thumb' measure of concentration mentioned above, this industry is highly oligopolistic.

Several other North Sumatran firms also contributed a major share of production and employment in the industry. Approximately one-third of all output and 25 percent of employment in 1974 was from this region.[2]

As we have already mentioned, there is considerable competition between kretek and 'white' cigarettes. There is a wider range in the quality and price of kretek cigarettes. A packet of each of the major brands of both types of cigarette is sold at about the same price. Although there is some feeling in certain circles that 'white' cigarettes are superior, this attitude has tended to break down over the past five to 10 years with the increasing popularity of kretek. Even the more expensive 'white' cigarettes consumed by the higher income groups in Jakarta and other major cities, have to compete with higher quality kretek (especially various machine-made kretek, filter cigarettes and hand-rolled Ci Sam Soe and Gudang Garam) as well as with more prestigous imported cigarettes.

In Table 6.4 we have noted the much higher physical productivity of mechanised cigarette production compared with the production of kretek. But it is also important to note the contrast in productivity within the cigarette industry. All five foreign owned firms use more recent, more highly productive making and packing machines than are used in most domestic enterprises. As in the kretek industry, actual physical labour

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1 Owing to strong competition from other cigarette and kretek producers, all three of these foreign firms had sold their investments in Indonesia by 1978.

2 Other domestically owned firms in Solo, Malang and Surabaya were much smaller and constituted less than five percent of all production in the industry in 1974.

productivity depends greatly upon the number of shifts and hours worked in the cigarette industry.[1] Unpredictable variations in supplies of raw materials and quite erratic demand for certain brands in particular locations have also resulted in quite large fluctuations in monthly production of particular firms in this industry. But as we shall see in the next section, relatively stable employment and use of time rather than piece rates of pay have provided much greater stability of earnings in cigarette firms than in kretek.

III. Wages and Employment Patterns in Weaving, Kretek and Cigarettes

The heterogeneity of the three industries in terms of size, technology, ownership and location makes it difficult to generalise about wages and employment patterns. Aggregative, secondary data are of limited usefulness because they fail to take sufficient account of some of these variations. Nevertheless, the data do give a broad picture of both changes in wages and employment patterns over time, and of how the three industries compare with other industries in the manufacturing sector. We will examine the level and form of wages, some of the characteristics of employees in the industry and the influence of 'institutional' forces - trade unions, employers' organisations and government policies - on the determination of wages and working conditions in weaving, kretek and cigarettes. This provides a useful general perspective from which the micro-survey data may be examined.[2]

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1 Since all cigarette firms noted in Table 6.4 were producing well below capacity at the time of our field survey, it is likely that the table understates the 'normal' differential in labour productivity between kretek and cigarette firms.

2 Owing to a lack of secondary data on wages and working conditions in the cigarette industry, this section deals almost exclusively with weaving and kretek.

1. Wage and Employment Patterns Before 1965

Factory production became important in both kretek and weaving in the 1920s and 1930s. By 1939-40, textiles and the tobacco industry (in which the largest branches were weaving and kretek respectively) employed approximately one-third of all workers in factory employment in Java (Sitsen, 1942:41). Even in the colonial period kretek manufacturing was well known as a low wage industry. Average wages of 12.5 cents (increasing to 15-20 cents for longer term employees) were only 50-75 percent of average wages of unskilled and semi-skilled employees in several other branches of industry (Castles, 1967:78).[1] Wertheim (1956:214-5) notes that kretek (along with batik) was one industry marked by paternalism in labour relations which provided a mantle for even worse exploitation than in other industries in Java. Labour conditions 'demanded from workers a practically unlimited amount of work for minimum reward'.[2]

Weaving does not have such a reputation as low wage industry. In the pre-war period the industry developed in West Java where wages were generally higher than in Central and East Java. Owing to a shortage of skilled workers in the early years of the industry, wages have been relatively high (Wertheim, 1956:226-7). But, in the mid-1930s wages in Majalaya were low by standards of manufacturing employment at that time. In several jobs - especially in preparation activities in which women and children were employed - workers only received a daily wage of 10 cents. Even weavers in Majalaya only received 20 cents compared with

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1 At this time 12.5 cents were worth approximately two and a half litres of rice (approximately 5c/litre).

2 In the villages which received work from the factories earnings were even lower. Sitsen (1942:26) reports that these wages were about half those in factories and Harahap (1952:211-2) notes that earnings were only eight cents (about 1.3 litres of rice) for 13-16 hours of work.

20-30 cents for unskilled workers in other branches of industry (Hiroshi, 1970:1). Availability of relatively cheap labour was probably a major factor contributing to the development of factory industry in Majalaya.

The weaving and kretek industries shared other common characteristics. Quite a high proportion of employees in both industries were women and children.[1] In Majalaya, the higher paid jobs in the weaving industry (mainly loom operators) were held mainly by men (Hiroshi, 1970:41). Also a high proportion of the work force in both industries was rural. This was common in the kretek industry in all locations. Although most weaving labourers in Majalaya already had been driven off the land, over 70 percent still participated in harvesting or planting in the mid-1930s (Hiroshi, 1970:41).

The rural origins of the work force (and probably also the high proportion of female and child workers) had an influence on patterns of labour utilisation in the two industries. In kretek, employees worked no more than 800-900 hours a year (approximately 100 eight hour working days) and absenteeism was high. Although absenteeism does not appear to have been nearly as high in Majalaya, a survey of 300 firms found that workers were only employed for 6.4 hours a day (Sitsen, 1942:26).

After Independence, earnings in these two industries (as in all manufacturing) were greatly influenced by high rates of inflation and, to a lesser extent, union and government efforts to improve wages and working conditions (See Chapter Five). Real wages in kretek more than halved over the period 1951-64 (Castles, 1967:147-9). The decline in real wages was only slightly compensated for by increases in wages negotiated by a

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1 Sitsen (1942:42) notes that 39 percent of all employees in tobacco and 34 percent in textiles were female.

relatively active trade union movement which, from the early 1950s, negotiated wages and working conditions with the employers' organisation, GAPPRI.[1] In weaving there was much less centralised determination of wages and working conditions. Wages negotiated by some firms appear to have set the standard for negotiations between unions and management in other enterprises in the weaving industry in the Bandung region. But here also wages probably declined considerably after 1956.

2. Wages and Employment Under the New Order

Since 1965 the situation of wage earners in weaving in the Bandung region has improved considerably, mainly as a result of industry-wide wage negotiations. In 1968 several trade union organisations in the city of Bandung signed a collective labour agreement with the producer's representatives, PERTEKSI. In addition to a number of clauses covering various aspects of employees' welfare, this provided for regular wage increases.

The minimum wages negotiated under this agreement have increased markedly in real terms for daily and monthly employees, and also significantly for piece-workers. Minimum daily rates increased 10 fold over the period 1968-77 compared with only a threefold increase in rice prices over the same period (Appendix Table 6.1).[2] Although the relative weakness of the unions since 1965 did not guarantee that the agreements would be implemented, the agreements appear to have been associated with a major

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1 The agreements in 1968 and 1969 covered hours of work and payment of overtime, separation payments, pensions, health coverage, special allowances, payment of wages during holidays and procedures to be followed in dismissal cases.

2 Annual negotiations between PERTEKSI and the unions also covered annual bonuses and Hari Raya bonuses, both of which also increased considerably in real terms over this period.

improvement in wages and working conditions compared with the pre-1965 period.[1]

Similar agreements have not been negotiated on an industry-wide basis in weaving in other regions. It is likely that employees (especially in the poorer regions of Central and East Java) may not have fared as well as in West Java. Up to June 1976 only five textile mills in Central Java had signed CLAs with their workers.

Since 1965 the annual negotiations on wages and bonuses paid in the kretek industry have continued in all the major producing regions.[2] However these negotiations do not appear to have greatly improved real wages in this industry. By 1975-76 real wages (in rice equivalents) in Kudus had improved on the lowest levels experienced during rapid inflation in the 1960s. But they were still well below levels reached in the early 1950s (Appendix Table 6.2). Minimum real daily wages had increased markedly in the 1970s but piece rates for cigarette rollers (tukang giling) had risen only very slightly since 1964. In contrast to weaving in Bandung, the industry has not experienced generally improved wages in the 1970s.

There are numerous differences between various regions of Java in the level of wages negotiated in the kretek industry. Daily and piece rates were lowest in Solo and highest in Malang

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1 It appears that the annual agreements concerning wages and bonuses were well known and generally followed for daily and monthly employees. Minimum wages were much more difficult to implement for piece workers whose basic rates varied according to the type of cloth and whose incomes depended considerably on hours and days worked a week.

2 These agreements include articles on a seven hour day and a 40 hour working week, annual holidays with full pay, double pay on public holidays, confinement leave and pay during confinement and medical treatment in the event of sickness.

(Table 6.6). These variations were, however, quite small for piece workers and the agreements have had a great influence on the uniformity of wage payments in different regions in the kretek industry (this will be shown later in the analysis of survey data).

Despite formal agreements between the unions (after 1973 represented by FBSI and GAPPRI) the kretek industry continues to be known for its low wages and for various abuses of clauses in the labour law (especially employment of child labour, long hours of work without adequate overtime payments and poor working conditions) (See for example, Kompas, 4/3/76).[1] Average wages recorded in the 1974-75 Industrial Census were much lower in the kretek industry than in weaving or cigarettes. Indeed kretek remains one of the lowest wage industries in Indonesia, and the tobacco industry (of which it is part) had the lowest wages of all four digit industries in Indonesia in 1974-75 (Table 6.7). The contrast was particularly marked between kretek and cigarettes. According to the Industrial Census the latter was one of the highest wage industries in Indonesia.

Two important features of wages in the both kretek and weaving are the high proportion of piece workers and relatively small proportion of wages paid in kind. In Majalaya, quite a high percentage of jobs in ATM factories and almost all jobs in handloom factories were carried out on a piece work basis. Wages are rarely influenced by length of service, thus encouraging high rates of labour turnover. (Hiroshi, 1970:74-5). Also payments in kind were a relatively small proportion of total wages in weaving (Table 6.7). In this industry, as in kretek, rewards appear to be quite closely related to productivity in a high proportion of firms.

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1 Only in Kudus are specific provisions made in the industry-wide agreements for overtime payments. Firms in most regions do not admit that they employ children as cigarette trimmers. The children are regarded the responsibility of the cigarette rollers (who generally recruit them) and are paid by the rollers.

Table 6.6: Minimum wages in the kretek industry in various regions of Java

Region	Daily (Rp)	Monthly (Rp)	Cigarette rolling (Rp/000 cigs)[2]	Holiday Pay (Rp/day)
Solo	125(115)[1]	3,250	60	60
Kedin	150	3,600	65	40
Kudus	165	3,500	70[3]	80
Malang	200	6,000	70	63

[1] Rp 125 for males, Rp 115 for females.

[2] For cigarettes up to 8cm in length or cylindrical cigarettes (Malang).

[3] Overtime rate Rp105 for more than 3,000 kretek.

Source: Agreements between FBSI and various kretek producers, organisations, OPS Rokok Kretek Surakarta, PPRK (Kudus), GAPEROMA (Malang), GAPEROKED (Kediri).

Table 6.7: Some characteristics of the workforce in large and medium firms in selected industries, Indonesia, 1970, 1974

Industry	Number of employees ('000) (1974) (1)	Average number of employees (1974) (2)	Percentage of female employees (1970) (3)	Mean wages[1] (Rp 000) (1974) (4)	Payments in kind as a % of wages (1970) (5)
I. Textiles					
Weaving	98.8	81	35	8.1	10
Spinning	20.7	460	9	18.8	31
Batik	12.5	36	47	7.0	10
All textiles	162.4	84	35	9.4	18
II. Kretek/Cigarettes					
Cigarettes	6.1	359	nd	21.3	nd
Kretek	81.0	481	nd	5.3	nd
All tobacco	127.6	166	76	5.9	6
All industries	655.8	92	37	11.9	23

[1] Includes overtime, bonuses and social service contributions.

Source: Indonesia, Industrial Census 1974-75; Industrial Statistics (1970).

A similar pattern of wage payment and employment exists in kretek. All major production tasks - rolling, packing, trimming and packaging cigarettes - are performed on a piece work basis. Piece workers (mostly women) account for well over half all employees in most kretek factories. In addition, data for the tobacco industry as a whole indicate that payments in kind are a small proportion of total wages compared with other industries (Table 6.7).

A high proportion of female employees continues to be a major feature of the kretek and cigarette industries (see column (3) in Table 6.7; Plates 6.7-6.9 show that almost all major operations in kretek are performed by women). The proportion of female employees in the kretek industry have increased over the past 30 years. In 1970 females comprised over 75 percent of all employment in large and medium kretek factories. This was almost double the percentage of females recorded in the industry in 1939-40.[1] This trend appears to be very marked in Kudus where males, who had played a major role in rolling and packing, have almost been totally replaced by females.[2] This is probably due to low wages in this industry since the 1960s.

A high proportion of kretek workers - especially those involved in basic piece work operations - continues to live in rural areas. Castles (1967:53) noted that in Kudus in 1964-65 only a small proportion of employees in kretek factories lived in the town. In Kudus a number of factories (especially those

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1 As we have noted in Chapter Four, the tobacco industry accounted for approximately 40 percent of all female workers employed in medium and large firms in Indonesia in 1970.

2 One respondent in Kudus commented that, in contrast to the pre-war period, it was no longer socially acceptable for males to be employed in kretek.

owned by the big firms) were actually located in rural areas close to Kudus.[1] In other regions rural employees travel several kilometres to work each day.

In contrast, quite a high proportion of the work force in weaving in Majalaya appears to have completely severed its links with agriculture. In 1967-68 many of the employees in weaving in one village either came from other regions or were employed in non-agricultural pursuits in the town (Hiroshi, 1970:74-5). Only the declining ATBM sector consists primarily of rural employees.

To sum up, the secondary data on wages and employment patterns provide general support for some of the propositions advanced in Chapter Three. Wages were much lower in the labour intensive kretek industry than in weaving or in cigarettes. They were much higher in the relatively capital intensive, foreign dominated cigarette industry. The contrast in wages between the industries appear also to be associated with certain patterns of labour supply. Kretek firms employed a much higher proportion of female and rural employees than weaving (and probably also cigarettes).

However these secondary sources provide only a superficial, piecemeal picture of wages and employment in the three industries. The data are especially inadequate in describing these patterns in the heterogeneous weaving industry. Majalaya (from which much of the secondary information on this industry is drawn) is by no means representative of the weaving industry. Secondary data provide very little information on wages and employment in the small cigarette industry. We will need to turn to our survey data to provide a more satisfactory explanation of the causes of wage differentials between (and within) the three industries.

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[1] In 1976 several factories were located, five to 10 kilometre from Kudus and one as far as 19 kilometre from the town.

Summary and Conclusions

This analysis of the three industries included in our field survey has highlighted the considerable contrasts in industrial structure and wages both within and between the industries. The weaving industry is marked by a wide range in technology ownership and size of firm and kretek by huge variations in scale of firm. Both contrast with the small, concentrated and foreign dominated cigarette industry.

There were also some similarities, especially between the weaving and the kretek industries. They are among the oldest industries in Java and both have experienced major structural changes since 1965. Capital intensive and foreign firms have become much more important in weaving. In kretek, production and employment have become increasingly dominated by three firms.

The industrial characteristics of the three industries have important implications for the pattern of wage differentials. The extreme labour intensive kretek industry is one of the lowest wage industries in Indonesia. Its low wages may be attributed to high levels of labour intensity and a large proportion of female and rural workers employed in kretek firms. At the other extreme, the capital intensive, foreign dominated cigarette industry is one of the highest wage industries in Java. The contrast between wages in cigarettes and kretek is consistent with the proposition that wages are positively correlated with capital intensity and foreign ownership (see Chapter Three). Weaving, like kretek, is a relatively low wage industry and also employs a high proportion of female workers. But it is difficult to generalise about the possible causes of wage differentials in this industry because of the heterogeneous nature of technology and ownership; secondary data on wages do not distinguish between the quite different segments of this industry.

There was not sufficient secondary data to allow us to examine the relationship between wages and the major structural

characteristics of the three industries described in this chapter. We also need to know much more about the characteristics of workers and patterns of labour management in the different kinds of firm in order to be able to satisfactorily examine the causes of wage differentials. This task will be taken up in the following four chapters in which survey data collected from a sample of firms in the three industries will be analysed.

CHAPTER SEVEN

THE DETERMINANTS OF WAGE DIFFERENTIALS: A MULTIVARIATE APPROACH

This chapter examines several propositions concerning the causes of interfirm wage differentials in the weaving, kretek and cigarette industries in Indonesia. The hypotheses are derived mainly from the general framework of analysis presented in Chapter Three. But they also take into account some of the special features of Indonesian labour markets and of the three industries discussed in Chapters Four to Six.

In Chapter Three we concluded that three broad groups of factors are likely to influence wage differentials between capital and labour intensive firms. These were internal labour market factors, human capital influences (worker characteristics) and institutional factors. The effect of human capital and institutional factors on wages is examined in this chapter. The influence of internal market variables (especially firm-specific training and wage productivity effects) is much more difficult to measure. In this chapter we only provide indirect evidence for the influence of these factors on wages. This is done through an examination of the extent to which capital intensity and certain worker characteristics are related to wages. In Chapter Nine these internal labour market influences are discussed further through an examination of the different approaches to training in capital and labour intensive firms. In Chapter Ten we investigate the influence of capital intensity and foreign ownership on labour turnover and absenteeism.

In order to examine the separate influence of various sets of factors on wages, the data analysis was undertaken in two stages. First we investigated the influence of three sets of variables on wages. These were (i) capital intensity, foreign ownership and other firm characteristics; (ii) worker characteristics; and (iii) several institutional variables. The influence of all these variables on wages have been given some attention in the theories or empirical studies of wages discussed in Chapters Two and Three. In the second stage we examined the joint influence of a combination of the more important of these variables on wages.

The chapter is divided into four parts. The first briefly describes the sample and field survey on which the subsequent data analysis is based. The second part investigates three hypotheses concerning the separate influence of firm characteristics, worker characteristics and institutional factors on wages The third part examines the influence on wages of all the major variables which recorded a significant relationship with wages in the regression equations tested in part two. The interrelationships between these variables are also investigated. The analysis in the second and third parts is undertaken for one occupational category only. In the fourth part we examine the extent to which the conclusions of the earlier analysis apply also to several other occupations.

I. Major Characteristics of the Sample

The field survey was primarily designed to provide data which would enable an investigation of the relationship between various characteristics of manufacturing firms and wages. Firms were selected from three industries - weaving, kretek and cigarettes - which exhibited a wide range of size, technology and ownership patterns (Chapter Six). The sample was selected on a stratified random basis to portray these variations. The range in the three main characteristics of the sample firms is represented in Table 7.1.[1]

The differences within the sample broadly reflect the variations within and between the three industries that were described in Chapter Six.[2] The largest number of firms was

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1 The sampling procedure adopted in this study is described at greater length in Appendix 7.1.

2 However it should be noted that stratification of the sample by size and ownership (the latter in weaving and cigarettes) has resulted in over-representation of large and foreign firms compared with the proportion of these firms in each of the three industries.

Table 7.1: Characteristics of sample firms

		Weaving	Cigarettes	Kretek	All firms
No. of firms		55	8	20	83
Total no. of employees		22,330	3,520	60,020	85,870
1. No. of employees:	$\bar{x}$	406	440	3,001[1]	1,058
	range	13-2,005	97-984	18-22,076	
	SD	514	302	5,977	
2. No. of firms	non-mechanised	12	-	20	32
	mechanised	43	8	-	51
3. Capital labour ratio:	$\bar{x}$	1,478	1,942	nd	1,539[3]
(Rp'000/worker)	SD	1,617	1,036	nd	1,554[3]
4. Ownership:	Private domestic	43	1	10	65
(no. firms)	Public/co-op.	4	-	-	4
	Foreign[2]	8	6	-	14
5. Location:	Jakarta	12	2	-	14
(no. firms)	Bandung	13	-	-	13
	Majalaya	20	-	-	20
	Central Java	10	4	9	26
	East Java	-	2	8	10
6. Yrs. of operation					
(no. firms)	≤5 years	19	6	4	29
	6-20	21	0	6	27
	>20	15	2	10	27

1 Average figure greatly affected by two giant firms. If these are excluded, mean falls to 1,156

2 These were joint ventures in all except two cases

3 Excludes kretek firms

Source: Java Wages Survey, 1975-76

selected from the weaving industry. The sample from this industry included both ATM (mechanised) and ATBM firms and private domestic firms, cooperatives and state enterprises, and joint venture firms.[1] As might be expected from the inclusion of both ATMs and ATBMs in the sample, there was a wide range in capital labour ratios between firms (see standard deviation in Table 7.1).

Weaving firms were selected in several of the major producing areas of Java. The sample includes firms from the large modern cities of Jakarta and Bandung, from the traditional Central Javanese city Solo and from the small traditional weaving towns of Majalaya and Pedan respectively (see Figure 6.1).[2]

The kretek sample is marked by huge variations in the scale of firm. The number of employees in the kretek sample (over 60,000 employees) and the average size of kretek firms (3,000) was considerably influenced by the inclusion in the sample of two of the three "giant" kretek firms in the country. The sample from this industry contrasts with the high proportion of foreign and relatively capital and intensive cigarette firms in the sample. Firms in the latter were on average much smaller than in the kretek industry. The sample included a census of all six foreign owned firms in the cigarette industry in 1975-76.

Overall, the sample was relatively equally distributed in terms of size of firm, location and years of operation. It

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1 No distinction is made in this study between joint venture firms and direct foreign investments. All foreign firms in weaving and all but two in cigarettes were joint ventures. Since in most cases the foreign share is 75 percent or more and most joint ventures are managed by foreign managers, the distinction between direct and joint venture is not particularly relevant to this study.

2 Two firms - one foreign and one large cooperative - were from other areas of Central Java (Batang on the North Coast and Sleman near Yogyakarta respectively).

included fourteen firms with less than 60 employees and 12 employing more than 600; the majority of firms were fairly evenly distributed in terms of size between these two extremes.[1] Over half of all firms were from Central Java (mainly Solo and Kudus) and Majalaya with a further 12-18 percent each being located in Jakarta, Bandung and East Java (chiefly in Malang). The sample divided fairly evenly into three groups of firms established less than five years ago, 5-19 years ago and more than 20 years ago.

However as might be expected there was a close interrelationship in levels of capital intensity between three of the variables (mechanisation, ownership and size of firm) on which the sample was based. Large, mechanised and foreign firms all recorded considerably higher capital labour ratios than small, non-mechanised and domestic owned firms respectively (Table 7.2).[2] Capital labour ratios in foreign firms were more than 20 times higher than in non-mechanised establishments; in foreign firms they were approximately double the values recorded for a domestic mechanised firms (these contrasts were even greater for the weaving industry alone). In light of the central role given to capital intensity and ownership in this study, the interrelationship between these two variables in particular will need to be taken into account in the analysis of the causes of wage differentials.

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1 In various calculations the sample was divided into three groups according to number of employees: <100 employees, 100-499 and 500 or more. In the text the former category will be referred to as small, the second as medium and the third as large. Our definition of these categories should not be confused with the official Indonesian classification of the size categories.

2 Capital labour ratios were only calculated for weaving and cigarettes. See below for details of the measure of capital labour ratio used in this study.

Table 7.2: Capital labour ratios by size of firm, mechanisation and ownership (weaving and cigarettes only, Rp '000/worker)

Size of firm mechanisation, ownership	N (firms)	Weaving	Cigarettes	All firms[1]
1. No. of employees				
<60	14	437	-	437
60-249	16	950	2145	1174
250-599	19	1432	1678	1471
600+	12	3698	2032	3420
2. Mechanisation, ownership				
Domestic -				
non-mechanised	12	163	-	163
mechanised	37	1280	1229	1876
Foreign	12	5257	2179	3718
All firms		1478	1942	1539
N (firms)	61	53	8	

[1] Excludes all kretek firms

Source: Java Wages Survey, 1975-76

Before we begin to analyse the data, it is necessary to summarise briefly the main methods of data collection.[1] Data was collected through interviews conducted by the author on the basis of questions set out in a questionnaire. Interviews were generally conducted with the personnel manager or other managerial staff andwere supplemented, where possible, by information provided by other employees (especially foremen and machine operators). There was a wide range in the length of interviews, in the amount of information that firms were prepared to divulge and also, in several cases, in the reliability of data provided. Secondary sources from the local Department of Industry or Manpower Offices, information from competing firms and independent informants (for example, machinery or raw material suppliers) provided valuable data which was used to check and supplement information obtained by interviews.

II. Three Hypotheses Concerning the Causes of Interfirm Wage Differentials

In this part we test three hypotheses concerning the causes of interfirm wage differentials. In general terms, it is suggested that interfirm wage differentials are closely correlated with

(i) Capital intensity and foreign ownership
(ii) Worker characteristics
(iii) Certain institutional influences.

We shall present each hypothesis in turn and explain briefly its theoretical importance and the specific characteristics of the Indonesian labour market which are relevant to each.

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[1] Details of the field survey and problems encountered in data collection are discussed in greater detail in Appendix 7.1.

Hypothesis 1: Wages in Manufacturing are Highly Correlated with Capital Intensity and Foreign Ownership

1. The Regression Equation

The relationship between capital intensity (and to a lesser extent foreign ownership) and wages was central to the discussion of the causes of wage differentials in Chapter Three. There it was suggested that high wages in capital intensive and foreign firms are likely to be closely related to several internal market factors (the demand for modern sector skills and wage productivity effects), personal characteristics of workers and several institutional influences. We noted also that institutional effects are likely to have a greater influence on the wages of foreign firms. However several other firm characteristics are likely to help explain interfirm wage differentials. These include: other ownership patterns, size of firm, industry, location and years of operation. Thus we have the following equation:

$$Y_1 = a + bX_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 \qquad (1)$$

where Y_1 = hourly wages

X_1 = capital intensity

X_2 = ownership

X_3 = size of firm

X_4 = industry

X_5 = location of the firm

X_6 = years of operation

The predicted influence of each of these other firm characteristics on wages will be discussed briefly.

(i) Ownership. Besides the contrast between foreign and domestic firms, two other aspects of ownership are relevant to this study (see Chapter Six). These were the distinction between domestic pribumi and non-pribumi enterprises, and the distinction between private and state enterprises or co-operatives.

Data presented in Chapter Three suggest that state owned enterprises pay higher wages than private firms. Also it is believed widely in Indonesia that pribumi firms are more welfare oriented and pay higher wages than the 'exploitative' non-pribumi.

(ii) Size of firm. Since the size of firms is closely associated with technology (especially in the weaving industry), it may be expected that this variable is also highly correlated with wages. In addition, oligopolistic power associated with size of firm in kretek and cigarettes may contributed to higher wages in large firms.

(iii) Industry, location and years of operation. It may also be expected that other special characteristics of each of the three industries may have some influence on the level of wages. For example, the prevalence of industry-wide union and employer wage negotiations may lead to relatively high wages in the kretek industry. High wages of unskilled workers in the capital city Jakarta and to a lesser extent in Bandung (Chapter Four) might also be expected to influence interfirm wage differentials. In addition, the regional wage differentials between both Jakarta and West Java and the other provinces in Java are likely to contribute to manufacturing wage differentials.

The effect of age of the firm on wages is likely to be more problematic. More recently established firms might pay higher wages to attract new workers. On the other hand, it could also be argued that employees in more established firms may benefit from longer years of service and wage payments tied to seniority.

Overall, a range of firm characteristics may be associated with high wages. All of these characteristics are likely to be associated at least to some extent with differences in technology and ownership between firms and industries. In addition to identifying the main influences on wage differentials, it will be necessary to attempt to take these interactions into account.

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[1] In the final part of this chapter the analysis is extended to examine wages in several occupations.

Equation (i) above was tested for a relatively homogeneous occupational group of machine operators (operator 1).[1] The reasons for choosing this occupation and the manner in which each variable was specified is discussed briefly below.

(i) Choice of an occupational group. The occupational category of machine operators (operator 1) includes the major semi-skilled occupations in each of the three industries (loom operators in weaving, cigarette rollers in kretek and machine tenders in the cigarette industry). Although this group of employees is likely to be less homogeneous between industries (and firms operating with different technologies) than unskilled workers, it was chosen for several reasons. First, in each of the three industries operator 1 is one of the largest occupations. Second, it is an occupation which is central to the production process in each of the three industries. Since this study focuses on the relationship between technology and wages, it was felt that the different wage and labour management policies of capital and labour intensive firms would be best illustrated through an examination of an occupation in which labour productivity was closely related to performance. Finally, although the tasks performed by operator 1 required some skill, the tasks are learnt relatively easily either on-the-job or through special training courses conducted by the firm. Wages in this occupation in each of the three industries were likely to be quite sensitive to the surplus supply of unskilled workers.[2]

(ii) The dependant variable (y_1). Hourly earnings was chosen as the dependant variable. This measure was selected

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1 In the final part of this chapter the analysis is extended to examine wages in several occupations.

2 In order to guard against any biases introduced into the analysis because of the focus on one particular occupation, we also investigated the determinants of wages of a general category of unskilled workers and another category of machine operators (See Part IV below).

primarily with the objective of obtaining a measure of wage costs.[1] However, owing to problems of allocating the value of certain fringe benefits to particular occupations, some important wage cost items have not been included.[2] The measure of hourly earnings includes overtime payments, the value of meals provided and meal allowances, family and transport allowances, the value of goods in kind, cost of living allowances and attendance and incentive payments.

(iii) The explanatory variables

(a) Capital intensity: Two measures of capital intensity were used in the analysis. First a capital labour ratio was calculated from the 1975 estimated value of all investment in land, buildings and machinery.[3] However, owing to problems

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1 In particular the measure of hourly earnings standardises for variations in hours of work in different kinds of firm and in the different industries.

2 The items excluded were annual bonuses, the value of medical care, housing, transport and social welfare benefits provided by the firm. We shall see in the following chapter on fringe benefits that although some of these items make quite a large contribution to total wage costs, their exclusion does not significantly affect the findings concerning the determinants of interfirm wage differentials.

3 Two methods were used to calculate capital labour ratios. For recent large scale investments, the 1975 value of all land, buildings and equipment was estimated (taking account of depreciation and inflation). For all other firms we calculated the present market value of all buildings, land and machinery. There are several biases in this measure of capital labour ratios. First, it tends to overstate the capital intensity of integrated textile operations since all investment (including investment in relatively capital intensive spinning and finishing operations) was included in the calculation compared with only weaving machinery in the smaller plants. Second, there is a tendency to overstate capital labour ratios of very small operators whose land was often much more valuable than the machinery owned, and represented an independent investment by the owner. Third one needs to make adjustment for the fewer number of shifts worked by many small and medium scale factories which tends to overstate the capital intensity of their operations. Owing to these problems we have used a categorical variable (which divides firms into broad low and high capital intensity groups, see below), as well as the

involved in the computation of the value of fixed capital assets in kretek factories, capital labour ratios were not calculated for their firms.[1] Thus the capital labour ratio has been used only in calculations which did not include kretek firms. For the sample as a whole, a second, categorical variable was derived which combined the measure of capital labour ratios and the dichotomous variable for mechanisation. Three categories were distinguished: mechanised high K/L, mechanised low K/L and non-mechanised (all cigarette companies and ATM fall into one of the first two categories, all kretek and ATBM firms are included in the third).

(b) Other explanatory variables. The other explanatory variables require little explanation. Ownership was divided into four categories (foreign, state or co-operative, pribumi and non-pribumi), three locational categories were distinguished (Jakarta, Bandung and other regions) and each of the three industries was represented as a separate category.[2] Years of operation was represented as a dichotomous variable which distinguished between firms that had been established less than ten and more than ten years prior to the survey.[3] Finally size of firm (number of employees) was measured as the one continuous variable in all equations.

The dummy variables for each of the categorical explanatory variables were specified as follows:

(continued)
continuous variable for capital intensity. In addition we also tested the influence of a measure of capital intensity based on the value of machinery only.

1 These difficulties were encountered primarily with large scale kretek establishments whose factories were physically dispersed and which could not provide a reliable estimate of the value of capital investment.

2 Since the wage systems adopted by cooperatives are likely to be considerably influenced by public sector wage systems, cooperatives were included with the group of state enterprises.

3 All new investors under the domestic and foreign investment laws had been established during the ten years prior to the survey.

(i) technology: D_1X_1 = 1 if the K/L ratio was greater than Rpl.5m and the firm was mechanised, 0 if otherwise

D_2X_1 = 1 if the K/L ratio was less than or equal to Rpl.5m and the firm was mechanised, 0 if otherwise

D_3X_1 = 1 if the firm was not mechanised, 0 if otherwise

(ii) ownership: D_1X_2 = 1 if the firm was foreign owned, 0 if otherwise

D_2X_2 = 1 if the firm was state cooperative owned, 0 if otherwise

D_3X_2 = 1 if the firm was domestic non-pribu non-pribumi owned, 0 if otherwise

D_4X_2 = 1 if the firm was domestic pribumi owned, 0 if otherwise

(iii) industry: D_1X_4 = 1 if the firm was in cigarettes, 0 if otherwise

D_2X_4 = 1 if the firm was in kretek 0 if otherwise

D_3X_4 = 1 if the firm was in weaving, 0 if otherwise

(iv) location: D_1X_5 = 1 if the firm was in Jakarta, 0 if otherwise

D_2X_5 = 1 if the firm was in Bundung, 0 if otherwise

D_3X_5 = 1 if the firm was in other regions, 0 if otherwise

(v) years of operation: D_1X_6 if the firm was established less than ten years ago, 0 if otherwise

2. The Findings of the Regression Analysis

The regression equation helps explain a considerable amount of the variation of earnings of operator 1. The adjusted R^2

($\bar{R}^2$) was 0.60 and 0.70 for linear and log linear (log y_1) forms of the equation respectively (Table 7.3). The findings of the regression analysis provide support for the basic hypothesis concerning the influence of capital intensity on wages. The dummy variable for high capital intensity recorded a positive, statistically significant coefficient in both the linear and log linear equations. The low capital intensity variable recorded a significant coefficient in the equation with log y_1 (see equation (1b), Table 7.3). The coefficients of both dummies for capital intensity were also found to be significant when these variables were tested for the weaving industry alone (equation (1c) in Table 7.3).[2] Moreover the relationship between capital intensity and wages was equally strong when capital intensity was measured as a continuous variable (equation (1d) in Table 7.3).[3]

However capital intensity was not the only variable that was closely correlated with earnings. In particular, foreign ownership appears also to have had powerful, positive influence on wages.[4] The dummy variable for foreign ownership was quite

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1 Monthly earnings were also tested as the dependant variable with the same group of explanatory variables. The overall regression coefficients were slightly lower than for hourly earnings. But the differences were small and similar explanatory variables were significant in both sets of equations

2 Separate regressions were run only for weaving because the cigarette industry was too small and the kretek industry too homogeneous with respect to the major variables (capital intensity and ownership) to allow meaningful analysis of each of these industries individually.

3 Investment in machinery alone was also tested in the regression equation for the weaving industry; the findings for this variable were very similar to those for the overall measure of capital intensity.

4 But it is also noteworthy that the influence of foreign investment on wages was quite insignificant when the continuous measure of capital intensity was included in the equation (see equation (1d), Table 7.3). Clearly the relationship between wages and foreign ownership is affected by the latter's association with high levels of capital intensity (see below).

large and significant in the first two equations for the sample as a whole. Other forms of ownership had a less significant impact on earnings. The coefficients for state and cooperative ownership were only significant in the log linear equation. The dummy variable for non-pribumi ownership appeared to have little influence on wages.

None of the coefficients for the other firm characteristics was as consistently significant as the coefficients for capital intensity and foreign ownership in the equations 1a-d in Table 7.3. Nevertheless several of the other firm variables were significantly related to hourly earnings in at least one of the equations. The coefficient for size of firm was positively correlated with earnings in the linear equation for all firms but not in the log linear equation. Moreover size of firm was not significant in either of the equations run for the weaving industry alone. Years of operation and one of the industry variables were also significant in at least one of the equations for all the sample (as might be expected the coefficients were negative for kretek and positive for cigarettes). Location of the firm in Jakarta appears to have had some positive influence on wages in the weaving industry. But neither of the location dummies were significant in the two equations for the sample as a whole.

The extent of the differentials in hourly earnings according to various firm characteristics is demonstrated in Tables 7.4 and 7.5. Very large differentials were recorded in average earnings between cigarette and kretek firms, highly capital intensive and non-mechanised firms and between foreign and domestic private firms. In all these cases the differentials in the hourly earnings of operator 1 were approximately 3:1. The differentials for capital intensity and ownership were slightly smaller for the weaving industry (column (3) in Table 7.4) but they were still greater than 2:1.[1] The differentials

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[1] The difference between weaving and the sample as a whole in these differentials is partly the result of very high wages in two foreign owned, capital intensive firms.

Table 7.3: The coefficients of the regression equation for average hourly earnings with firm characteristics (operator 1)

Explanatory variables	Dependant variable: Av. hourly earnings				
	All firms		Weaving only		All firms
	y_1 (1a)	log y_1 (1b)	y_1 (1c)	y_1 (1d)	log y_1 (1e)
1. a. X_1 (capital intensity, RP m)	-	-	-	9.71*	-
				(3.47)	
b. D_1X_1 (High K/L)	43.79*	0.27*	30.10*	-	0.22*
	(9.90)	(0.07)	(8.80)		(0.07)
D_2S_1 (Low K/L)	18.39	0.16*	15.53**	-	0.15
	(11.07)	(0.06)	(5.87)		(0.06)*
2. D_1X_2 (Foreign)	46.05*	0.22*	23.62**	-4.05	-
	(13.54)	(0.07)	(9.2)	(15.50)	
D_2X_2 (State/coop)	22.97	0.18**	25.02**	21.53**	0.19**
	(16.55)	(0.09)	(10.3)	(10.46)	(0.08)
D_3X_2 (Non-pribumi)	-6.37		-6.4	-7.00	-0.02
	(8.42)		(5.21)	(5.17)	(0.04)
3. X_3 (No employees, '000)	0.54	0.01**	0.74	2.29	0.013**
	(1.15)	(0.001)	(6.7)	(6.76)	(0.001)
4. D_1X_4 (Cigarettes)	37.21**	0.11	-	-	a
	(14.21)	(0.07)			
D_2X_4 (Kretek)	2.00	-0.11	-	-	-0.11
	(12.88)	(0.07)			(0.063)
5. D_1X_5 (Jakarta)	7.26	0.10	18.46*	17.73**	0.15**
	(10.78)	(0.06)	(6.43)	(6.79)	(0.06)
D_2X_5 (Bandung)	5.54	0.06	10.11	10.44	0.095
	(11.07)	(0.06)	(5.87)	(5.88)	(0.057)
6. D_1X_6 (<10 yrs operation)	-15.59**	-0.03	4.15	4.73	0.011
	(7.61)	(0.04)	(5.22)	(5.40)	(0.039)

Table 7.3 (continued)

Explanatory variables	Dependant variable: Av. hourly earnings				
	All firms		Weaving only		All firms
	Y_1 (1a)	log Y_1 (1b)	Y_1 (1c)	Y_1 (1d)	log Y_1 (1e)
Intercept	35.86	1.51	31.42	36.05	1.49
$\bar{R}^2$	0.59	0.70	0.68	0.66	0.57
R^2	0.65*	0.74*	0.74*	0.71*	0.63*
Mean (Rp)	59	1.67	58	58	1.60
SD	46	0.28	27	27	0.22

* Significant at one percent level

** Significant at five percent level

a Variable not entered in the regression equation owing to low level of significance

Note: Numbers in brackets are standard errors of the regression coefficients

Table 7.4: Mean hourly wages by several firm characteristics (all firms and weaving, operator 1)

Firm characteristics	All firms		Weaving	
	Rp (1)	No. firms (2)	Rp (3)	No. firms (4)
1. Capital Intensity				
Non-mechanised	30	32	(3)	(4)
Mechanised: low K/L (< Rp 1.5 m.)	55	29	55	12
Mechanised: high K/L (> Rp 1.5 m.)	107*	21	88*	15
2. Ownership				
Domestic: pribumi	45	26	49	22
non-pribumi	42	39	50	21
state/coop.	82	4	82	4
Foreign	130**	13	103**	7
3. Number of Employees				
<100	39	24	43	19
100-499	56	31	54	20
500+	80*	27	87*	15
4. Industry				
Kretek	29	20	-	-
Weaving	59	54	-	-
Cigarettes	133*	8	-	-
5. Location				
Jakarta	89	14	85	12
Bandung	65	13	65	13
Other	50	55	46*	29
6. Years of operation				
≤5 years	75	28	80	18
5-20	47	27	53	21
21+	55	27	41*	15
	59	82	59	54

* F statistic significant at one percent level

** F statistic significant at five percent level

Source: Java Wages Survey, 1975-75

by size of firm were slightly smaller, and as the regression equations suggest, differentials were not large for either location of the firm or years of operation.

It is also noteworthy that there was only a very small differential in the wages paid to machine operators in pribumi compared with non-pribumi firms.[1] But, consistent with the findings of the regression equation, state and cooperatively owned firms paid considerably higher wages than domestic, privately owned establishments.

The range in hourly earnings of machine operators in labour intensive, capital intensive and foreign owned firms is demonstrated in Table 7.5. The table indicates the very large differentials between almost all non-mechanised compared with high K/L domestic firms and foreign owned enterprises. Only one non-mechanised firm for the sample as a whole, and none in weaving, recorded hourly earnings of Rp50 or above. In contrast, in no foreign firm and in only 20 percent of high K/L, domestic firms did machine operators earn less than Rp50 an hour. However there is no evidence in Table 7.5 of a marked dualistic pattern of wage differentials. The table indicates that there exists quite large differentials between foreign and high K/L domestic firms, and also between domestic low K/L mechanised and non-mechanised establishments.[2]

As we have stressed in the introduction to this chapter, there was quite a high level of multi-collinearity between several of the explanatory variables. This was particularly evident for the ownership and capital intensity variables.[3]

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1 However when the data are standardised by technology, pribumi firms tended to pay slightly higher wages than non-pribumi in firms with similar levels of capital intensity.

2 The higher standard deviations recorded for the sample as a whole compared with weaving may be partly attributed to the very high wages in the two foreign cigarette firms and also in one kretek factory.

3 The correlation coefficient between the dummy variables for

Table 7.5: Hourly wages by capital intensity and foreign ownership, weaving and all firms (percentage of firms,(operator 1)

Wage Group	Domestic			Foreign	All firms
	Non-mechanised	Mechanised low K/L	Mechanised high K/L		
	(1)	(2)	(3)	(4)	(5)
Weaving					
<30Rp.	42	4†	0	0	11
30-49	58	42	12†	0	35
50-74	0	39	44	14†	28
75+	0	15†	44	86	26*
	100	100	100	100	100
N (firms)	12	26	9	7	54
Mean (Rp.)	33	57	78	103	59
SD	7	19	30	15	17
All Firms					
<30Rp.	66	3†	0	0	27
30-49	31	41	20	0	28
50-74	0	41	40	15†	21
75+	3†	15	40	85	24*
	100	100	100	100	100
N (firms)	32	27	10	13	82
Mean	30	52	74	130	59
SD	18	19	26	65	46

† Less than four firms in category

* Chi-square significant at one percent level

Source: Java Wages Survey, 1975-76

It is quite plausible that the close relationship between wages and capital intensity was primarily a result of high wages paid in foreign firms. We tested for this possibility by running a separate regression equation in which all foreign firms were excluded. Wages were regressed with all the other firm characteristics. The results are presented in equation (1e) Table 7.3. The equation indicates that the capital intensity is significant independantly of foreign ownership. Although the $\bar{R}^2$ (0.65) was slightly lower than when foreign firms were included, it was still large and highly significant. The coefficients of both dummy variables for capital intensity were significant at a one percent level.

Table 7.5 also indicates that, despite the close interrelationship between foreign ownership and capital intensity, wage differentials were still quite large between domestic owned firms with varying levels of capital intensity. Similarly, foreign firms paid higher wages than domestic firms even when differences in the capital intensity of the two groups of firms are taken into account. This is also demonstrated in Table 7.6. In both the low and high K/L categories, foreign firms paid considerably higher wages than domestic owned establishments. However, the relationship between size of firm and earnings is much less obvious once different levels of capital intensity are taken into account (this was particularly apparent in the non-mechanised category, column (1) in Table 7.6).

In brief, the findings of the regression analysis support the hypothesis concerning the positive relationship between earnings and both capital intensity and foreign ownership. The close correlation between capital intensity and wages is consistent consistent with some of the internal labour market explanations of wage differentials raised in Chapter Three. However the importance of foreign ownership suggests that institutional factors also may play a central part in determining interfirm

(continued)
high K/L and foreign ownership was 0.59 for the sample as a whole (equations (1a) and (1b) in Table 7.1) and 0.56 for weaving (equation (1c) in Table 7.3).

Table 7.6: Mean hourly wages by ownership and size of firm by capital intensity (operator 1)

Ownership/ size of firm	Capital Intensity			All firms
	Non mechanised (1)	Mechanised low K/L (2)	Mechanised high K/L (3)	(4)
Ownership				
Domestic	30	52	74	45
Foreign	-	91†	137	130
Size of Firm				
<100 employees	29	48	59†	39
100-49	25	53	114	56
500+	36	76	115	80
All firms	30	55	107	59

† Less than four firms in category

Source: Java Wages Survey, 1975-76

wage differentials; this possibility is examined below when considering the third hypothesis. The relatively small differential by size of firm (once capital intensity is taken into account) is an important finding.[1] It suggests that the emphasis in much of the literature (especially on Japanese labour markets) on interscale wage differentials may be misplaced. The other firm variables were mainly related to earnings because of their association with capital intensity or ownership. But some of these - especially the dummy variable for industry - were closely related to earnings.

Hypothesis 2: Interfirm Wage Differentials are Highly Correlated with Several 'Worker Characteristics'

1. The Regression Equation

This hypothesis derives partly from a broad human capital explanation of earnings differentials. But it also suggests that there are important relationships which are not included in human capital explanations of earnings differentials. These relationships were included in the discussion of the determinants of wage differentials between capital and labour intensive firms, and of the existence of stronger internal labour markets in capital intensive firms (Chapter Three). The hypothesis is partly derived from the discussion of wage differentials associated with several specific worker characteristics (especially differentials by sex) in Indonesia. Overall we have derived the following equation:

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[1] Despite the huge variations in size of firm in the kretek industry hourly earnings in the large scale firms (500 employees or more), were less than twice as high as in the small firm category (less than 100 employees). However differences in monthly earnings between these two groups of firms were much greater (Rp 8400 compared with Rp 2500) because of longer hours of work in the large scale firms.

$$Y_1 = a + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10} + b_{11}X_{11} \quad (2)$$

where Y_1 = hourly wages of machine operators

X_7 = schooling

X_8 = seniority (years of service)

X_9 = external experience

X_{10} = sex of employees

X_{11} = residence (urban or rural)

We shall briefly explain the importance of each of the variables. Both age and years of service are likely to be positively related to earnings. However the influence of external experience on wages will not necessarily be positive. In Chapter Three it was noted that capital intensive firms may prefer to recruit and train completely inexperienced workers. Thus, contrary to what might be predicted in a human capital analysis of earnings, external experience may be inversely related to earnings.

Education is a major variable associated with human capital and should be positively related to earnings. Education should include both formal and informal schooling and, broadly defined, may include participation in various training programs within the firm.

Both weaving and kretek are two industries dominated by female employment (Chapter Six). Low average wages in these two industries suggests that there may be an inverse relationship between employment of females and wages. It is also likely that a high proportion of employees in small scale firms live in rural areas. A negative relationship between wages and both employment of females and employees living in rural areas may be an indication of wage discrimination on the part of employers, and a degree of stratification of the labour market.

In sum, a range of personal characteristics of workers is likely to affect wages. It is reasonable to expect that several

of these are interrelated: for example younger employees may be mainly females with little education who live primarily in rural areas. Nevertheless, it is still necessary to attempt to identify the most important of these worker characteristics.

The dependent variable (hourly earnings) was the same in this analysis as for the firm characteristics. Two of the variables (experience and residence) were categorical and the others were continuous. All calculations were based on estimates of each characteristic for the firm as a whole rather than for individuals (for example, years of schooling for operator 1 referred to the estimated mean years of schooling for all machine operators in each firm.)[1]

Education, age and seniority were all calculated from data provided for each occupation for the firm as a whole. Levels of education were measured by mean years of formal schooling,[2] and age and seniority by mean age and years of service for each occupation. Sex was represented by the proportion of female

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1 Many firms could not provide detailed information on the personal characteristics of workers. As a consequence data were collected by asking managers (or foremen) to estimate the proportion of employees with various characteristics. For example, data was collected on the proportion with less than primary schooling, the proportion with primary, lower secondary and higher levels of schooling. This data was checked (where possible) from company records. The mean years of schooling for each operator in each firm was calculated from this grouped data. A similar procedure was followed for age and seniority. The proportion of males and females was calculated directly from data on the number of employees broken down by sex. See Appendix 7.1 for further elaboration on problems of data collection and analysis.

2 As we have mentioned earlier levels of education ideally should be measured from informal schooling and also take into account both formal and on-the-job training. Unfortunately we were unable to collect sufficiently reliable data on these subjects. However some aspects of training are discussed further in Chapter Nine.

employees working in each occupation. External experience and residence were measured by dichotomous dummy variables.[1] Thus:

D_1X_9 = 1 if less than half the employees in each occupation had experience outside the firm, 0 if otherwise

D_1X_{11} = 1 if more than 75 percent of employees lived in urban areas, 0 if otherwise

2. The Results of the Regression Analysis

The overall regression coefficient in the equations with hourly earnings were quite similar to those recorded for firm characteristics. In the linear equation the $\bar{R}^2$ was 0.67 and in the log linear equation it was 0.74 (Table 7.7). In both equations it was found that the $\bar{R}^2$ was significant. For all firms in the sample, the coefficients for schooling, seniority and residence were significant in both linear and log linear equations. All were positively related to earnings.[2]

Slightly different results are recorded for the weaving industry alone (see equation (2c) in Table 7.7). The overall regression coefficient was lower (though still significant) than for the sample as a whole. Only schooling, sex and external experience were significant in the log linear and linear equations for this industry.[3]

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1 Firms were asked the percentage of employees with experience in the same job and the data were recoded in categories (for example, firms in which less than 25 percent of loom operators experienced, etc.).

2 However sex (negative) and external experience (positive) were significant only in the log linear equation. Average age was also tested in these equations but partly as a result of a close association with seniority, was not significant either for the sample as a whole or for weaving.

3 Only the results of the log linear equation are recorded in Table 7.7.

Table 7.7: Coefficients of the regression equations for hourly earnings with worker characteristics and institutional factors, operator 1

Worker characteristics

All firms

2(a) $Y_1 = -10.76 + 7.29X_7^* + 8.40X_8^* - 11.76X_9 - 0.17X_{10} + 20.89^{**}X_{11}$
(2.71) (1.29) (8.17) (0.09) (7.98)
$\bar{R}^2 = 0.69$

2(b) $\log y_1 = 1.44 + 0.04X_7^* + 0.023X_8^* - 0.10X_9^{**} - 0.002X_{10} + 0.13X_{11}^*$
(0.02) (0.01) (0.04) (0.0005) (0.04)
$\bar{R}^2 = 0.74^*$

Weaving only

2(c) $\log y_1 = 1.47 + 0.047X_7^* + 0.005X_8 - 0.096X_9^{**} - 0.002X_{10} + 0.05X_{11}$
(0.015) (0.010) (0.04) (0.0005) (0.04)
$\bar{R}^2 = 0.62^*$

Institutional factors

3 $y_2 = 45.10 + 17.38\ X_{12}(D_1) + 6.35\ X_{12}(D_2) + 90.99\ X_{13}(D_1)^* + 37.52\ X_{13}(D_2)^{**} - 8.90X_{14}$
(13.97) (11.97) (20.25) (16.13)
$\bar{R}^2 = 0.32^*$

Notes: see Table 7.1

* Significant at one percent level

** Significant at two percent level

The quite substantial wage differentials for operator 1 according to several of these worker characteristics are shown in Table 7.8. Wage differentials were greatest in the case of schooling, external experience and residence: the differentials in earnings for each of the three variables were approximately 3:1 (although they were lower than this in the weaving industry). Differentials by sex were slightly lower. Surprisingly, there did not appear to be a consistent pattern of differentials according to years of service.[1]

As in the case of firm characteristics, the interaction between several of the explanatory variables was quite marked. Schooling in particular recorded high correlation coefficients with percentage of female employees and percentage of experienced workers (both negative) and with urban residence (positive).[2] These problems of multicollinearity suggest that some care must be taken in interpreting the relationship between individual worker characteristics and earnings.

Overall, the high correlation coefficient recorded between education and earnings suggests that human capital factors have a major influence on wage differentials between firms. The close, negative association between experience and education, and the negative relationship between experience and earnings, implies that high wage firms also place considerable emphasis on the training of more educated workers. This finding is consistent with the internal labour market explanations of wage differentials given in Chapter Three. There it was suggested that certain firms offer higher wages to employ educated, inexperienced workers in order to provide them with certain skills not easily obtained on the external labour market.

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1 This may be explained partly by the fact that investment in several high wage, foreign firms is quite recent (see part II above).

2 The correlation coefficients between education and these three variables were -0.64, -0.66 and 0.56 respectively.

Table 7.8: Mean hourly wages by human capital characteristics of workers (operator 1)

Worker characteristics	All firms		Weaving	
	Rp.	N	Rp.	N
1. Education				
<SD (primary)	29	33	35	15
SD	54	21	50	18
7, 8 years	94	16	77	11
SLP (lower sec.)+	105†	12	92†	10
2. Seniority				
<3 years	66	20	71	18
3, 4 years	49	39	50	25
5+	70†	22	59	10
3. External Experience[1]				
25 percent	103	22	86	15
25-74	54	34	56	27
75+	27†	26	33†	12
4. Percentage living in rural areas				
<25 percent	95	26	72	20
25-74	50	35	58	23
75+	30†	21	37†	11
5. Percentage female				
<25 percent	79	41	65	34
25-74	62	10	61	9
75+	32†	31	37	11
All firms	58	82	59	54

† F statistic significant at one percent

Percentage of employees with external experience

Source: Java Wages Survey 1975-76

The higher wages of males and urban workers may be partly attributed to more schooling. Capital intensive and foreign firms tend to employ educated male workers with little previous work experience, who lived in urban areas. Divisions in the labour market occurred in several characteristics of workers rather than one particular characteristic such as education.

Hypothesis 3: Several Institutional Factors have a Positive Influence on Wages

Although a range of institutional factors (government and trade union pressures, humanitarian values, etc.) may affect wages, in practice these are difficult to measure. Three have been identified in this study: trade union pressures, the signing of company collective labour agreements (CLAs) and work agreements, and memberships to producers' organisations which negotiate wage increases on an industry-wide or regional basis.[1]

The influence of institutional factors on wages was tested with these three variables:

$$W_1 = w(X_{12}, X_{13}, X_{14}) \qquad (3)$$

where W_1 = hourly earnings of operator 1

X_{12} = trade union influence

X_{13} = enterprise wage and labour agreements

X_{14} = industry or regional wage agreements

All three of these variables may be expected to be positively correlated with wages. All three were also likely to be interconnected: strong enterprise unions may conclude wage agreements and also participate in industry-wide collective labour agreements.

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[1] However in Chapter Ten we also examine the influence of minimum wage legislation on wage differentials by capital intensity and ownership.

All these institutional influences were categorical and were specified by dummy variables. Thus we have:

D_1X_{12} = 1 if the trade union was active, 0 if otherwise

D_2X_{12} = 1 if the trade union was inactive, 0 if otherwise

D_3X_{12} = 1 if there was no trade union, 0 if otherwise

D_1X_{13} = 1 if the firm had a collective labour agreement, 0 if otherwise

D_2X_{13} = 1 if the firm had a work agreement, 0 if otherwise

D_3X_{13} = 1 if the firm had neither CLA or work agreement, 0 if otherwise

D_1X_{14} = 1 if the firm was a member of a producer's organisation involved in annual wage negotiations with unions, 0 if otherwise

The findings of the regression analysis for these variables are presented in Table 7.7 (equation (3). The overall regression coefficient ($\bar{R}^2$) was only 0.32, much lower than for either the firm or worker characteristics. Only two of the dummy variables (enterprise and work agreements and CLAs) recorded a positive relationship with wages. Although both their coefficients were positive, neither of the dummy variables for the influence of trade unions were significant. The small number of trade unions which were reported as actively engaged in the negotiation of wages and working conditions, do not appear to have had a significant influence on the level of wages; the coefficient for inactive enterprise unions was even smaller. It is also of some interest to note that a negative coefficient was recorded for the dummy variable for regional and industry-wide wage agreements. These agreements, especially in the kretek industry, may have helped to restrain wage increases rather than assist employees obtain higher wages.

This part of the chapter has examined three hypotheses concerning the causes of wage differentials in the three industries. Although some institutional factors were found to be significant, these variables were much less important than firm and worker characteristics. Thus the data question the common proposition that wage differentials are primarily a consequence of institutional pressures on wages. The analysis has focused on the extent to which these three groups of variables individually determine wages. However it was the interaction between capital intensity, human capital and institutional factors which was highlighted in the framework of analysis developed in Chapter Three. We may ask several questions concerning the nature of these interactions. For example, to what extent do capital intensive and foreign firms pay high wages in order to recruit certain types of workers? Are high wages also a result of the greater influence of institutional factors on wages in capital intensive and foreign firms?[1] These issues are taken up in the next part of the chapter where we combine the major variables in equations (1) - (3) in one equation to test their overall effect on wages.

III. The Joint Determination of Wages: Interaction between Firm Characteristics, Worker Characteristics and Institutional Factors

To test the influence on wages of all the major variables in each of the three groups, all the variables which recorded significant coefficients in the regression equations discussed in the previous two parts were combined in one equation. In the linear equation with the same dependent variable (hourly earnings) this included four firm characteristics (dummies for capital intensity, ownership, the cigarette industry and years of operation), three worker characteristics (education,

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[1] In Chapters Nine and Ten we present evidence which indicates the greater influence of internal labour markets in capital intensive and foreign firms. These include the training policies of these firms (Chapter Nine) and the effect of their high wages on labour turnover and absenteeism (Chapter Ten)

residence and seniority) and the dummies for work agreements and CLAs. In the log linear equation size of firm, sex and external experience were also included among explanatory variables.

The results of the regression analysis are shown in Table 7.9. The $\bar{R}^2$ was 0.78 for both y_1 and log y_1. This was only a slight improvement compared with that recorded in the separate log linear regression equations for firm and worker characteristics. Seniority and foreign ownership both recorded highly significant coefficients in linear and log linear equations and several other variables (including size of firm and the dummy variables for collective labour agreements, the kretek industry and sex) were significant in at least one of the equations. But, surprisingly, the two major variables (capital intensity and schooling) that had recorded highly significant coefficients in the separate log linear equations were not significant when combined in the same log linear equation. Also schooling did not record a significant coefficient in the regression equation for the weaving industry alone (equation 4c in Table 7.9).

The results of the regression analysis generally support the proposition that there is likely to be a high degree of interaction between the major groups of explanatory variables.[1] The dummy variables for high levels of capital intensity and foreign ownership were both closely associated with personal characteristics of workers, and to a lesser extent with both of the institutional variables. These interrelationships between variables in each of these different groups are indicated by the high partial correlation coefficients for different pairs of variables (Table 7.10). The two major firm characteristics, high K/L ratios and foreign ownership, were highly correlated with four of the worker characteristics: schooling, experience, sex and residence. It is noteworthy that

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[1] High levels of multicollinearity also helps to explain the unstable nature of several of the coefficients and seemingly contradictory findings in equations 4a-4c in Table 7.8.

Table 7.9: Coefficients of the regression equation for hourly earnings with firm characteristics, worker characteristics and institutional factors (operator 1)

Explanatory variables	Dependant variable: Hourly earnings		
	All firms		Weaving
	Y_2 (4a)	log Y_2 (4b)	log Y_2 (4c)
D_1X_1 (High K/L)	22.46† (12.50)	0.057 (0.085)	0.19†† (0.07)
D_2X_1 (Low K/L)	2.50 (7.87)	-0.018 (0.06)	-0.065 (0.05)
D_1X_2 (Foreign)	35.33† (11.03)	0.20 (0.06)	0.167†† (0.069)
D_2X_2 (State/coop)	6.23 (13.35)	0.077 (0.077)	0.12 (0.065)
X_3 (No. of employees '000)	-	0.010†† (0.0001)	-
D_1X_4 (cigarettes)	6.03 (11.82)	-	-
D_2X_4 (kretek)	-	-0.090 (0.057)	-
D_1X_5 (Jakarta)	-	-	0.13† (0.05)
D_1X_6 (<10 yrs operation)	2.90 (7.55)	-	-
X_7 (schooling)	4.18† (2.61)	0.006 (0.016)	-0.013 (0.017)
X_8 (seniority)	7.39† (1.44)	0.020† (0.007)	
X_9 (experience)	-	0.068 (0.043)	0.087†† (0.04)
X_{10} (sex)	-	-0.002† (0.0067)	-0.0017† (0.0005)
X_{11} (residence)	13.97 (7.29)	0.16† (0.04)	-
D_1X_{13} (CLAS)	24.81 (13.41)	-0.022 (0.077)	-
D_2X_{14} (work agreements)	1.01 (9.70)	0.018 (0.036)	0.096 (0.058)
Intercept	-15.78	1.59	1.76
$\bar{R}^2$	0.78	0.79	0.71
R^2	0.81†	0.83†	0.76†

† Significant at one percent level
†† Significent at five percent level

Note: See Table 7.1

Table 7.10: Correlation coefficients of selected explanatory variables in the regression equations (operator 1)

	Firm characteristics		Worker characteristics		
	D_1X_1 (High K/L) (1)	D_1X_2 (Foreign) (2)	X_7 (Schooling) (3)	X_9 (Experience) (4)	X_{10} (Sex) (5)
1. Firm characteristics					
D_1X_1 (High K/L)	1.0	.62	.70	-.50	-.42
D_2X_1 (Low K/L)	-.43	-.23	.12	-.09	-.41
D_1X_2 (Foreign)	.62	1.0	.52	-.41	-.33
D_2X_2 (State/Coop)	-.01	-0.09	.23	-.26	-.23
2. Worker characteristics					
X_7 (Schooling)	.70	.52	1.0	-.65	-.64
X_9 (Experience)	-.50	-.40	-.65	1.0	.37
X_{10} (Sex)	-.42	-.33	-.64	.37	1.0
X_{11} (Residence)	.46	.25	.55	-.44	-.22
3. Institutional factors					
D_1X_{13} (CLAS)	.19	.33	.18	-.29	-.04
D_2X_{13} (Work agreement)	.37	.33	.29	-.38	-.21

Source: Java Wages Survey, 1975-76

there was a particularly close interconnection between capital intensity and the two worker characteristics (schooling and experience) that have been given considerable attention in the discussion of human capital and internal labour market influences on wages. The strength of these interrelationships is consistent with the proposition that capital intensive firms employ more inexperienced, educated workers who might be expected to respond best to training (see Chapter Three).

The table also indicates the quite high correlation coefficients between the dummy variable for work agreements and both capital intensity and foreign ownership. It is instructive that these interrelationships with the two institutional variables appear to be stronger among the foreign firms.[1]

High levels of multicollinearity are mainly taken account of in econometrics by elimination or modification of some of the more highly correlated variables. Paradoxically, multicollinearity in this case is a confirmation of some of the major propositions raised in earlier chapters. Rather than omit or modify some of the more highly correlated variables (for example schooling and capital intensity), we argue that these interrelationships are central to understanding the causes o wage differentials in manufacturing. For example, capital intensive firms employ more educated, male and inexperienced workers at relatively high wage rates in order to achieve certain labour management objectives.

In order to understand fully the factors which contribute to wage differentials, it will be necessary to examine the interactions between these various explanatory variables in greater depth. This task is taken up in Chapters Nine and Ten. However, first it will be useful to compare the results found

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[1] It should be noted that the table also demonstrates the high level of multicollinearity between various worker characteristics (columns (3) to (6)) (see Part Four above).

for operator 1 with other occupations. Two major questions are considered. First, does operator 1 differ from other employees in the same broad skill categories (for example another class of machine operators, or unskilled workers)? Second, do the major factors affecting wage differentials of unskilled and semi-skilled workers apply also to more senior level technical and administrative personnel? These issues are taken up in the final part of the chapter.

IV. The Determinants of Wage Differentials in General Occupations

The same variables included in the regression equations for operator 1 were tested for five other occupations: one category of unskilled and one semi-skilled (operator 2) group of workers, and three administrative and technical occupations (foreman, clerk and machine mechanic). We shall discuss the findings for unskilled employees and operator 2 first and then briefly look at the results obtained for the other occupations.

1. Unskilled Employees and Operator 1[1]

The results of equations for unskilled employees and operator 1 broadly support the findings for operator 1.[2] In the log linear equation for firm characteristics, a high $\bar{R}^2$ (0.82) was recorded for operator 2. All explanatory variables recorded significant coefficients with the exception of years of operation and non-pribumi ownership. A lower $\bar{R}^2$ (0.53) was

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[1] Unskilled employees included general labourers. Operator 1 covered preparation workers in weaving and another category of machine tenders in the cigarette industry. It did not include any occupational category in the kretek industry.

[2] The findings of the regression equations with the firm characteristics and personal characteristics of workers are presented for each occupational category in Appendix Tables 7.1 and 7.2. In all the cases the dependent variable was hourly earnings.

recorded for unskilled employees. However the dummy variables for high capital intensity and foreign ownership were significant for both occupations.[1]

The findings for the regression equation which tested the effect of worker characteristics on earnings were similar for both operator 1 and operator 2 (Appendix Table 7.2). However a much lower $\bar{R}^2$ (0.36) was recorded for the influence of worker characteristics on earnings of unskilled workers: only the variables for schooling and seniority recorded significant (positive) coefficients in the equation for hourly earnings of unskilled workers.[2]

2. Foremen, Clerks and Mechanics

The regression equations for the more skilled and administrative employees indicate a rather different pattern of wage differentials to that recorded for unskilled and semi-skilled workers. The same firm characteristics were closely associated with the earnings of foremen but this was not the case for either clerical employees or mechanics. Neither capital intensity nor foreign ownership was significantly related to earnings for these two occupations. Moreover only education was significant in any of the equations which tested hourly earnings with various worker characteristics.

Earnings of foremen were closely correlated both with capital intensity (high K/L) and foreign (and state or co-operative) ownership (equation (3), Appendix Table 7.1). However the relatively high $\bar{R}^2$ (0.53) in the regression equation with firm characteristics for this occupation contrasts with the

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1 In contrast to the findings for operator 1, both locational variables (Jakarta and Bandung) recorded significant positive coefficients in the regression equations for operator 2 and unskilled workers.

2 We also tested the three institutional variables with hourly earnings for both operator 2 and unskilled employees. Quite similar results were obtained to those for operator 1. The dummy variables for CLAs and work agreements recorded the only significant coefficients.

findings for clerical employees and mechanics. For clerical employees the $\bar{R}^2$ was 0.41 and for mechanics a much lower 0.33. In the former case both industry (including a positive coefficient for the kretek industry) and location dummies recorded significant coefficients.[1] In the case of machine mechanics, only the dummy variable for the cigarette industry recorded a significant coefficient.

In the equations for various worker characteristics, schooling was significantly related to the earnings of foremen and mechanics but it was not significant in the case of clerks. For foremen the $\bar{R}^2$ was 0.41. However for mechanics and clerks it was very much smaller (0.20 and 0.11 respectively).

Earnings by capital intensity and ownership are contrasted for the various occupations in Table 7.11. The large differentials for operator 1 and 2 stand out from the other occupations. The differentials between foreign and domestic firms, and between domestic firms of varying capital intensity, were also quite large for unskilled workers and for foremen. But they were small for clerks and machine mechanics.

Overall, the results of regression equations for clerks and mechanics do not support the findings for unskilled and semi-skilled workers. Earnings of clerks and mechanics have not been greatly influenced by the inflow of modern technology and foreign investment in Indonesia over the past decade. Although there may be a shortage of skilled manpower in the modern sector, our data do not suggest that this has caused significant differentials in wages of skilled employees in the modern sector firms compared with the skilled workers in more labour intensive establishments. One explanation for this finding may be that relatively strong internal markets operate

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[1] The high wages of clerical officers in kretek may be partly attributed to the fact that they were only employed in large and medium firms and tended to be given a wider range of responsibilities than in weaving.

Table 7.11: Mean hourly and monthly earnings by occupation (Rp)

Occupation	Domestic			Foreign	All firms
	Non mechanised (1)	Mechanised low K/L (2)	Mechanised high K/L (3)	(4)	(5)
			Hourly (Rp)		
Unskilled	38	37	63	95	51*
Operator 2[1]	21	32	60	108	50*
Operator 1	30	52	74	130	59
Mechanic[1]	-	101	117	166	120*
Clerk	154	97	131	171	137*
Foreman	89	116	148	255	133*
			Monthly (Rp '000)		
Unskilled	7.7	8.2	12.1	15.8	9.9
Operator 2[1]	2.9	6.9	11.7	18.0	9.2
Operator 1	5.9	11.5	14.5	21.9	11.3*
Mechanic[1]	-	23.0	22.9	27.9	24.2
Clerk	31.7	19.0	24.2	29.7	26.2
Foreman	18.3	25.5	29.0	43.3	26.3

[1] Excludes all kretek firms

* F statistic significant at one percent level

Source: Java Wages Survey, 1975-76

for clerical and technical employees in labour intensive establishments. Employees in these occupations are likely to be given quite a range of responsibilities and perform many firm-specific tasks in labour intensive establishments. They appear to be rewarded according to quite different principles to those used for unskilled and semi-skilled workers.

Summary and Conclusions

This chapter has shown that there were quite large wage differentials between firms in the sample and that these were closely associated with certain characteristics of the firm and with worker characteristics. The regression analysis provides support for several hypotheses advanced in the second part of the chapter: wage differentials in the three industries were closely related to levels of technology and foreign ownership and with a range of human capital and worker characteristics. But they were much less influenced by certain institutional factors.

However the analysis also indicates that these findings for machine operators (operator 1) should not be generalised to all other occupations. The regressions for these occupations suggest that technology and worker characteristics are not major determinants of the earnings especially of clerks and mechanics. These findings are consistent with the notion that in these occupations firm-specific skills and knowledge may have a greater influence on wages in labour intensive firms.

The regression analysis also indicates that wages are jointly determined as a result of interaction between these groups of variables. A major finding of the chapter is the group multicollinearity between capital intensity and foreign ownership on the one hand, and certain worker characteristics and, to a lesser extent, institutional factors on the other. In order to gain a better understanding of the causes of interfirm wage differentials it is necessary to examine the interrelationships between capital intensity and foreign ownership, and both worker characteristics and institutional

variables. It is also necessary to gain an understanding of how these interconnections affect wages. These subjects are taken up in Chapters Nine and Ten.

Chapters Nine and Ten examine the interrelationships between the various groups of explanatory variables and their influence on wages. Chapter Nine looks at how foreign and capital intensive establishments employ workers with different characteristics compared with domestic and labour intensive firms. It also investigates the influence that the different characteristics of workers are likely to have on wage differentials between these groups of firms. Chapter Ten examines the impact of various institutional factors on wages in foreign and capital intensive firms. It indicates the extent to which these firms differ from labour intensive establishments in certain aspects of labour management (especially labour turnover and absenteeism). It shows the extent to which these contrasts help explain interfirm wage differentials.

Before turning to these issues, it will be necessary first to look at interfirm wage differentials in the form of wage payment. In the next chapter it will be shown that the <u>form</u> as well as the <u>level</u> of wages differs between capital intensive, foreign owned and state or cooperative owned firms on the one hand, and labour intensive firms on the other. The payment of certain fringe benefits by the former group of firms is closely related to certain labour management objectives (for example, minimisation of labour turnover and the adoption of wage policies to raise labour productivity) discussed in Chapter Ten.

CHAPTER EIGHT

THE FORM OF WAGE PAYMENT AND FRINGE BENEFITS

In Chapter Seven we saw that there were large contrasts in the level of wages between firms operating different technologies and with varying ownership patterns. In this chapter it will be demonstrated that these differences occur not only in the level of wages but also in the form of wage payment. Varying forms of wage payment are closely related to different systems of labour management. They are likely to have contrasting effects on labour productivity in different groups of firms.

It has already been suggested (Chapter Three) that there are quite rational economic reasons why certain kinds of firm adopt high wage policies. The findings of the econometric analysis in Chapter Seven are consistent with this proposition. In this chapter it is argued that capital intensive and foreign firms in particular adopt certain wage payment systems and fringe benefits to help to achieve their labour management objectives. Their labour demand schedules are associated with particular forms of wage payment. It is also noted that there are some important more general economic and social reasons why these payments are retained.

The chapter addresses itself to two major issues. First, it is argued that the form of wage payment has an influence on labour productivity independently of the level of wages. In order to understand fully the different labour demand schedules of firms with contrasting levels of capital intensity and ownership patterns, we need to comprehend the causes of differentials in the form as well as the level of wages. Examination of the forms of wage payment provides some valuable insights into the general labour management systems adopted by different groups of firms. It will facilitate a much better understanding of the causes of wage differentials.

A second issue concerns the failure of scholars to allow for the existence of many fringe benefits in the measurement of wages, especially in secondary data on wages in LDCs. This raises questions as to the validity

of generalisations based on conventional measurements of wages used in collection of secondary data. The issue is particularly relevant for an empirical analysis of wages. Understatement or outright neglect of fringe benefits will not greatly affect economic analysis if these payments are distributed evenly between firms, industries and regions (and even between countries). However, it will be shown that the payment of fringe benefits may be quite unequal between different kinds of firm. Moreover, neglect of some of these payments may result in an understatement of the extent of wage differentials within the economy. It is likely to hamper our understanding of the operation of labour markets and causes of labour market segmentation in countries like Indonesia.

The first section of the chapter looks briefly at some theories concerning the payment of fringe benefits in LDCs. We attempt to classify fringe benefits into three groups in order to facilitate an understanding of the empirical data. In the second and third sections data are presented on interfirm differentials in the payment of fringe benefits.

I. The Effect of Fringe Benefits on Labour Productivity in LDCs: Some General Considerations

It is widely believed that fringe benefits are common in wage systems in LDCs and that wage systems are directed more towards promoting employees' welfare than raising labour productivity (Turner, 1965; Smith, 1969:102-16; Berg, 1969: 304-6). This contradicts what Turner has suggested may be regarded as a 'natural history' of wage systems in which wages should be more closely related to productivity in the early stages of industrialisation.[1] He gives three major reasons to

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[1] This point was made by Turner as the main discussant of the topic of forms of wage payment at a conference on wages and economic development reported by Smith (1969:102-4). Turner advanced several reasons as to why wages are likely to be closely related to output in the early stages of industrialisation: market instability and uncertainty faced by newly established firms in LDCs require that labour costs be as flexible as possible; scarcity of capital encourages an incentive system that promotes high levels of capacity

explain why wage systems are not more closely tied to output: non-economic and political pressures and trade union activities, the influence of government wage systems and the influence of wage systems used by foreign firms (in which labour costs tend to be small and fringe benefits are used to buy local goodwill) (Smith, 1969:102-6).

Turner identifies several aspects of wage systems in LDCs which are unrelated, or even negatively related to output. These include (i) the predominance of time rather than piece rates (ii) several fringe benefits (cost of living allowances, seniority payments, family allowances) and social benefits (unemployment benefits, sick pay, pensions, etc.).[1] But he also notes that certain fringe benefits - health services, better accommodation, food subsidies and educational facilities - may result in an improvement in health and efficiency (Smith, 1969:104-5, 107-8).

Much of the literature on the payment of fringe benefits in less developed countries is unsatisfactory because of excessive generalisation. It does not take account of the very large interfirm and interindustry differences in wage systems that may exist in these countries.[2] For example, the allowances in kind and facilities provided by large mining companies in isolated environments are likely to contrast considerably with the payments and facilities offered by small scale labour intensive firms. This example represents two extremes but, given the large differences in size, technology

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1 (continued)
utilisation; scarce managerial and supervisory skills need to be accompanied by a system which encourages worker productivity; and finally, workers using less advanced technology prefer a system where increased effort will be directly translated into higher incomes.

1 One element of employment systems - deterrants to dismissal - is also mentioned in this context of factors tending to reduce labour productivity in LDCs.

2 Eriksson (1966:115-32) does give some idea of the very great range in fringe benefits between industries and countries for selected Latin American countries.

and ownership patterns even within the manufacturing sectors of LDCs, it is reasonable to expect that the differences are likely to be more marked than in developed countries. Indeed, one might envisage dual wage systems, analogous to Turner's early and later phases of a natural history of wage systems, co-existing within the same economy. Small labour intensive firms might be expected to relate labour earnings closely to output through the adoption of piece rates and a minimum of fringe benefits. Larger capital intensive firms on the other hand, might be expected to offer a wide range of fringe benefits, and adopt a more stable wage payment system with the aim of maximising longer term labour productivity.[1] In addition, as Turner has suggested, government and trade union pressures for more fringe benefits and more stable time rates are likely to be more strongly felt in larger, more capital intensive and foreign firms.

A second shortcoming of some of the literature on fringe benefits in LDCs is the failure of many writers to distinguish the varying effects of different fringe benefits on incentives and output. As Turner has correctly pointed out, different fringe benefits may have contrasting effects on labour productivity. Moreover, the effects are likely to differ between various occupational and wage groups. For example, housing and a company car provided for the managers of an enterprise are likely to be given with quite different objectives to barracks provided to house unskilled workers, or transport provided for unskilled workers.

In order to clarify the discussion of the effects of fringe benefits, we have isolated three broad sets of influences: (i) positive effects on physical well being of employees, (ii) positive effects on productivity as a result of financial incentives inherent in certain fringe benefits,

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[1] This appears to have been the case in Japan where certain wage payments (annual bonuses, housing etc.) were also adopted by large scale firms for these reasons and also partly to minimise labour turnover (see Chapter Two).

(iii) negative effects on incentives and productivity of certain payments aimed primarily at increasing workers' welfare. We will look briefly at the influence of each of these groups of effects on worker productivity with the aid of simple diagrammatic presentation.

(i) Effects on worker's health and wellbeing. It has often been suggested that increased wages are likely to improve workers' health and productivity (see especially Leibenstein, 1957:94-8). However empirical studies do not provide strong evidence to support this relationship (Smith, 1969:108). Increased wages may be spent on consumption goods which make little contribution to workers' health or wellbeing, or they may be distributed to the most needy in a worker's family. But, as Turner has suggested, payments in kind - medical care, midday meals, free milk, etc. - directly consumed by workers are much more likely to improve their health and productivity.

The proposition that these fringe benefits positively affect the health of workers and their productivity may be shown diagrammatically (Figure 8.1). Units of work are represented on the horizontal axis and wages and the marginal productivity on the vertical axis. At the initial low wage rate (w_1) ON_1 work units are employed in the production process. Introduction of medical care (assuming the level of cash wages is constant) would raise the value of wages to w_2. The resulting increase in productivity is represented by an outward movement in the marginal productivity curve from MP_1 to MP_2 (the slope of the new curve is drawn on the assumption that new medical care will have a much smaller effect on the productivity of higher paid workers). Despite the increase in wages, the actual number of work units applied in the production process actually increases from w_1 to w_2.

Addition of other fringe benefits which have a positive effect on the worker's health (for example, provision of a midday meal) may raise labour productivity even further. The new benefits will raise wages to w_3 and further push the marginal productivity curve to the right to MP_3. However the relatively small increase in productivity compared with that

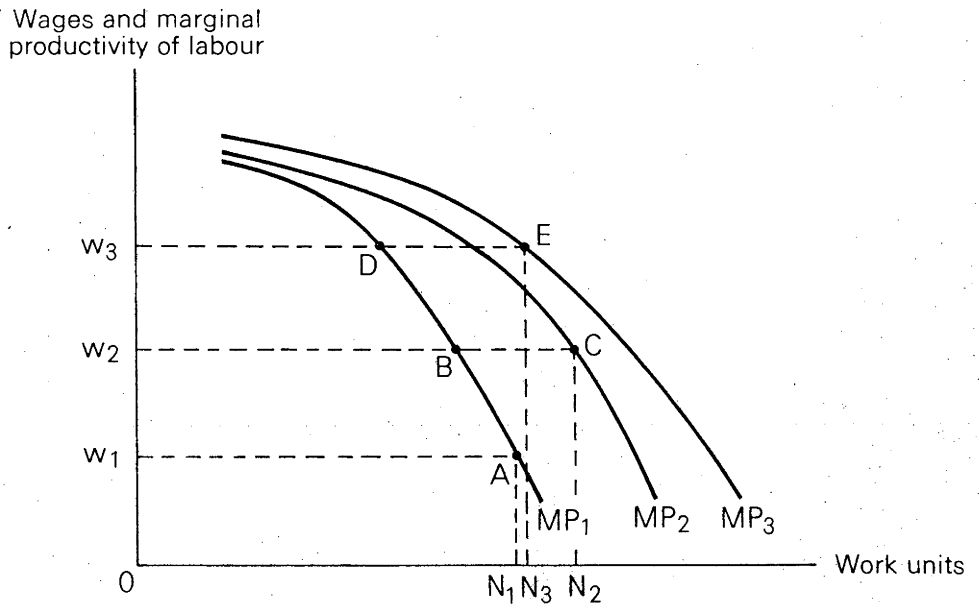

Figure 8.1: The effect of fringe benefits on the physical productivity of workers

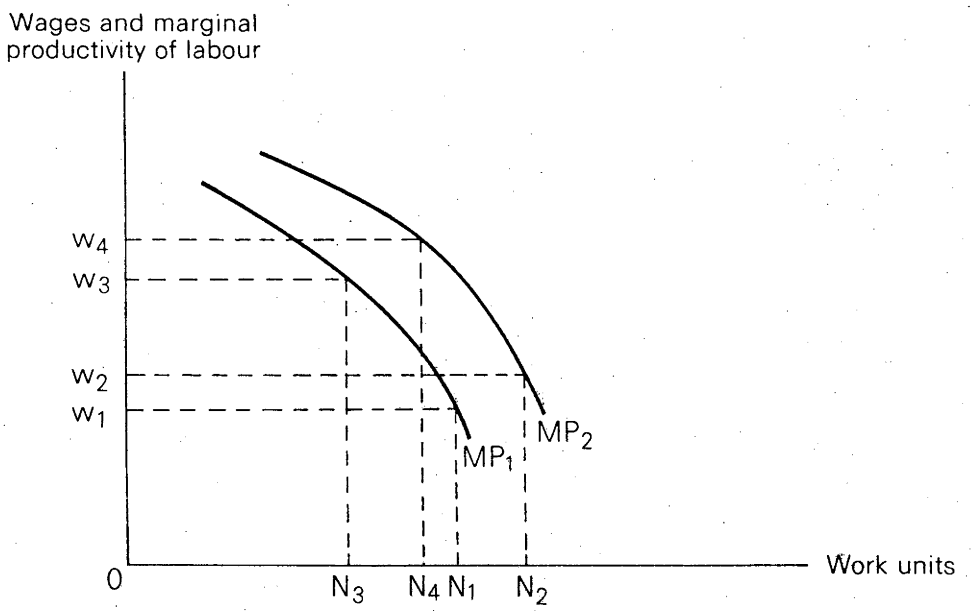

Figure 8.2: The effect of financial incentives on labour productivity

which resulted from the introduction of medical benefits is reflected in an overall fall in the number of work units from ON_2 to ON_3. The increase in work units resulting from the introduction of the midday meal is offset by a reduction in work units employed at the higher value of wages.

(ii) Financial incentives: Incentive payments (gifts, bonuses, attendance allowances and other factors which influence labour productivity relatively uniformly regardless of the level of wages) are likely to increase the number of work units applied in the production process of both low and relatively high wage groups.[1] These effects are demonstrated in Figure 8.2. Payment of annual bonuses, for example, to low and high wage employees (earning w_1 and w_3 respectively) would push the value of wages up to w_2 and w_4 respectively. As a result of increased effort applied by both groups of workers, work units applied in the production process increase to ON_3 and ON_4 for the low wage and high wage workers respectively. Relatively uniform outward movements in the marginal productivity curve may also result from the introduction of new facilities (for example, transport) which boosts the productivity of various groups of workers relatively uniformly.

(iii) Fringe benefits with a dampening effect on incentives: Several fringe benefits (pro rata payments in kind, family allowances, social welfare payments) may have no positive effect on labour productivity. In cases where these benefits are offered even when the employee is not at work, these payments may actually reduce incentives. Payments in kind may have a positive effect on labour productivity at lower levels of income (owing to improved consumption and health of an employee) but at higher levels these payments are unlikely

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1 However the incentive payments might be expected to have a greater influence on the work effort of lower wage groups owing to the diminishing marginal utility of income. Nevertheless, it is reasonable to assume that the differences in these effects between high and low wage earners will be much smaller than in the case of payments that directly affect physical productivity.

to have any positive effect on productivity. If these payments replace cash wages which were closely tied to labour productivity (for example piece rates) they may actually result in a fall in the marginal productivity curve. Thus, in Figure 8.3, we have a fall in the marginal productivity curve from MP_1 to MP_2 at a constant value of wages (w_1) resulting from the replacement of piece rate payments partly (or wholly) by payments in kind. Family allowances are unlikely to make any positive contribution and, as with the case of payments in kind, may actually reduce productivity. Social payments (gifts for social occasions, loans, sickness pay) even when the employee is not working are likely to result in lower labour productivity compared with other wage systems more oriented to promoting worker effort.

It should be noted, however, that the possible negative effects on labour productivity of payments in kind, family allowances and social payments are often exaggerated in the literature on fringe benefits. First, if they replace stable monthly earnings rather than piece rates, the effect on incentives is likely to be small. Second, the offer of such payments may promote worker loyalty and reduce labour mobility, to some extent offsetting the negative effects on labour productivity. These effects are difficult to quantify but they do suggest that it is necessary to be quite careful in generalising about the disincentive effects of different wage payment systems. Examination of survey data on the payment of fringe benefits in Indonesia indicates the complexity of these various influences. We now turn to the survey data to examine wage payment systems, the payment of fringe benefits and their likely effects.

These various effects of fringe benefits are a major concern in this study because it will be demonstrated that different groups of firms - mainly divided according to capital intensity and ownership patterns - contrast in the kinds of fringe benefits that they offer. Variations between groups of firms in the forms of wage payment are likely to be closely interrelated with differentials in the

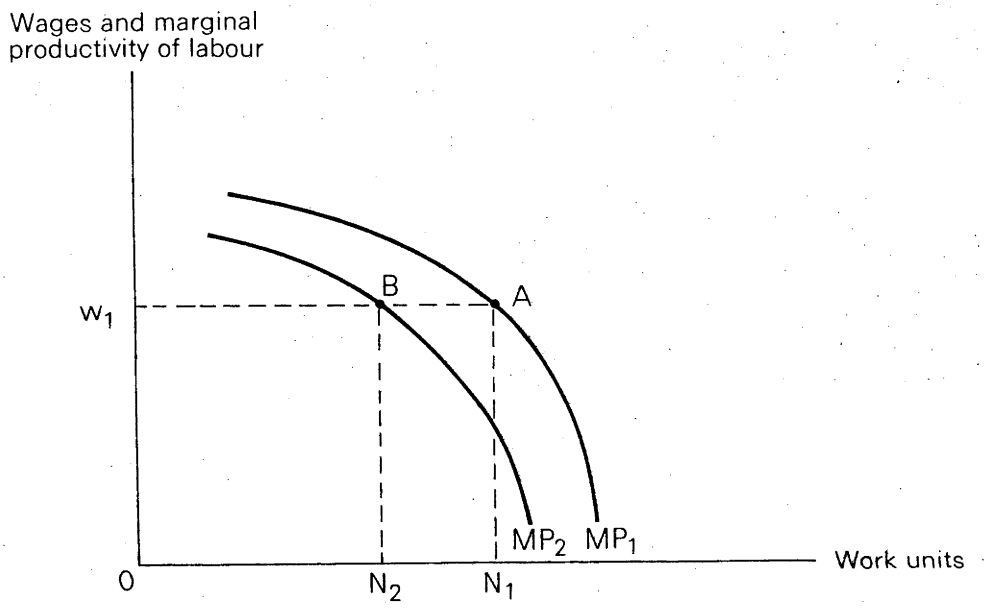

Figure 8.3: The disincentive effects of fringe benefits

level of wages investigated in Chapter Seven. Knowledge of the different types of fringe benefit offered (and of contrasting effects of various kinds of wage payment) in capital intensive and foreign firms will assist the examination of the causes of interfirm wage differentials.

II. Characteristics of Firms and the Form of Wage Payment

In Chapter Four we discussed the evolution of wage payment systems and the importance of fringe benefits in Indonesian manufacturing. From this survey of secondary materials it was concluded that, although fringe benefits play a major role in the wage systems of state enterprises and some private concerns, their significance has probably been exaggerated in some studies of the wage system in Indonesia. Payments in kind, and various fringe benefits associated with the expansion of the public sector, probably reached a peak in the period of rapid inflation in the 1960s but both have declined with the resurgence of private sector activity and greater price stability since 1970.

The secondary data were unable to provide sufficient detail on the extent to which the payment of fringe benefits differed between various industries and kinds of firms. This is the major task of this chapter. First, we look briefly at systems of wage payments in the sample firms and the importance of all fringe benefits to wage costs. Second, we will discuss the types of fringe benefit given in the sample firms and their likely effects on incentives and labour productivity in firms of different sizes, capital intensities and ownership patterns.

1. Systems of Wage Payment

The wage systems adopted by different firms are likely to have varying influences on labour productivity. Two broad systems - time and piece rate - may be contrasted in the extent to which they relate wages to output. Turner has suggested (see above) that the predominance of time over piece rates is one aspect of the wage systems of LDCs which conflicts

with his notion of a natural history of wage systems. Our survey data suggest, however, that while time rates predominate in the modern sector in Indonesia, they are not so common among labour intensive firms. This important difference between the sample firms needs to be briefly mentioned before we look at the topic of fringe benefits.

Although the relatively capital intensive firms in the sample almost all used time rates of pay, this was not the case for non-mechanised and relatively labour intensive firms. For example, only one firm with a high capital labour ratio (Rp two million or more) used piece rates. This contrasts with the use of piece rates for the majority of employees by all non-mechanised firms (all ATBM in weaving and all kretek firms) in the sample; piece rates were also used by two-thirds of the mechanised firms with a capital labour ratio of less than Rp one million.[1]

Thus wage payment systems within the sample broadly conform with what might be expected from the natural history theory of payment systems. In labour intensive firms the close relationship between physical input of labour and output makes piece rates the most suitable means of wage payment. However in the more capital intensive firms time rates, which may be adopted for a variety of other reasons (to promote stability of earnings and employment, or to prevent overuse of expensive capital equipment), are preferred.

It should be noted that various time rates may also not be uniform in their effects on labour productivity. In Indonesia both monthly and daily time rates are commonly used. Monthly systems of remuneration, (which are used throughout the public service) provide greater security of income and, in many firms, symbolize a commitment to more permanent employment. Thus in the private sector monthly rates are adopted for middle and senior level employees whereas daily rates are most commonly used for production workers (see Chapter Four).

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[1] Only one of these mechanical, relatively labour intensive firms employed no piece workers at all.

Daily rates of pay for production workers were more common than monthly rates among the sample firms. However the latter system was used especially among foreign firms. Nearly 60 percent of all foreign firms used monthly rates of pay for production workers compared with only one domestic owned firm.

The predominance of monthly wage systems among foreign firms may be partly explained by the desire of these firms (especially the European, American and Japanese firms) to encourage a more stable employment relationship. But it must also be partly attributed to the desire of some of these companies to promote a good image by following the wage system adopted by the government (this issue is discussed in Chapter Ten).

Not only did foreign firms predominate among firms which paid employees on a monthly basis but more foreign firms (three out of the four were Japanese owned) offered wage increases according to seniority and used a fixed salary scale for employees.[1] Only three domestic owned firms gave automatic wage increases according to seniority (including a state owned firm and a cooperative).

However even among foreign owned firms, automatic increases according to seniority were not common (less than one-third of all foreign firms offered such benefits). It is surprising that the public service salary system with its heavy emphasis on seniority has not had greater effect on the private sector in the sample firms. There is no strong institution similar to the lifetime employment system in Japan among large scale, relatively capital intensive and foreign firms in the sample.

2. Fringe Benefits Relative to Total Wages

The first question to pose concerning the differences in the size of fringe benefits between firms is the extent to which

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[1] We noted in Chapter Two that the lifetime employment system with its strong emphasis on seniority has been a feature of wage systems of large scale firms in Japan.

these payments modify the findings for the determinants of total wages (see Chapter Seven). Does the payment of fringe benefits contribute to greater or smaller wage differentials between capital and labour intensive, and foreign and domestic firms?

To answer this question we tested regression equations with three dependent variables: the value of fringe benefits per worker (f_1) the value of all wage payments excluding fringe benefits (f_2) and the percentage contribution of fringe benefits to the total wage bill (f_3). All three explanatory variables were tested with the three structural characteristics of firms (size, capital intensity and ownership) and the three 'other firm' variables (industry, location and years of operation).[1]

It was expected that fringe benefits might contribute to wider wage differentials between firms of different sizes, technology and ownership. However the data do not support such a proposition. The regression equations suggest that the payment of fringe benefits is largely neutral in its effect on interfirm wage differentials. The $\bar{R}^2$ for f_1 (value of all fringe benefits per worker) and for f_2, (the value of all wage payments excluding fringe benefits) were very similar. In all cases the $\bar{R}^2$ was highly significant at a one percent level. Also the coefficient for foreign ownership and one measure of capital

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[1] The results of the regression equations are presented in Appendix Table 8.1. Both log and natural forms of the dependent variables were tested and both were found to be highly significant (with $\bar{R}^2$ of approximately 0.75 for f_1 and f_2 and 0.65 for f_3 in both forms. The natural forms are presented for each variable in Appendix Table 8.1.

intensity were statistically significant.[1]

However there were some major differences in the coefficients of several of the explanatory variables in the equation for f_1 compared with the equations for f_2. Whereas the coefficients for years of operation and the cigarette industry dummy were significant in the case of f_2, the coefficient for state and cooperative ownership and location of the firm in Jakarta were both highly significant in the equation for f_1 (value of fringe benefits per worker). Location of the firm in Jakarta, and whether the firm is state or cooperatively owned, has a much more important influence on the payment of fringe benefits (see below).

The separation of wage payments into a fringe benefit and non-fringe benefit components does not change the analysis significantly. It is instructive that f_3 (the percentage of the wage bill devoted to fringe benefits) also recorded a statistically significant $\bar{R}^2$ (0.65) when regressed with the firm variables. For this variable, location of the firm in both Jakarta and Bandung recorded significant (positive) regression coefficients. The coefficients of the dummy variables for state and cooperative ownership were also significant.[2]

The differences between firms in the mean share of the total wage bill devoted to fringe benefits are shown in Table 8.1. Overall the proportion of expenditure by these firms on fringe

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1 The coefficient for high K/L was significant in the equation for f_2; however the coefficient for low K/L was significant in the equation for f_1.

2 There might appear to be contradiction between the high $\bar{R}^2$ for f_2 and also for f_3. However although the proportion of the wage bill devoted to fringe benefits was positively correlated with location and several of the structural variables, fringe benefits were not a large enough share of total wages to influence the value of the overall coefficient for f_2.

Table 8.1: Mean percentage of wage bill devoted to fringe benefits by size of firm, capital intensity and ownership

Explanatory variables	Measures of fringe benefits: All fringe benefits (1)	All fringe benefits excl. ann. bonus (2)	N (firms) (3)
Size of firm			
< 100 employees	14	9	24
100 - 499	19	13	29
500 +	29*	21*	24
Capital intensity			
Non-mechanised	15	8	20
Mechanised: Low K/L	18	13	27
High K/L	32*	26*	30
Ownership			
Domestic private	16	10	61
Domestic state/coop.	48	43	4
Foreign	33*	26*	12
All Firms	20	14	77

Note: All fringe benefits include annual bonuses, meal allowances and value of meals provided, family allowances, allowances in kind, medical care, estimated value of housing provided, housing allowances, value of transport provided, transport allowances, and value of clothing issues. For details on methods used to estimate the value of individual items see Appendix 1 and sections on particular fringe benefits below

* F statistic significant at one percent level

Source: Java Wages Survey, 1975-76

benefits was close to twice that of small labour intensive and domestic owned firms. Exclusion of annual bonuses, the single most important fringe benefit, tends to increase this differential between these different kinds of firm (column (2) in Table 8.1). The differential was particularly marked for relatively capital intensive compared with labour intensive firms. The table also shows that the small number of state owned enterprises and cooperatives allocated a very high proportion of their total wage bill (43 - 48 percent, depending on the measure adopted) to fringe benefits.

Owing to problems of multicollinearity between the three structural characteristics (see Chapter Seven), it will be useful to establish the extent to which each of these structural characteristics - size, technology and ownership patterns - influence the payment of fringe benefits independently of the other two.[1]

In Table 8.2 we have controlled for size and examined the mean percentage of the wage bill allocated to fringe benefits in firms with different technologies and ownership patterns. Even when size of firm is held constant quite substantial differences are still apparent in fringe benefits given by capital intensive and foreign firms compared with non-mechanised and domestic owned firms respectively.[2]

However for some groups of firms distinguished according to capital intensity or ownership, the relationship

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1 As in the case of the level of wage payments, it is necessary, for example, to understand the extent to which differences between foreign and domestic (or between mechanical and non-mechanised) firms are mainly a consequence of the greater average size of foreign (or mechanised) firms.

2 Within each size group the mean percentage contribution of fringe benefits to total costs is considerably greater in foreign firms than in domestic firms. For small and medium scale firms the difference between non-mechanised and mechanised, low capital intensive firms was relatively slight. But it was quite substantial for large scale firms.

Table 8.2: Mean percentage of wage bill devoted to fringe benefits by capital intensity and ownership (controlled by size of firm)

Explanatory variables	Control variable: Size of firm			
	< 100 employees (1)	100 - 499 (2)	500 + (3)	All firms (4)
Capital intensity				
Non-mechanised	12	15	19	15*
Mechanised: Low K/L	13	16	36	18
High K/L	24†	34	33	32
Ownership				
Domestic private	14	16	21	16*
Domestic state/coop.	-	44†	50†	48
Foreign		37	32	33
All firms	14	19	29	20
N (firms)	24	29	24	77

† Less than four firms in category

* F statistic significant at one percent

Source: Java Wages Survey, 1975-76

between proportion of the wage bill allocated to fringe benefits and size of the firm is less clearcut. The proportion of wages allocated to fringe benefits was quite similar in different sized non-mechanised and foreign firms. It is clear that size of firm was less important than capital intensity and ownership in determining both the level of wages and the importance of fringe benefits.

One might expect that the difference between capital and labour intensive firms was largely the result of the greater number of foreign firms in the capital intensive category. However even among domestic owned firms the differential between relatively high and low capital intensity firms was still substantial.[1]

The regression equations discussed above suggested that the industry variables had little independent influence on the proportion of the wage bill devoted to fringe benefits. Table 8.3 confirms these results. A much higher proportion of wages are paid in the form of fringe benefits in cigarettes than in the two other industries. However, when differences in the capital intensity and ownership of cigarette firms are taken into account, these interindustry differences are quite small. Within the weaving industry (and to a lesser extent within the small sample of cigarette firms) there was a wide range in the percentage of wages allocated to fringe benefits according to size, ownership and capital intensity.

However the regression analysis did suggest a much higher expenditure on fringe benefits in Jakarta (and to a lesser extent in Bandung) than in the other regions covered in the survey.[2] Even when account is taken of differences in capital

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1 The percentage of the wage bill allocated to fringe benefits in high capital intensity domestic firms was almost twice as high as the proportion offered in low capital intensity and non-mechanised, domestic owned firms.

2 It should be noted that the payment of fringe benefits in regions other than Jakarta and Bandung was not uniform. In the kretek producing areas of Kudus and Malang the mean proportion of wages given to fringe benefits was approximately 20 percent but it was considerably smaller

Table 8.3: Mean percentage of wage bill devoted to fringe benefits by size of firm, capital intensity and ownership by industry

Explanatory variables	Industry			All firms
	Weaving (1)	Cigarettes (2)	Kretek (3)	(4)
Size of firm				
< 100 employees	13	24†	19	14
100 - 499	16	32	18	19
500 +	34	31†	19	29*
Capital intensity				
Non-mechanised	9	-	19	15
Mechanised: Low K/L	18	17†	-	18
High K/L	31	33	-	32*
Ownership				
Domestic private	15	21†	19	16
State/coop.	48	-	-	48
Foreign	33	35	-	33*
All firms	20	31	19	20
N (firms)	52	7	18	77

† Less than four firms in category

* F statistic significant at one percent

Source: Java Wages Survey, 1975-76

intensity and ownership, this pattern was still quite marked (Table 8.4). The public sector wage system with its heavy emphasis on fringe benefits appears to have had considerable effect on the wage system adopted in the private sector in the national capital. The differences between regions were partly the result of the slightly larger average size of firms and lack of mechanical establishments in the sample for the capital. But even for smaller scale and relatively labour intensive firms, the differences were substantial (for example Table 8.4 shows that small and medium sized firms in Jakarta paid almost twice the proportion of their wages in the form of fringe benefits compared with small and medium scale firms in Bandung and other regions). Indeed the pressures on firms in the capital city to pay more fringe benefits appear to have been felt chiefly among smaller labour intensive and domestic owned firms. The differences between firms in Jakarta and in other regions were smallest among the larger, capital intensive and foreign owned firms. Most of these firms paid a high proportion of their wages in the form of fringe benefits regardless of the location of the firm.

To sum up, the proportion of wages allocated to fringe benefits was closely correlated with capital intensity and ownership patterns in the sample firms. It was also positively correlated with size of firm but this result was considerably influenced by the greater capital intensity and by foreign ownership of larger scale firms.

In contrast to the findings for total wages, industry seems to have had no independent influence on the payment of fringe benefits.[1] However location of the firm had considerable

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2 (continued)
(10 - 13 percent) in the small weaving towns of Pedan and Majalaya.

1 However the share of wages devoted to fringe benefits in the kretek industry (and especially by small scale kretek firms) was unexpectedly high (especially in light of the low levels of average wages in this industry). The large share of wages given to fringe benefits in this industry may partly be attributed to the existence of regional, industry-wide collective labour agreements in all major producing areas.

Table 8.4: Mean percentage of the wage bill devoted to fringe benefits by size of firm, capital intensity and ownership by location of firm

Explanatory variables	Location			
	Jakarta (1)	Bandung (2)	Other regions (3)	All firms (4)
Size of firm				
< 100 employees	37†	20	10	14
100 - 499	29	17†	16	19
500 +	39	28	26	29*
Capital intensity				
Non-mechanised	-	18†	15	15
Mechanised: Low K/L	26	18	16	18
High K/L	38	28	27	32*
Ownership				
Domestic private	29	20†	13	16
State/coop.	62†	-	44†	48
Foreign	35	31	34	33*
All firms	34	23	16	20
N (firms)	13	13	51	77

† Less than four firms in category

* F statistic significant at one percent

Source: Java Wages Survey, 1975-76

influence on the payment of fringe benefits. It was found that small to medium scale firms in Jakarta tended to pay more of their wages in the form of fringe benefits than similar sized firms in other regions.

The payment of a higher proportion of wages in the form of fringe benefits in relatively capital intensive, foreign owned firms suggests two possibilities. Either these firms tend to place greater emphasis on the welfare of employees. Or, alternatively, certain fringe benefits have been adopted to achieve specific labour management objectives which could not be achieved through simply paying cash wages. Examination of individual fringe benefits will help resolve which of these factors has a greater influence on the choice of wage payment systems of relatively capital intensive, foreign firms. This will provide additional insights into the process of wage determination, and how wage policy is integrated with broader labour market forces and labour management objectives in different kinds of firm.

3. Individual Fringe Benefits

According to the conceptual framework developed in the first part of this chapter, it will be useful to divide fringe benefits into four groups according to their likely effects on incentives and productivity. These four groups may be distinguished by the following characteristics:

(i) those fringe benefits which might be expected to influence the physical wellbeing and productivity of workers.

(ii) those fringe benefits which do not necessarily affect physical wellbeing but may have a positive effect on the efficiency of workers (chiefly through their influence on attendance rates, punctuality and intensity of work).

(iii) those fringe benefits which may affect productivity through incentives to work.

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1 (continued)
These agreements regulated the payment of certain fringe benefits (especially annual bonuses) by kretek firms.

(iv) those fringe benefits which are likely to have little positive effect on productivity or may actually reduce productivity.

The fringe benefits given by the sample firms are grouped according to these four categories in Table 8.5. This classification and the likely effects of various fringe benefits on worker performance should, however, be qualified in two ways. First, certain fringe benefits will not always fall neatly into one category. For example, if medical care is also extended to the employee's family, this must partly be considered a welfare payment (group iv). Or annual bonuses (as we shall see) may be determined by custom rather than according to an individual's (or the firm's) performance. Therefore these four categories should not be thought of as rigid. They are adopted here mainly to facilitate discussion of the wide range of fringe benefits given by the sample firms.

Secondly, it is necessary to know which groups of employees benefit from various fringe benefits. Clearly payment of medical expenses or provision of transport is likely to have a different effect on incentives of well paid managerial personnel to the effect that it is likely to have on unskilled workers. It will be necessary to look carefully into who benefits from different fringe benefits. Both these qualifications should be borne in mind in the following discussion of differences in the payment of fringe benefits in the sample firms.

Table 8.5 indicates the extent to which the various individual fringe benefits are offered to employees in the sample firms. The table indicates a wide range in the proportion of firms giving various fringe benefits. Only two items - Hari Raya bonuses (bonuses given for the holiday following the Muslim fasting month) and medical care - were given to all employees in more than half of all firms. At the other extreme, no firm provided housing or housing allowances for all employees, and few provided transport or cost of living

Table 8.5: Percentage of firms giving fringe benefits to all or to some employees, and contribution of fringe benefits to the total wage bill

Fringe benefits	Percentage of firms: Given to all employees (1)	Given to some employees (2)	Mean percent. of wage bill (3)
(i) positive effect on physical wellbeing			
Medical care[1]	74	10	2.6
Meals	28)	33)	6.1
Meal allowance	)	)	5.3
(ii) affect worker efficiency			
Housing	-	50	4.4
Transport	13	22	3.5
Transport allowance	1	21	1.8
Housing allowance	-	12	0.9
Work clothing	38	28	1.0
(iii) affect incentives			
Hari Rayi bonus	96	2	7.3)
Other bonus	31	-	)
(iv) welfare-orientated			
Goods in kind	33	10	5.2
Family allowance	16	5	5.2
Cost of living allowance	5	8	nd
Credit	44	40	nd
Social welfare	nd	nd	0.4

[1] Given on a regular basis to employees

Source: Java Wages Survey, 1975-76

allowances. Thirteen to 44 percent of firms offered a range of fringe benefits (meals or meal allowances, transport, work clothing, other bonuses, goods in kind and family allowances) to all employees.

In quite a high proportion of firms various fringe benefits were given to some employees only (generally to a minority of administrative, technical or supervisory employees). Over 20 percent of firms provided at least one of several fringe benefits (meals, housing, transport, work clothing, credit and various allowances) only to some employees.

Table 8.5 also shows quite a wide range in the mean proportion of wages devoted to various fringe benefits. Hari Raya and other bonuses on average contributed by far the highest proportion of wage costs (seven percent). This was followed by meals and meal allowances (five - six percent), and payments in kind, family allowances, housing and transport (four - five percent).

This rather diverse pattern and its relationship to the structural characteristics of firms will be better understood by examination of interfirm differences in payments in each group of fringe benefits. We will look briefly at each in turn.

(i) Medical care and meals and meal allowances. Midday meals (and meal allowances) and provision of medical care were the two major items which might be expected to influence the physical wellbeing of employees in the sample firms. There was a marked difference in the provision of these benefits especially between both large and foreign firms and the rest of the sample. Few small non-mechanised firms offered meals or meal allowances to all employees. This contrasts with half all large scale firms (75 percent in weaving) and over 70 percent of foreign firms (Table 8.6). Quite a large proportion (30 - 40 percent) of the small, non-mechanised firms offered meal allowances to some of their employees (generally to administrative or supervisory personnel) but the majority of employees were unaffected by such payments.

Table 8.6: Percentage of firms giving meals and meal allowances and medical care by size of firm, capital intensity and ownership

Explanatory variables	Meal/meal allowance		Medical care	
	To all employees (1)	To some employees (2)	To all employees (3)	To some employees (4)
Size of firm				
< 100 employees	13	33	33	13
100 - 499	19	36	87	9
500 +	50	29	93	7
Mechanisation				
Non-mechanised	6	38	59	12
Mechanised	41	30	82	8
Ownership				
Domestic owned	19	35	71	9
Foreign owned	71	21	86	14

Source: Java Wages Survey, 1975-76

The few firms which did not provide medical care for all their employees on a regular basis were almost all small and non mechanised (see column (3) in Table 8.6). Only one-third of all small firms provided such medical care on a regular basis. Moreover there was a large difference compared with larger firms in the kinds of medical care provided. Quite a large number of the bigger firms and nearly 60 percent of foreign firms had their own clinics. Regular services were usually provided by a doctor. Some foreign firms also guaranteed the hospital costs of employees for a period of up to six months or a year. By contrast only one small and one non-mechanised firm had their own clinic and few, in practice, were prepared to pay the hospital costs of workers.[1]

These differences in the quality of the medical coverage are reflected in very large differences between firms in the percentage of medical costs to total labour costs, and in average expenditure on health care per worker (see Table 8.7). In capital intensive and foreign firms the proportion of the wage bill spent on medical care was on average 5-6 times that spent by non-mechanised and domestic firms (column (4) Table 8.7). Average expenditure on medical care per worker was over 20 times higher in capital intensive firms and 10 times higher in foreign firms compared with non-mechanised and domestic firms respectively (column (4), Table 8.8).[2]

The proportion of the wage bill spent on medical care was particularly high (over 10 percent) in the small number of

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1 A second important qualitative difference in the provision of health care was that over half of the foreign firms and both state enterprises provided medical care for the employee's family (usually for a maximum of three dependants) compared with only five (eleven percent) private domestic firms.

2 Comparison of foreign and domestic, large scale firms reveals that the foreign/domestic differential is smaller but still quite substantial. For example, in weaving large scale foreign firms spent approximately Rp 1745 per worker on medical care compared with Rp 813 spent by large scale private domestic firms.

Table 8.7: Proportion of wage bill devoted to medical expenses by size of firm, capital intensity and ownership.[1]

Explanatory variables	Percentage of wage bill spent on medical expenses: Weaving (1)	Cigarettes (2)	Kretek (3)	All firms (4)
Size of firm				
Small	1.3	2.1†	0.8	1.3
Medium	1.3	12.3	1.0	2.8
Large	4.2	6.1	1.5	3.3
Capital intensity				
Non-mechanised	0.8	-	1.2	1.1
Mechanised: Low K/L	1.5	6.8†	-	1.4
High K/L	4.2	10.5	-	6.1
Ownership				
Domestic private	1.4	1.4	1.2	1.4
Domestic state/coop.	3.3	-	-	3.4
Foreign	5.5	12.1	-	8.5
All firms	2.1	9.1	1.2	2.6
N (firms)	46	7	17	70

† Less than four firms in category

1 Only includes those firms that made some regular expenditure on medical care

Source: Java Wages Survey, 1975-76

Table 8.8: Mean monthly expenditure on fringe benefits per worker by size of firm, capital intensity and ownership (Rp/month)

Explanatory variables	Industry			All firms
	Weaving (1)	Cigarettes (2)	Kretek (3)	(4)
Size of firm				
< 100 employees	241	206†	41	214
100 - 499	238	4831	69	817
500 +	1243	3709†	111	1024
Capital intensity				
Non-mechanised	48	-	88	76
Mechanised: Low K/L	279	79†	-	271
High K/L	1285	4479	-	2293
Ownership				
Domestic private	271	142†	88	210
Domestic state/coop.	953	-	-	953
Foreign	1745	5333	-	3376
All firms	523	3850	88	750
N (firms)	46	7	17	70

† Less than four firms in category

Source: Java Wages Survey, 1975-76

foreign cigarette companies. Foreign firms in this industry were particularly concerned to protect their workers from tobacco-related diseases. However the proportion of the wage bill spent on health care (and the absolute rupiah expenditure) was much lower in the kretek firms in which the health risk from working with tobacco might be expected to be similar to that in cigarettes.[1]

Overall, higher expenditure especially by relatively capital intensive and foreign firms on meals and medical care might be expected to improve labour productivity considerably compared with smaller labour intensive enterprises. The data presented above do suggest that at least as far as medical care and meals and meal allowances are concerned, foreign, relatively capital intensive firms are prepared to invest quite large amounts in the physical wellbeing of their workers.

(ii) Housing and transport. The provision of housing and transport (and also housing and transport allowances) may be expected to improve the work efficiency of employees for several reasons. Provision of transport and housing remove the uncertainties and the costs of private transport. They may be expected to lead to more regular and punctual attendance. These effects are likely to be more important in large cities such as Jakarta and Bandung where employees often have to travel long distances in congested traffic to arrive at work. Housing allowances may facilitate employees finding a home closer to the factory. Transport allowances remove the excessive cost of transport in some areas. Provision of either housing or transport will enable the firm to recruit from a wider geographical area and a larger labour market.[2]

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1 Given the squalid (especially poor lighting and ventilation) and often cramped working conditions in many kretek factories, it is likely that many of their employees suffered from tobacco-related diseases (despite regular checkups in most firms). Abundant labour supply made it possible for these firms to easily replace workers.

2 It should also be noted that provision of housing may also make a contribution to the health of workers where such housing is greatly superior to that to which the worker is accustomed.

To what extent did different firms in the sample provide housing or transport to attempt to raise worker efficiency? As we have seen in Table 8.5, no firm provided housing for all its employees and only 13 percent provided transport for all employees (or all production workers).[1] There was little difference between large and small, mechanised and non-mechanised, and between foreign and domestic firms in the percentage of firms providing housing for production workers (column (2), Table 8.9).[2] However housing (and housing allowances) for middle and upper level occupations were both provided in a much higher percentage of larger, mechanised and foreign firms (column (1) in Table 8.9).

A high percentage of larger and foreign firms provided transport for <u>all</u> employees (see column (4) in Table 8.9). This was especially evident in the weaving industry in which 39 percent of large scale firms and half of all foreign firms (including three out of the four Japanese firms provided transport for production workers to and from work.[3] As in the case of housing, transport for a small number of administration and other senior

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1 With regard to housing it is interesting to note that the weaving industry differs considerably from the Japanese pattern in weaving where country girls were housed in barracks. Housing for production workers appears to be much more common in some other countries (for example Thailand where up-country girls are provided housing by the firm). It is, of course, quite widespread in the estate sector in Indonesia.

2 Many of the small, medium and large firms which provided housing for production workers were located in Jakarta and recruited their work force from Central Java or, in one case, West Java.

3 There was not a large difference between various types of firm in the percentage of the wage bill spent on housing and transport. The imputed value of housing provided was slightly higher, and the value of the transport slightly lower, in small firms (since in several cases employees in small firms tended to sleep in the factory or at the employer's house, the imputed housing costs in these firms were probably overstated).

Table 8.9: Percentage of firms providing housing and transport by size of firm, capital intensity and ownership

Explanatory variables	Housing			Transport		
	Provision of housing			Provision of transport		
	Mainly staff, sen. employees[1] (1)	Mainly prod. workers[2] (2)	Housing allowance (3)	All employees (4)	Some employees (5)	Transport allowance (6)
Size of firm						
< 100 employees	8	17	4	0	0	4
100 - 499	26	23	6	3	23	23
500 +	59	15	26	36	39	36
Mechanisation						
Non-mechanised	29	13	0	16	6	6
Mechanised	33	22	20	12	31	31
Ownership						
Domestic	27	19	6	10	18	17
Foreign	67	14	43	29	42	43

1) Less than ten percent of employees given housing (mostly administrative and managerial employees)

2) More than ten percent of employees given housing (mostly production workers)

Source: Java Wages Survey, 1975-76

employees was also much more common among larger, capital intensive and foreign firms.[1]

To sum up, although larger, mechanised and foreign firms tended to supply a higher percentage of employees with housing and transport, neither housing nor transport were given to a majority of employees in a high proportion of firms. Nor did they represent a major share of labour costs. Both housing and transport facilities and allowances were more directed towards middle and upper level employees than to production workers. It is unlikely that the provision of such facilities affected major differences in the efficiency of workers in firms of different sizes, capital intensities and ownership patterns.

(iii) Hari Raya and other bonuses. Hari Raya bonuses were given most widely of all fringe benefits. They were given to all employees in almost all firms (see Table 8.5 above). Together with other annual bonuses they were the largest single item in the wage bill of all groups of firms. Nevertheless there were some significant differences between various groups of firms in the contribution of these payments to the total wage bill.

On average, annual bonuses accounted for a larger share of the total wage bill in large scale and foreign firms (Table 8.10). But there was no clear pattern according to capital intensity. This latter finding was mainly the result of the higher share of the wage bill allocated to fringe benefits in the kretek industry. Annual bonuses were given by all kretek firms and represented a significant proportion of total labour costs in this industry regardless of size of firm. In contrast,

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[1] Work clothing was another fringe benefit which was also given mainly to employees in large scale firms (except in the kretek industry) and in foreign firms. In weaving only 30 percent of small scale firms and no non mechanised firm offered work clothing to all employees compared with 72 percent of large scale and all foreign firms. However this item was only a minor element in total labour costs. Expenditure on work clothing only average one percent of all wage expenditure and only one firm allocated more than two and a half percent of the total wage bill to this item.

Table 8.10: Annual bonuses as a percentage of the total wage bill by size of firm, capital intensity and ownership by industry

Explanatory variables	Industry			All firms
	Weaving (1)	Cigarettes (2)	Kretek (3)	(4)
Size of firm				
< 100 employees	4.7	10.9†	8.1	5.6
100 - 499	5.9	6.4	11.7	7.1
500 +	8.4	11.9†	8.9	8.8
Capital intensity				
Non-mechanised	3.2	-	9.6	7.9
Mechanised: Low K/L	6.8	7.1	-	6.8
High K/L	7.6	8.7	-	7.3
Ownership				
Domestic	5.7	8.9	9.6	6.9
Foreign	9.4	8.1	-	8.9
All firms	6.2	8.3	9.6	7.3
N (firms)	53	8	19	80

† Less than four firms in category

Source: Java Wages Survey, 1975-76

in weaving the percentage of the wage bill allocated to annual bonuses was closely correlated with size of firm, capital intensity and ownership (column (1), Table 8.10).

The relatively high proportion of the wages bill devoted to fringe benefits in kretek firms was partly a consequence of industry-wide regional negotiations between the kretek producers organisation and FBSI of annual bonuses (and also an end of year bonus) in all major kretek producing regions. In weaving, such negotiations were only conducted in Bandung and nearby regions (see Chapter Four).[1] In firms where bonuses were not negotiated on an industry-wide basis, the Hari Raya bonus continued to be set largely according to custom - in the majority of firms one month's salary was most commonly given to production workers.[2]

Although annual bonuses might be expected to be related to the individual's (and the firm's) performance, in the majority of firms this was not the case. Large, capital intensive and foreign firms allocated more of their wage bill to annual bonuses than other firms. But this was generally not a consequence of payments more oriented to provide incentives compared with the small labour intensive firms. Higher annual bonuses paid by the former group appear to have been adopted for social or political reasons (i.e. owing to pressure for the government or to promote goodwill) rather than with the intention of achieving specific labour management objectives.

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1 In these agreements the level of annual bonuses were generally set at one month's salary (or at a flat rate which was intended to approximate average monthly earnings of piece workers). Years of service and the annual rate of inflation were the major factors which influenced the level of bonuses agreed upon at these meetings.

2 However there were two exceptions to this pattern. First, a small proportion of larger, mainly foreign owned firms in weaving offered their employees a second bonus (seven out of eight of these firms were foreign owned). These second bonuses were, in several cases, more closely related to individual (or the company's) performance than the Hari Raya bonus. Second, the value of bonuses paid to middle and upper level employees varied much more according to years of service and performance than the bonuses paid to production labour.

(iv) 'Welfare-oriented' fringe benefits - payments in kind, family and cost of living allowances, and social welfare contributions.

Some fringe benefits might be considered directed more towards increasing the welfare of employees than promoting efficiency and greater work effort. The 'social' function of these payments has been stressed in the literature on fringe benefits in Indonesia and in LDCs generally (see Chapter Three). But, with the exception of credit extended to employees, none of these were given by many of the sample firms and none made a significant contribution to total average labour costs. We will look briefly at the importance of each in firms with varying levels of capital intensity and different ownership patterns.

Payments in kind were given to all employees by approximately one-third of the sample firms. However only 12 percent of all the sample firms paid any rice or food allowances.[1] For a small number of firms (mainly state enterprises) these payments made a large contribution (10-20 percent) to total labour costs. But overall they averaged only just over five percent of the wage bill.[2]

Family allowances were given in a slightly smaller percentage of firms than payments in kind. Sixteen percent of firms paid such allowances and almost all were in weaving (most were weaving establishments with 500 or more employees). Like payments in kind, the average contribution of these allowances to total labour costs was only slightly over five percent.[3]

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1 This group of enterprises included large, medium and small firms, seven out of a total of eight were domestic owned and all were mechanised.

2 Over half of the firms offering payments in kind gave daily (or weekly) cigarette and kretek rations to all their employees.

3 Cost of living allowances were given by an even smaller percentage of firms, also mainly in the weaving industry. These were also relatively well distributed between large and medium scale firms.

Credit was extended by a much higher proportion of firms than either of these other 'welfare-oriented' payments (see Table 8.5 above). Like annual bonuses, credit was made available by a relatively high percentage of small non-mechanised and domestic firms as well as by larger, mechanised and foreign firms.[1]

Finally, brief mention should be made of social welfare contributions. These included contributions made by the firm in the event of a death, marriage or birth in the employee's family. The size of these payments tended to be specified in the company regulations or in collective labour agreements of large firms. In medium and small firms they were generally made personally by the owner-manager directly to individual workers. Although it was difficult to obtain an estimate of the value of these payments, it appears that they were rarely above one percent of the total wage bill.[2]

4. A Typology of Fringe Benefits

In this chapter we have found that groups of firms differed considerably according to the value of the wage bill spent on fringe benefits. A small group of state enterprises and cooperatives paid a large share of their wage bill in the form of fringe benefits. Capital intensive and foreign firms also tended to pay considerably more of their wage bill as fringe benefits compared with other firms in the sample. At the other extreme, small, relatively labour intensive firms did not offer many fringe benefits. These payments did not contribute significantly to their total labour costs.

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1 However in small scale firms credit generally represented an advance on salaries, or a small loan for basic consumption expenditures whereas in large scale firms it was likely to take the form of more formalised, longer term loans (often through a consumer cooperative set up by the firm).

2 In the 22 firms which provided data on the value of social contributions to workers, these averaged only 0.4 percent of all expenditure on wages.

To facilitate a summary of these differences between firms in the payment of fringe benefits, we have developed a typology in which the firms are placed in four groups according to the importance of fringe benefits.[1]

The first group covered approximately one-third of the total sample which offer few fringe benefits (Table 8.11). Almost all firms in the group gave annual bonuses, some provided irregular medical coverage (or medical coverage for a few mechanics, foreman or administrative personnel) and credit in the form of a weekly advance on salary. In almost all cases the percentage contribution of fringe benefits did not exceed 10 percent of the total wage bill. If annual bonuses are excluded, it did not exceed 5 percent in any of these firms. Almost all used piece rates of remuneration for the majority of their workers. A high percentage were small firms and most of them were non-mechanised and relatively labour intensive (including all ATBMs in the weaving industry). They were spread widely in the major producing areas except Jakarta. With a minimum of fixed costs, fluctuations in hours or days of work and consequent changes in production were directly related to the size of the wage bill and labour earnings. In these firms there was a close direct relationship between the quantity and quality of labour input, labour productivity and earnings.

The second group covered a further 25 percent of firms which provided a wider range of fringe benefits. Most of these were given to a small proportion of supervisory, technical and administrative personnel. Overall, fringe benefits accounted for about 12-15 percent of the total wage bill (about five to seven percent if annual bonuses are excluded). Both piece and time rates were used for direct employees and a few firms also employed direct labour on a more permanent monthly basis. This group included mostly medium scale, domestic owned firms in

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[1] The typology is intended only to be broadly consistent with the data presented above. There may be some small differences in the details of some fringe benefit offered.

Table 8.11: Typology of fringe benefits given by the sample firm

	Group I	Group II	Group III	Group IV
A Characteristics of firms				
1. Percentage of firms	30 - 35%	25%	20 - 25%	10 - 15%
2. Size of firms	Mainly small, a few medium	Medium, a few small and large	Most large, a few medium	Medium and large, a few small
3. Technology	Most non-mechanised, Labour intensive	Mech. and non-mech., rel lab intensive	Mechanised, most rel. capital intensive	All mechanised, most capital intensive
4. Ownership	All domestic (private)	Most domestic, a few foreign (private)	Domestic and foreign (private)	Domestic and foreign (state, coop., private)
5. Industry	Weaving and kretek	Weaving and kretek (one cigarette)	Weaving and cigarettes (a few kretek)	Weaving and cigarettes
6. Location	All regions (esp. Majalaya, Pedan, Solo) except Jakarta	All regions	Mainly major cities	Dispersed
B Main System of wage payment (production workers)	Piece	Piece and daily	Daily and monthly	Monthly

Table 8.11 continued:

	Group I	Group II	Group III	Group IV
C Fringe benefits				
1. (a) Given to all employees	Annual bonus, some medical credit and cigarettes	Annual bonus, medical, most credit, some cigarettes	Annual bonus, medical, some credit and cigarettes, transport, family allowance, work clothing, cost of living allowance	Same as Group III plus allowances in kind
(b) Given to some employees	Housing in factory or in employer's home, credit, meals	Meals, meal allowance, transport, transport alloc., rice allow., housing, work clothing, credit	Same as Group II plus housing allowance	Same as Group III
2. Percent of wage bill				
(a) Incl. annual bonus:	Range:0-15 Av.:10	Range:10-20 Av.:12-13	Range:20-35 Av.:30	Range:35-60 Av.:45
(b) Excl. annual bonus:	Range:0-5 Av.:2.5	Range:5-15 Av.:5-6	Range:15-30 Av.:22-25	Range:35-60 Av.:35

Source: Java Wages Survey, 1975-76

the weaving and kretek industries. Wages were relatively closely related to productivity in this group also. Except for annual bonuses, medical care and credit (and cigarette allowances in the kretek industry) fringe benefits were important only to a small proportion of employees. They were offered mainly with the intention of retaining skilled employees.

The third group mainly included larger, more capital intensive foreign and domestic firms. Almost all were in weaving and cigarettes and were located in or close to the major cities in Java. They gave a larger number of fringe benefits to all employees. These included wider medical coverage for all family members, transport, family allowances and work clothing for all employees. Few used piece rates for any employees and either daily or monthly rates of pay were used for the majority of workers. Fringe benefits contributed on average approximately 30 percent of the total wage bill. Except for annual bonuses, most of the major payments and facilities to production workers in these firms were related to labour productivity through their effect on the health and regularity of attendance.[1] However quite a significant share of their wage bill was also devoted to the provision of fringe benefits - housing, transport, bonuses - to middle and upper level groups of employees. Fringe benefits are given in these firms in order to ensure the stability of the labour force, increase physical productivity and to reduce rates of absenteeism.[2]

The final group consists of a small number of state owned enterprises, cooperative and a few (mostly pribumi) private,

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1 Although family allowances were offered to all employees by several firms in this group, they accounted for a small proportion of the total wage bill compared with the importance of these payments in public enterprises and a few welfare-oriented private firms. For example in none of the five Japanese firms which gave family allowances were they more than five percent of the total wage bill; on average in these firms they were only two percent of the wage bill.

2 These aspects of labour management in this group of firms will be taken up in greater detail in Chapter Nine.

domestic firms all in weaving and cigarettes. In this group, fringe benefits ranged from between 35 - 60 percent of the total wage bill. This group of firms tended to spend more on several of the facilities provided by the third group, and some also provided allowances in kind for all employees. In almost all of these firms monthly systems of remuneration were used for all employees. Fixed labour costs were therefore high in this group of firms and several payments - especially payments in kind and family allowances - contributed a significant share of the total wage bill. The excessive 'welfare-orientation' of the wage system in these firms may have had a negative effect on labour efficiency and productivity.

Summary and Conclusion

At the beginning of this chapter we suggested various reasons why the relationship between wages and labour productivity is not likely to be independent of the form of wage payment. The form of wage payment may have a positive or negative effect on labour productivity. It was also suggested that forms of wage payment are likely to vary substantially between firms and industries in LDCs especially because of the large differences in technology, size of firm and ownership patterns in these economies. Examination of these interfirm differences in forms of wage payment may be more relevant to understanding wage systems (and their effects) in LDCs than more general notions such as Turner's 'natural history' of wage systems.

Data collected from the sample of firms supported these general propositions. The form of wage payment - both salary and wage systems and the kinds of fringe benefits - differed substantially between firms. Neglect of some major categories of fringe benefits is likely to misrepresent the nature of wage differentials between firms and industries. We found that

fringe benefits tend to be positively correlated with the level of wage payment.[1]

The relatively high percentage of the wage bill devoted to fringe benefits in certain firms - mainly capital intensive and foreign firms - had two major effects. First, fringe benefits were likely to have a positive effect on labour productivity in these firms. This was mainly the result of their influence on the health and incentives of employees. There was little evidence that the form of wage payment adopted by these firms (with the exception of a small number of state enterprises) inhibited effort and labour productivity.

Second, these capital intensive and foreign firms offered a range of facilities to senior skilled and professional employees. (Indeed relatively senior employees in all kinds of firms, both capital intensive and labour intensive, received a substantial range of facilities and fringe benefits in most enterprises). These payments imply the existence of relatively strong internal labour markets for these employees, especially in capital intensive and foreign firms.[2]

The wage systems adopted by capital intensive and foreign firms did not closely relate overall rewards to worker productivity. Daily and monthly payment systems of remuneration adopted by these firms guaranteed more stable incomes than the piece rate systems used by labour intensive firms. But they did not directly encourage worker effort. However monthly systems in particular may have stimulated more commitment to longer term employment in some of these firms. It is interesting to note that few firms had a wage system which resembled the permanent employment system used in large scale firms in Japan.

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1 However, because fringe benefits were not a major share of total wage payments, they did not contribute significantly to wider interfirm wage differentials.

2 This subject will be taken up again in Chapters Nine and Ten.

Wage systems adopted by small scale, labour intensive firms differed markedly from those used by capital intensive and foreign enterprises. There was little evidence of traditional paternalism in the wage systems of these firms. Most did offer credit (or advances on salaries) and gave annual bonuses to their employees. But their wage systems were generally closely tied to labour productivity. They offered few fringe benefits and almost all used piece work systems of remuneration. Employers were unable, or unwilling, to bear the fixed labour costs that outlay on certain fringe benefits would have required. Except for a small number of clerical, technical and supervisory staff, the fortunes of employees in these enterprises were closely tied to those of the firm.[1]

A third group of employees received a quite high proportion of their total wages in the form of 'welfare-oriented' fringe benefits. These were primarily employees in government enterprises (and joint ventures with the government), cooperatives and some private, pribumi owned firms. The large and medium scale pribumi firms generally tended to be much more influenced by the public sector wage system than non-pribumi firms. But the high percentage of wages devoted to fringe benefits in these firms probably also reflects a more paternalistic approach to employees on the part of pribumi entrepreneurs.[2]

Employees in public enterprises in particular received a high proportion of their wages in the form of 'welfare-oriented' fringe benefits (especially payments in kind and family allowances). Since public enterprises are under-represented in this sample compared with their role in modern sector employment in Indonesia, this study tends to understate the importance of

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1 Unlike in Japan (Yasuba, 1976:285-8), payment of fringe benefits in large scale firms in Indonesia does not appear to be a compensation for the loss of paternalistic protection offered in small firms.

2 Although as we have noted in Chapter Seven there is no indication that pribumi firms paid higher wages than non-pribumi in firms of comparable size and capital intensity.

fringe benefits to wage earners in the modern sector.[1] But the wage payment systems of small scale firms (which with cottage industries make up by far the largest share of total manufacturing employment in Indonesia) are much more representative of the form of wage payment received by the majority of wage earners in manufacturing.

[1] Slightly over 25 percent of all employees in large and medium establishments surveyed in the 1974/75 Industrial Census were employed in government enterprises (or in joint ventures with government enterprises).

CHAPTER NINE

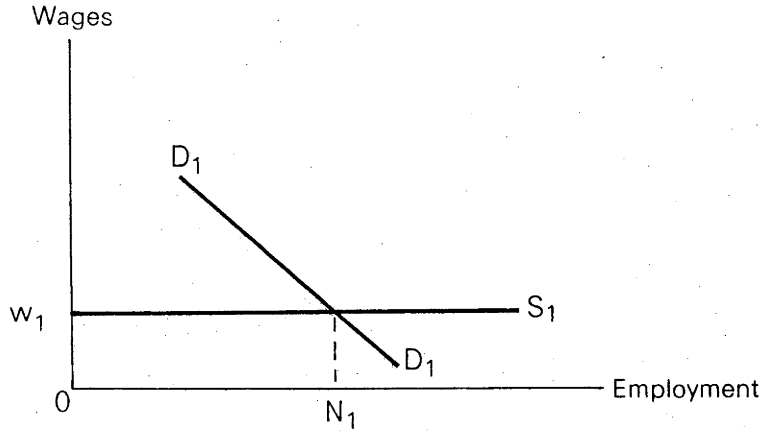
HUMAN CAPITAL AND PERSONAL CHARACTERISTICS OF WORKERS AND LABOUR MARKET SEGMENTATION

In Chapter Seven it was found that a range of human capital and personal characteristics of workers had a significant influence on wage differentials in the sample firms. These characteristics included years of schooling, amount of external job experience, residence (the percentage of employees living in urban areas) and sex (the proportion of female employees). The empirical analysis also indicated that several of these variables were closely interrelated with the certain characteristics of firms (especially technology and ownership). This chapter examines these interrelationships and the nature of their effects on wages.

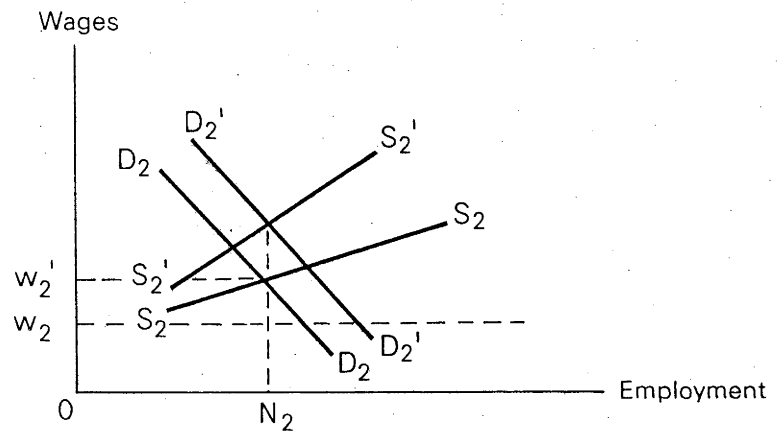
The contrast in wage rates between capital intensive and labour intensive firms is likely to be associated with (i) differences in the characteristics of workers recruited in the external labour market and (ii) various skills generated internally. It will be useful to represent both of these processes diagrammatically.

The joint determination of wages by certain characteristics of the firm and by worker characteristics has been described as 'bilateral labour market segmentation' (Wachtel and Betsey, 1972:123). We apply this concept to illustrate the joint determination of wages through the interaction of demand schedules related to capital intensity and certain labour supply characteristics of workers in labour surplus LDCs. The main relationships are demonstrated in Figure 9.1. The figure shows three sets of labour demand and supply schedules associated with different levels of capital intensity in three firms. The demand schedule of the labour intensive firm (D_1D_1) intersects with a perfectly elastic supply curve (w_1S_1) to give a wage rate of w_1.

(a) LABOUR INTENSIVE FIRM



(b) CAPITAL INTENSIVE FIRM



(c) HIGHLY CAPITAL INTENSIVE FIRM

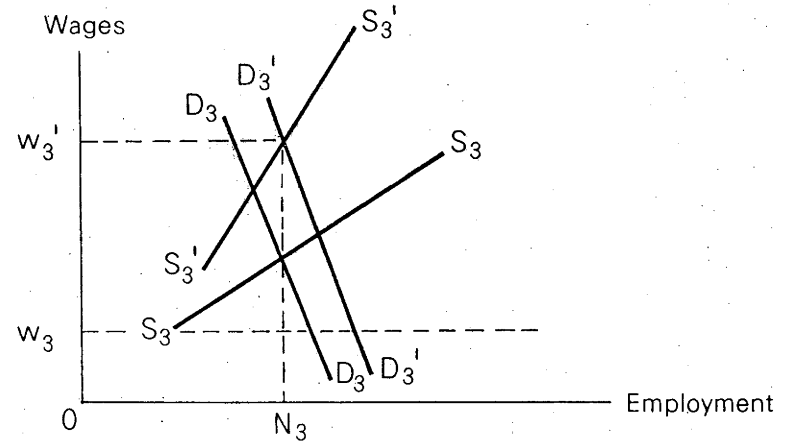


Figure 9.1: Joint determination of wages : variations in capital intensity with worker characteristics and internal skill generation

More capital intensive firms prefer to recruit workers with certain characteristics and abilities (for example, more educated workers) whose supply curve (S_2S_2 in (b)) can be expected to be less elastic than for workers employed in labour intensive firms. The demand curve (D_2D_2) of more capital intensive firms intersects with S_2S_2 to provide a higher wage rate, w_2. A third group of firms (for example, highly capital intensive foreign firms) employ a different group of even more highly educated workers whose supply curve (S_3S_3 in (c)) is even less elastic. These firms offer even higher wage rates (w_3) at the point of intersection of their labour demand (D_3D_3) and labour supply schedules.

Thus we may envisage a series of labour demand and labour supply schedules associated with different levels of technology. The intersection between the demand schedules of firms with varying technology and certain characteristics of workers will result in a range of wage rates in manufacturing.

The second group of factors which is likely to contribute to higher wages in capital intensive firms is the training of employees recruited on the external market. Unskilled employees who are in relatively elastic supply on the external market are provided with scarce new skills through training within the firm. The effect of generation of new skills on wage differentials between capital and labour intensive firms is also represented in Figure 9.1. All new skills are purchased on the external market by the labour intensive firm at wage rate w_1. In contrast, some skills are provided internally by capital intensive firms. The increased productivity of their workers as a result of training is shown in (b) by an outwards movement of the labour demand schedule D_2D_2 to $D_2'D_2'$. Their labour supply curve becomes less elastic (S_2S_2 moves to $S_2'S_2'$), as a consequence of the new scarce, firm-specific skills provided internally. Wages rise to w_2' in these firms. A similar though more marked process of skill generation is shown in (c) for the highly capital intensive firms. The even less elastic nature of the new supply curve for these firms ($S_3'S_3'$)

and the even higher wage rate w_3' may be partly attributed to special skills obtained internally which are specific to foreign firms.

This chapter examines two aspects of the joint determination of wages by technology and ownership on the one hand and worker characteristics on the other. First, we investigate the extent to which certain worker characteristics are associated with capital intensity and foreign ownership. Specifically, we look at the relationship between several worker characteristics (including years of schooling, external experience, sex and percentage of rural employees) and capital intensity and ownership patterns of machine operators and in a selection of occupations. The chapter also investigates differences between capital and labour intensive firms in the internal generation of skills. The second issue raised in the chapter is the extent to which wage differentials between capital and labour intensive firms may be attributed to a combination of worker characteristics. The survey data suggest that differences in the quality of labour inputs provide only part of the explanation for the wage differentials between capital and labour intensive and foreign and domestic firms.

The first part of the chapter provides an overview of differences in the personal characteristics of workers employed in firms with different technologies and ownership patterns. It also examines several of these worker characteristics and the nature of internal development of skills in some detail. In the second part we evaluate the nature of the relationship between various worker characteristics, and wages in firms with varying technology and ownership patterns. The discussion focuses on the characteristics of machine operators (operator 1). The final part examines the various worker characteristics in several occupations in capital intensive and foreign firms compared with labour intensive and domestic establishments.

I. Worker Characteristics by Capital Intensity and Ownership

Machine operators in relatively capital intensive and foreign firms mainly differed from operators in other firms in sex, average years of schooling, urban origins and external experience. These differences are demonstrated in Table 9.1. The table presents mean scores and standard deviations for the percentage of female machine operators, average age, years of schooling and years of service. The percentage of firms in various categories is recorded for residence and external experience.[1]

The table shows the large differences between non-mechanised and mechanised firms in the four characteristics mentioned above. The contrast is particularly marked for percentage of female employees (84 percent in non-mechanised firms compared with 10-18 percent in various mechanised categories). In all four of these characteristics even the low capital intensity mechanised firms differed substantially from non-mechanised firms.

Foreign firms also recorded major differences with all other groups of firms for three of the four variables (sex, years of schooling and external experience).[2] Similarly, the figures for machine operators in domestic capital intensive firms (column (3) in Table 9.1) were higher than all other domestic firms in years of schooling, percentage of urban workers and (lack of) external experience.

In contrast to the other worker characteristics, there was only a slight difference between machine operators in age and average years of service in the four groups of firms. However

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1 Data on both of these variables were obtained in a categorial form only.

2 The percentage of operator 1 living in urban areas was slightly lower in foreign firms than for domestic capital intensive firms; but it was substantially higher in foreign firms than in domestic labour intensive establishments.

Table 9.1: Worker characteristics of machine operators by capital intensity and ownership (operator 1)

Worker characteristics		Domestic			Foreign[2]	All firms
		Non-mechanised (1)	Mechanised Low K/L (2)	Mechanised High K/L (3)	(4)	(5)
Sex (percentage female)	$\bar{x}$	84	18	19	10	42
	SD	29	28	32	18	42*
Average age (yrs)	$\bar{x}$	26	26	25	26	26
	SD	4	3	3	6	4
Average schooling (yrs)	$\bar{x}$	4.2	6.4	7.9	8.6	6.0*
	SD	0.8	1.0	1.5	1.5	2.0
Years of service (yrs)	$\bar{x}$	3.7	4.1	3.0	4.4	3.9
	SD	1.3	2.1	1.1	4.5	2.4
Percentage of firms with:						
More than 75 percent of employees urban[1]		3	37	70	64	32
External experience:						
<25 percent		3	15	70	79	28
>75 percent		81	0	0	0	31
N (firms)		32	27	10	14	83

[1] All employees.

[2] All foreign firms were mechanised and all except one were in the high K/L category.

* F Statistic significant at one percent level.

Source: Java Wages Survey 1975-76.

both of these variables (which are likely to be quite closely interrelated) were influenced considerably by variations in the number of years of operation in different groups of firms.[1] We examine these relationships in greater detail below.

The relationship between capital intensity and foreign ownership, and several of the worker characteristics may be interpreted more meaningfully if the data are broken down by industry. Table 9.2 presents data on worker characteristics in the weaving industry. In contrast to the findings of Table 9.1, all of the characteristics of workers were closely related to capital intensity and ownership in weaving.[2] As might be expected from the fact that investment is relatively recent in capital intensive foreign firms in the weaving industry, loom operators in these firms were on average younger (22 years old), a smaller proportion were married (34 percent) and average years of service were shorter (2.1 years) than among other foreign firms in the sample.[3]

Table 9.2 also indicates that the percentage of female machine operators was very low (13 percent) and average years of schooling relatively high (9.4 years) in these recently established, foreign weaving firms compared with all foreign firms in the sample.

Elsewhere we have noted the relative homogeneity of levels and forms of wage payment in the kretek industry, despite large

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1 Twelve of the 14 foreign firms and six of the 10 domestic, capital intensive firms had been established in the five years prior to the survey. Consequently it is not surprising that, despite relatively low rates of labour turnover (see Chapter Ten), a high proportion of employees in these categories are young, unmarried and had little work experience.

2 The F statistic was significant at a one percent level in all but one case. For the two categorical variables the chi-square was significant at a one percent level.

3 In contrast, average age (32) and years of service (7.5 years) were considerably higher in foreign firms in the cigarette industry. This result was influenced considerably by the high average age (38 years) and years of service (14) recorded for employees in the two foreign cigarette companies which have operated in Indonesia since before the war.

Table 9.2: Worker characteristics by capital intensity and ownership in weaving (loom operators)

Worker characteristics	Domestic			Foreign	All firms
	Non-mechanised	Mechanised Low K/L	Mechanised High K/L		
	(1)	(2)	(3)	(4)	(5)
Mean score					
Sex (percentage female)	58	19	21	13	27*
Percentage married	75	57	52	34	57*
Average age (yrs)	29	26	25	22	26*
Average schooling (yrs)	4.4	6.3	7.8	9.4	6.6*
Years of service (yrs)	3.0	4.2	3.0	2.1	3.4**
Percentage of firms					
More than 75 percent of employees urban[1]	-	39	73	50	38[2]
Percentage experienced					
<25 percent op. 1 experienced	-	12	78	75	29[2]
>75 percent op. 1 experienced	100	-	-	-	22
N (firms)	12	26	7	8	55

[1] All employees.

[2] In both these cases the chi-square was highly significant at a one percent level.

* F Statistic significant at one percent level.

** F Statistic significant at five percent level.

Source: Java Wages Survey, 1975-76.

differences in the size of firm. This was also true of the personal characteristics of cigarette rollers (tukang giling) in this industry (Table 9.3). Average age was slightly younger, years of service slightly longer and the percentage of experienced workers lower in large scale firms. But there was a remarkable similarity in the other characteristics of kretek workers regardless of size of firm. Almost all were female, a high proportion had not graduated from primary school, more lived in rural areas and most had had some job experience prior to working with the firm. They shared much in common with ATBM workers in the weaving industry in all these characteristics.

In brief, several of the worker characteristics were closely related to capital intensity and foreign ownership both for the sample as a whole and also for the weaving industry. These relationships were stronger in weaving where there was a much wider range in technology and ownership than in kretek. In the kretek industry there were no marked differences in the personal characteristics of cigarette rollers even in firms of very different sizes.

In the light of the earlier discussion of the causes of wage differentials (Chapter Three) several aspects of interfirm differences in worker characteristics are worthy of greater attention. These are the recruitment by domestic, capital intensive and foreign firms of (i) young employees with little experience and more schooling, and (ii) a high proportion of male workers who live mainly in urban areas. The data suggest that there was considerable labour market segmentation in terms of schooling, external experience and employment of workers on the basis of sex and residence. But, although average years of schooling were considerably higher in domestic, capital intensive and foreign firms, several of these firms employed quite a high proportion of employees with relatively low levels of schooling. The recruitment of young inexperienced employees in domestic, capital intensive and foreign firms suggests greater emphasis on internal skill development in these enterprises. In this respect these firms differed

Table 9.3: Worker characteristics by size of firm (cigarette rollers, kretek only)

Worker characteristics		Employees <100 (1)	Employees 100-499 (2)	Employees 500+ (3)	All firms (4)
Mean Score					
Sex (percentage (female)	$\bar{x}$	100	100	98	98
Average age (yrs)	$\bar{x}$	26	25	24	25
Average schooling (yrs)	$\bar{x}$	3.8	4.0	4.1	4.0
Years of service (Yrs)	$\bar{x}$	2.8	4.3	4.5	4.1
Percentage of firms					
More than 75 percent of employees urban		0	0	10	0
Percentage experienced:					
<25 percent		0	0	10	5
>75 percent		100	100	40	70
N (firms)		4	6	10	20

Source: Java Wages Survey, 1975-76.

considerably from labour intensive establishments. These contrasts in three major characteristics of workers (schooling, age and experience, and sex and residence) in the different groups of firms are examined in greater detail in the following three sections of the chapter.

1. Schooling

The much higher average years of schooling of employees in domestic capital intensive and foreign firms compared with the rest of the sample seems to suggest a division of the labour market similar to that described in Chapter Three. It implies that more educated workers were employed only in the modern sector and non-educated workers in the traditional sector. In reality, the pattern was much less uniform.

Although the mean years of education among operator 1 in foreign firms was approximately the level of a graduate from lower secondary (SLP), over one-third of employees in these firms had received only primary education (Table 9.4). At the other extreme over 20 percent had received upper secondary education (SLA). This range in educational qualifications occurred in several foreign firms and a similar pattern also obtained (though with a higher proportion of primary educated operators) in domestic owned, capital intensive firms.

Why was there such a wide range in the educational qualifications of loom operators in foreign and domestic, capital intensive firms? Besides attempts to screen employees on the basis of education, in modern sector firms historical, social and locational factors appear to have influenced the educational mix of employees. In several of the older firms recruiting standards have adjusted to the abundance of secondary educated job seekers. In the 1950s and most of the 1960s secondary educated employees were scarce and most went into government, or accepted higher paid clerical and administrative posts in private enterprise. It seems that a surplus of secondary educated graduates began to flow into semi-skilled and unskilled jobs in the modern, private sector in

Table 9.4: Percentage of employees in various educational groups by capital intensity and ownership (operator 1)[1]

Level of Schooling	Domestic			Foreign	All firms
	Non-mechanised (1)	Mechanised Low K/L (2)	Mechanised High K/L (3)	(4)	(5)
SD (0-8 years)	99	84	50	35	77
SLP (9-11 years)	1	15	37	44	17
SLA+ (12 years or more)	0	1	13	21	6
Total	100	100	100	100	100
N (firms)	32	27	10	14	83

[1] Figures calculated from percentage of operators with different levels of schooling in each firm, not for all employees in the sample.

Source: Java Wages Survey, 1975-76.

Indonesia only in the late 1960s and 1970s. Similar to a trend which has occurred in other LDCs, less educated employees appear to have been to some extent 'bumped out' of employment opportunities in these new modern sector firms (Fields, 1974; Barnum and Sabot, 1976).

Secondary educated (especially SLA graduates) are not always preferred in modern sector firms.[1] However pressure from individuals in positions of influence both within and outside the firm often made it impossible for personnel managers to resist recruitment of at least a small number of SLA graduates in these firms.[2] Also, regional pressures encouraged some foreign, capital intensive firms to recruit primary graduates. Several of the large foreign firms are located on the outskirts of major cities in rural environments and are pressed by local government officials to recruit a certain number of local primary (SD) graduates.

Compared with foreign firms, the much higher percentage of machine operators with only primary education in domestic, capital intensive firms may be attributed to less emphasis given to formal educational qualifications in these firms. But, despite a much larger proportion of primary educated in domestic capital intensive firms, minimum educational requirements in almost all these firms were set at the same level as in foreign firms. Most firms in both categories were not prepared to recruit employees with less than completed primary schooling (Table 9.5). The higher proportion of secondary educated employees in foreign firms compared with domestic capital

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1 SLA graduates were considered by several firms to be 'overeducated' for the job of machine operator. Recruitment of these graduates was resisted by several firms because they often demanded higher pay and positions which they felt was commensurate with their educational status.

2 One manager in charge of recruiting new personnel for a foreign factory recounted that he actually had to go into hiding for several months over the major recruiting period in order to resist some of these pressures.

Table 9.5: Percentage of firms with minimum educational requirements by capital intensity and ownership (operator 1)

Level of Schooling	Domestic			Foreign	All firms
	Non-mechanised	Mechanised Low K/L	Mechanised High K/L		
	(1)	(2)	(3)	(4)	(5)
No min. educ. requirement	100	63	20	-	61
SD (6 years)	-	37	60	93	35
SLP (9 years)	-	-	20	7	4
	100	100	100	100	100
N (firms)	32	27	10	14	83

Source: Java Wages Survey, 1975-76.

intensive firms must also be attributed to the much greater demand by secondary educated for the prestigious higher paid jobs in foreign firms.

A completely different picture emerges for labour intensive firms. No non-mechanised firm employed any SLA graduates as machine operators and only two employed a few SLP graduates. A considerable proportion of employees in non-mechanised firms had not even completed primary school.[1] A higher proportion of mechanised, low capital intensity firms employed lower secondary graduates (see column (2) in Table 9.4), but here too the majority of loom operators had received only primary or less than primary education. As Table 9.5 indicates, in none of the non-mechanised firms (and only in one-third of mechanised labour intensive firms) is primary education a prerequisite for employment in this sector.

Overall, the differences in education qualifications of operator 1 by technology and ownership may be explained partly by the greater emphasis on screening on the basis of schooling in capital intensive and foreign firms. It may also be attributed to the demand of secondary educated unemployed for higher wage jobs in the modern sector. Partly it is the result of considerable 'stratification' of the labour market on the supply side: unwillingness on the part of the secondary educated to accept low wage jobs.[2]

Despite high levels of urban unemployment (especially among SLA graduates, see Chapter Four), almost no secondary educated sought employment in non-mechanised firms and few were employed in labour intensive, mechanised firms. Low wages may have contributed to the reluctance of SLP or SLA

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1 Unfortunately it was not possible to collect detailed data on the educational levels of employees in most of these firms. Few of the non-mechanised firms were able to provide detailed information on the proportion of primary school educated compared with those that had not graduated from primary school.

2 See Fields (1974) for a definition of this notion of labour market stratification.

graduates to seek employment in labour intensive establishments.[1] However the expectations of secondary educated job seekers concerning the jobs which were worthy of their social status undoubtedly prevented many from accepting jobs in labour intensive firms. The dislike, especially of secondary school graduates, of manual labour probably contributed to their reluctance to work in labour intensive and particularly in non-mechanised establishments.[2]

Recruiting processes and methods of skill acquisition in labour intensive firms may have, paradoxically, provided a further obstacle to employment of secondary educated in these firms. In labour intensive firms recruiting and training both tended to be carried out on an informal basis through family and friends of employees. Just as the less educated had few contacts who could assist their entry into the modern sector, so the more educated were unlikely to have the contacts for entry into the traditional sector.

2. Generation of Skills: External Experience and Training

We have already noted that domestic capital intensive and foreign firms differed considerably from the rest of the sample in their approach to the development of basic skills of machine operators (operator 1). These firms preferred to recruit inexperienced, younger employees and to train them for new jobs. They adopted these policies partly because of the shortage of employees familiar with the new technology used by most firms in the modern segment of each industry. Also, training programs

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1 It may be argued (along lines proposed by Harris and Todaro, 1970) that some secondary educated are prepared to accept a period of temporary unemployment in order to be free to search for higher paid modern sector jobs. However the relatively high rates of unemployment of secondary educated in the major urban centres in Indonesia suggests that the probability even of the secondary educated of obtaining unskilled modern sector jobs is likely to be low.

2 See especially Myrdal (1968:1124-9) for a discussion of the attitudes of the educated unemployed in India to manual work.

had been introduced especially by foreign firms to transmit new firm-specific technology and practices. As we have noted in Chapter Three, the internal generation of skills is likely to be a major factor contributing to high modern sector wages. In this section we will examine briefly the contrasting methods of skill generation in firms with different technologies and ownership patterns.

Table 9.6 shows the relatively small proportion of employees with previous experience in the same job that were recruited in most domestic capital intensive and foreign firms. In nearly two-thirds of foreign firms less than 10 percent of machine operators had some external experience in their current job. A similar result was obtained for domestic capital intensive firms. In contrast, in labour intensive firms a substantial proportion of machine operators had some work experience. Over 80 percent of operator 1 in all non-mechanised firms and over half in labour intensive, mechanised firms were experienced.

We have seen in Tables 9.1 and 9.2 that machine operators in these modern sector firms were relatively young. In the weaving industry the relatively low average age (22 years) of loom operators in capital intensive and foreign firms can be partly attributed to the recent nature of these investments. But average age at recruitment was also relatively low.[1] As in Japan, many of these firms preferred to recruit recent high school graduates with no previous job experience.

In weaving, the policy of recruiting and training inexperienced workers was particularly marked in the four Japanese joint ventures. In addition to transmitting new basic skills associated with the operation of automatic looms, these firms placed considerable emphasis on work habits and

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[1] Average age at recruitment of operator 1 for the sample as a whole was 22 years in domestic capital intensive firms and 19 in foreign firms.

Table 9.6: Percentage of experienced machine operators by capital intensity and ownership (operator 1)

Percentage of machine operators experienced	Domestic			Foreign	All firms
	Non-mechanised (1)	Mechanised Low K/L (2)	Mechanised High K/L (3)	(4)	(5)
<10 percent	0	4	10	64	14
10-49 percent	9	44	70	29	31
50-74 percent	9	52	20	7	24
75+	82	-	-	-	31
Total	100	100	100	100	100
N (firms)	32	27	10	14	83

Source: Java Wages Survey, 1975-76.

discipline. Intensity of work, punctuality, dress and general bearing were all given considerable emphasis.[1]

The different methods adopted by modern sector firms to provide machine operators with basic skills is shown in Table 9.7. Fifty percent of all foreign firms adopted short formal training courses (three weeks to one month in duration) for employees during their three month probation period. A smaller percentage (25 percent) of domestic capital intensive firms adopted formal training courses but all provided formal on-the-job training through special instructors or supervisors and mechanics. In contrast, most relatively labour intensive, mechanised firms encouraged experienced workers to teach members of their family or friends. Internal transmission of skills was achieved mainly through 'learning by doing' on the part of kretek cigarette trimmers and preparation workers in ATBM in weaving.[2]

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1 One manager in a Japanese firm explained that it was more costly to employ experienced rather than inexperienced workers. Japanese managers felt that many of the former were unable to lose sloppy technical practices and also less capable of adapting to much tighter work discipline than younger job seekers without any employment experience.

2 In most cases informal training was achieved at very little cost to the firm. In ATBM it mainly involved preparation workers teaching themselves to operate hand looms either after office hours or (either because of absenteeism or labour turnover) when the loom was not occupied. Cigarette trimmers (tukang gunting) in the kretek industry learnt to roll cigarettes under similar conditions. Especially in a small ATM, a relative of a would-be-loom operator may take time off to teach the new employee to operate the looms so that he (or she) could fill existing or any future vacancies. In more specialised weaving activities (for example the manufacture of sarongs) weavers were even encouraged to teach their sons the trade during work hours. Training activities in these relatively labour intensive enterprises were closely related to the family nature of recruitment. Employees in these firms were frequently encouraged to recruit and help train friends and family members for vacancies.

Table 9.7: Major methods of skill generation by capital intensity and ownership (operator 1)

Major methods of skill generation	Domestic			Foreign	All firms
	Non-mechanised	Mechanised			
		Low K/L	High K/L		
	(1)	(2)	(3)	(4)	(5)
	Percentage of firms				
Learning by doing	72	-	-	-	25
Help of friends/ family	14	59	20	-	28
Formal on-the-job training	14	41	60	50	36
Special training courses	-	-	20	50	11
	100	100	100	100	100
N (firms)	28	27	10	14	79

Source: Java Wages Survey, 1975-76.

Mostly, labour intensive firms preferred to obtain the skills that they needed through the recruitment of experienced workers on the external market. Relatively high rates of labour turnover in these firms (see Chapter Ten) made it fairly easy for them to recruit new experienced operators. This contrasts with the greater stability of employment in the modern sector which tended to limit opportunities for recruitment on the external labour market.

A lack of emphasis on internal skill generation in labour intensive firms probably influenced their decision to employ a high proportion of female and rural workers. The next section examines differences between these firms and capital intensive and foreign firms in the employment of females and workers living in rural areas.

3. Employment of Male and Urban Workers

The data presented in Chapter Seven and at the beginning of this chapter suggest that a high proportion of both male employees and urban employees are likely to be closely associated with the high wages offered in capital intensive firms. Both variables were positively related to wages and also to foreign ownership and capital intensity. This section examines some of the reasons for the concentration of males and urban employees in capital intensive and foreign firms.

Two major reasons were given for employment of a high proportion of males in domestic capital intensive and foreign firms: males were stronger and there were no problems involved in their employment on night shifts.[1] Generous maternity leave (with pay) and menstruation leave (see Chapter Five) were

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[1] Approximately 25 percent of firms gave each of these reasons as the major reason for preferring to employ males. As we have noted in Chapter Five, firms must obtain special permission to work night shifts in Indonesia. Several firms reported also that there was still quite strong local opposition and general social disapproval of employment of women on night shifts.

additional factors discouraging some firms from employing females. Besides, the job of loom operator in mechanised weaving firms tended to be regarded as a 'male' job.[1]

The high proportion of urban employees in most of these foreign and domestic capital intensive firms was partly the result of the location of these firms. Several were located in or close to the large cities of Jakarta and Bandung where they could draw on a relatively large surplus of educated manpower. But even foreign and capital intensive firms situated on the outskirts of urban areas preferred to recruit urban workers.[2] The employment of mainly male, urban workers in these firms must be attributed to the belief that these workers would respond better to modern factory discipline and training. The longer term labour management planning of some of these firms encouraged them to employ male, urban workers who were expected to be more stable and a better long term investment.[3]

In contrast to domestic capital intensive and foreign firms, kretek factories employed a high proportion of females and rural employees. All three major operations in this industry - rolling, trimming and packing - were carried out almost exclusively by female employees. Also almost all

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1 The Manager of one firm, for example, reported that he employed males because they were adept at making small adjustments and repairs to machinery.

2 Over 70 percent of firms located on the outskirts (within 5 km of the city limits) of large cities recruited more than three-quarters of their workers from urban areas.

3 However it is instructive that at least one foreign (Japanese) firm with a relatively high proportion of rural machine operators reported that there was no visible difference in the performance of these employees compared with those recruited in urban areas. (Interview conducted in Bandung, 25/2/76).

cigarette rollers in Kudus and Malang lived in rural areas.[1] Indeed the labour supply situation in the kretek industry appears to have changed little (despite a marked increase in surplus labour in urban areas) since Castles investigated the industry in the early 1960s.[2] Rural workers continued to walk as far as 10-15 km. a day to work in the kretek factories located in or on the outskirts of the major towns of Kudus, Malang and Solo.[3]

A similar pattern also prevailed in ATBM factories in weaving. Even in the small town of Majalaya there was quite a marked contrast in the age and rural origins of the work force employed in ATM and ATBM firms. No urban employees in Majalaya worked in ATBM factories and younger, rural employees sought employment (even at lower wages) in preparation in mechanised factories rather than work as loom operators in ATBM firms.

Why were almost all the employees in kretek factories from rural areas and mostly female? The high proportion of female employees may be partly attributed to the nature of tasks performed: rolling, trimming and packing by hand all required a high degree of manual dexterity. But the reliance on rural workers in these establishments must also be partly due to the willingness of employees to work long hours for low wages in poor working conditions. Several of the larger kretek factories operated 10-12 hours a day six (or even seven) days a week.

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1 One exception to this pattern should be noted. A large kretek factory (more than 2,000 workers) in Surabaya recruited over half its work force from urban areas. However (it is noteworthy that) this firm paid by far the highest wages of any kretek firm in the entire sample and also provided (along with the giant firm Gudang Garam) the best working conditions for workers.

2 Castles (1967:54) noted that the industry has 'not created a new clan of thoroughly urbanised and industrialised workers in Kudus but merely swollen and modified somewhat the class of "little people" to be found in any Javanese town'.

3 However one major change since that time may have been the movement of many of the larger factories into rural areas within a 20 km. radius of Kudus. The work force in kretek in Kudus may have been becoming more rather than less rural.

Earnings per hour were even lower relative to other firms than total weekly and monthly earnings. These workers in non-mechanised firms also experienced considerable seasonal fluctuations in employment and earnings as a result of unstable production. It is likely that rural workers in particular were more accustomed to (and accepted more readily) these seasonal fluctuations than urban dwellers.[1]

Nevertheless the lack of urban workers in the kretek industry cannot be attributed to economic factors only. Prejudice against undertaking the mechanical rolling and trimming tasks in kretek which urban dwellers considered to be fit for rural people only - probably has had a major influence on the pattern of supply response in this industry.[2] Similarly, employment in ATBM factories in Majalaya was considered by urban dwellers to be low status.

To sum up, the first part of this chapter has examined the differences in worker characteristics according to contrasting patterns of capital intensity and ownership in the sample firms. Variations in several of these worker characteristics (schooling, external experience, sex and residence) were closely correlated with differences in capital intensity and ownership. However the differences between firms in (some) other variables (especially age and seniority) were much less marked.

The above discussion has highlighted the differences between both domestic capital intensive and foreign firms and all other firms in the sample. Two other divisions between the sample firms should also be mentioned. First, there were some major differences in all of the worker characteristics between non-mechanised and mechanised firms. Second, foreign firms stood

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1 See Manning (1977) for a discussion of seasonal fluctuations in hours worked and earnings per hour in ATBM and kretek establishments.

2 However it should be noted that quite a significant proportion (usually 20-30 percent) of all kretek employees lived in urban areas. This included daily paid, unskilled male workers and more senior employees. In addition a high proportion of cigarette packers (tukang verpak) also tended to come from urban areas.

out from all domestic firms, especially because of more schooling provided for machine operators and more formal methods of training adopted in these firms. Overall, although the differences in worker characteristics between both domestic capital intensive and foreign firms and the rest of the sample are most obvious, there was not a marked dualistic pattern.

As a consequence of the contrasts in labour demand patterns of these different kinds of firm, there was relatively little direct interaction between workers with different labour supply characteristics. At one extreme foreign enterprises in weaving and cigarettes almost all recruited a high proportion of young, male high school graduates from urban areas as machine operators. At the other the non-mechanised ATBM and kretek firms recruited a high proportion of uneducated (or at most primary educated) women from rural areas.

There were some exceptions to this pattern. The market was not perfectly segmented. Several foreign firms employed quite a high proportion of females, and some rural and primary educated workers.[1] In several ATBM firms, more than half of all loom operators were male. Despite loss of status, some secondary graduates were employed (at least temporarily) in labour intensive ATM firms.

Nevertheless, at the extremes, the division of the sample firms into distinct groups according to the characteristics of workers was quite marked. In over 80 percent of all non-mechanised firms, machine operators had the following characteristics: average education SD (primary) or less; 50 percent or more were female, lived in rural areas and had had previous external experience in their current job. In contrast, not one mechanised firm employed machine operators who had all

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[1] However it should be noted that in the case of primary educated, rural employees the segmentation was broken down mainly by non-market forces (the intervention or pressure from local and other governmental bodies).

of these characteristics.[1] At the other extreme, well over half of all foreign and domestic capital intensive firms employed workers with an average education of seven years or more; less than 50 percent of employees in these firms were female, rural or experienced. Less than 20 percent of labour intensive mechanised establishments and no non-mechanised firm employed machine operators with these characteristics. As we have noted in Chapter Four, the labour market operates under conditions of surplus labour in both urban and rural areas, and among the secondary educated as well as the less educated. This ensures that even considerable expansion of labour demand in the modern sector is unlikely to influence the wages of the large majority of wage earners employed in labour intensive firms, or the prospects of employment of relatively uneducated, female and rural job seekers.

II. The Influence of Worker Characteristics on Wage Differentials by Capital Intensity and Ownership

In this section we examine the extent to which wage differentials by capital intensity and ownership may be attributed to differences in worker characteristics. To what extent do wage differentials between capital intensive and labour intensive firms remain after the differences in worker characteristics of employees in these firms are taken into account? Are we justified in seeking other explanations for wage differentials?[2]

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1 It should be noted that this data refer to the average for all operator 1 in each firm not to the characteristics of individual machine operators in each firm.

2 It was not always possible to examine the effect of worker characteristics on wage differentials because employees in the various groups of firms (foreign, domestic, mechanised capital intensive and labour intensive, and non-mechanised) did not always share the same characteristics. For example, we were not able to compare wages in mechanised and non-mechanised firms for a comparable group of urban males since there were no urban males employed as machine operators in non-mechanised firms. Nevertheless there was sufficient overlap to enable a comparison to be made of wages of employees with similar characteristics in firms with varying capital intensity and ownership patterns.

Wages were compared in firms with different levels of technology and ownership patterns for employers with the same worker characteristics. The results of these calculations are presented in Table 9.8. In this table hourly earnings of machine operators are compared for various groups of employees in four firm categories: non-mechanised, domestic low K/L, high K/L and foreign. It is clear from the table that there were still substantial wage differentials between the four groups of firms even when worker characteristics are held constant. For example, wages of employees with 7-8 years or SMP schooling were more than twice as high in foreign firms than in labour intensive, mechanised establishments.[1] Similar results were also found when differences in groups of employees in years of service, external experience and percentage of female and urban employees were taken into account. The contrast was most marked between foreign and domestic firms, and between all groups of mechanised firms on the one hand, and non-mechanised firms on the other.

However evidence that individual employee characteristics do not fully account for interfirm wage differentials does not necessarily mean that a combination of these characteristics might not account for the differentials. But even when a comparison was made of a group of firms in which employees shared several similar worker characteristics, the wage differentials were still quite large. For example, wages were compared in a group of firms in which machine operators had all of the following characteristics: seven or more years of schooling, less than half were female, rural and experienced.

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[1] This was not true for the group of primary graduates. The table suggests that employees in labour intensive firms actually receive a higher wage than those in the foreign firm category (Rp 81 compared with Rp 70). However only one foreign and two domestic firms are included in each of these categories.

Table 9.8: Average hourly wages by various worker characteristics by capital intensity and ownership (Rp) (operator 1)

Worker characteristics	Domestic			Foreign	All firms	N (firms)
	Non-mechanised	Mechanised Low K/L	Mechanised High K/L			
	(1)	(2)	(3)	(4)	(5)	(6)
1. Schooling						
<SD	27	44	-	-	29	33
SD	81	49	58	(70)	54	21
7,8 years	-	66	93	133	94	16
SMP+	-	(53)	63	137	105	12
2. Years of service						
≤2 years	28	51	76	101	66	20
3-4 years	29	48	73	111	49	39
5+	33	62	(72)	(216)	70	22
3. External experience						
<25 percent experienced	27†	63	84	131	104	22
25-74 percent experienced	30	51	50	128	57	34
≥75 percent experienced	30	-	-	-	27	26
4. Percentage female						
<25 percent	37†	52	73	141	80	41
25-74 percent	38†	61	(100)	71†	62	10
≥75 percent	29	35†	65	-	32	31
5. Percentage urban						
<25 percent	28	42†	-	-	30	21
25-74 percent	27	54	59	92	50	25
75+	(122)	55	80	154	95	26

Figures in brackets denote only one firm in category.

† Less than four firms in category.

Source: Java Wages Survey, 1975-76.

The results are given below:

		Mean Hourly Wages (operator 1)	
		Rp	Firms
Domestic:	low K/L	61	(n = 5)
	high K/L	83	(n = 6)
Foreign:		147	(n = 9)

The differentials were still substantial especially between foreign and domestic firms.

These differences in wages of workers with similar socio-economic characteristics in firms of varying capital intensity and ownership do suggest that we need to search beyond worker characteristics for an explanation of wage differentials in the sample firms. We shall see in the next chapter that other aspects of labour management and, to a lesser extent, some 'institutional' forces need to be introduced to help explain the extent of wage differentials by capital intensity and ownership.

III. Worker Characteristics in Several Occupations

Before turning in the next chapter to labour management and institutional influences on wages, it is necessary to examine briefly the extent to which the findings for machine operators (operator 1) may be generalised to other occupational categories.

Although this study is mainly concerned with wage determination in markets for unskilled and semi-skilled labour, it will be useful to examine the extent to which these processes differ for more skilled, administrative and supervisory personnel. We pose the question: how much do the findings for operator 1 apply to other occupations in the sample firms? Data for the five occupations discussed in Chapter Seven (operator 2, unskilled labourer, mechanic, clerk, foreman) indicate some similarities with the patterns observed for operator 1. But there were also some major differences. First, we look at the worker characteristics of the two categories of

unskilled and semi-skilled workers, and then examine the three categories of skilled, supervisory and administrative employees.

There were some major differences in the worker characteristics of operator 2 compared with operator 1.[1] Operator 2 tended to be younger than operator 1 and in several cases they were recruited at very young ages. Also they had experienced fewer years of service and a higher percentage were female especially in small scale firms.[2] But despite these differences, the same variables - especially education and percentage of female employees - were highly correlated with capital intensity and ownership (Table 9.9).

The category of unskilled workers (general labourers) revealed a somewhat different pattern to operators 1 and 2. In most firms all were male, they were on average considerably older (28) and averaged longer years of service (four years); years of service were longer especially in small scale, relatively capital intensive firms (Table 9.10). The employment patterns of these general labourers showed some similarities with relatively skilled employees. Especially in small scale, capital intensive firms, they tended to be recruited more on a personal basis than machine operators, and were considered more as permanent employees.[3] Nevertheless,

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1 It should be remembered that the category of operator 2 included preparation workers in weaving and machine tenders in cigarettes only. Since there were only eight cigarette companies, the characteristics of workers largely reflect those of preparation workers in weaving.

2 Average age of operator 2 was 22 years, years of service averaged three years and 78 percent were female (compared with 26 years of age, four years of service and 42 percent of females for operator 1). However average minimum age at recruitment was much younger especially for labour intensive firms in weaving. In ATBM firms the average minimum age at recruitment was only 13 years and in labour intensive ATMs only 16 years. Employment of young children in preparation followed a similar pattern to that which occurred for trimmers (tukang gunting) in kretek factories. Many obtained their job through parents or relatives employed in the same factory.

3 In slack periods they may be employed on other jobs by the firm's owners (especially in the fields or at home).

Table 9.9: Years of schooling by capital intensity and ownership in several occupations

Occupation	Domestic			Foreign	All firms	N (firms)
	Non-mechanised	Mechanised Low K/L	Mechanised High K/L			
	(1)	(2)	(3)	(4)	(5)	(6)
Mean years of schooling						
Unskilled	4.7	5.2	5.7	6.1	5.2	82
Operator 1	3.8	5.5	6.8	7.0	5.7	62
Operator 2	4.2	6.4	7.9	8.6	6.0	83
Foreman	7.8	10.0	11.1	11.9	9.7	79
Clerk	11.3	11.0	11.3	11.5	11.3	55
Mechanic	6.0	7.1	9.6	11.3	8.7	52

Source: Java Wages Survey, 1975-76.

Table 9.10: Years of service by capital intensity and ownership in several occupations

Occupation	Domestic			Foreign	All firms	N (firms)
	Non-mechanised	Mechanised Low K/L	Mechanised High K/L			
	(1)	(2)	(3)	(4)	(5)	(6)
Mean years of service						
Unskilled	4.7	3.8	3.4	3.0	4.0	82
Operator 1	1.6	3.1	2.9	2.7	2.7	62
Operator 2	3.7	4.1	3.0	4.4	3.9	83
Foreman	6.7	6.5	4.6	4.6	6.0	79
Clerk	5.9	5.1	3.8	4.1	4.9	44
Mechanic	7.0	5.4	4.3	3.6	4.8	52

Source: Java Wages Survey, 1975-76.

although wage differentials between both capital and labour intensive and foreign and domestic firms were smaller for general labourers than for machine operators (Chapter Seven) they were still quite large for unskilled workers and also were highly correlated with schooling (Table 9.9).

However the association between both capital intensity and ownership, and certain worker characteristics of skilled supervisory and administrative employees differed considerably to that which prevailed for unskilled and semi-skilled workers. A relatively high percentage of these employees was male (except for clerks) even in non-mechanised establishments. Almost all lived in urban areas.[1] However except in the case of clerks, educational differentials by capital intensity and ownership were similar for these occupations to the differentials for unskilled and semi-skilled employees.[2] Average years of schooling are considerably higher in capital intensive and foreign firms (Table 9.9).

Moreover, consistent with our findings for general labourers, internal markets for this group of employees appeared to be stronger, especially in labour intensive firms, than was the case for unskilled and semi-skilled workers. Average years of service were much higher than for machine operators (see Table 9.10). In part, this may be attributed to a relative scarcity of more skilled employees on the external market. But, as we have seen in Chapter Four, high school graduates are relatively abundant in Indonesia and potential supervisory and

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1 Castles (1967:54) refers to this group of workers in the kretek industry as the 'labour aristocracy', the 'better paid, urban dwellers ... and more committed to the factory as their sole source of income'.

2 The small difference in educational status of clerical workers irrespective of capital intensity and ownership may be attributed to the similarity of clerical tasks regardless of the type of firm. In all firms clerical workers were at least SMP educated. By contrast, educational qualifications were not nearly so important for mechanics who learnt many of their skills on-the-job.

clerical staff relatively easy to recruit on the external market.[1] It is more likely that the tasks of many of these workers were more firm-specific than those performed by less skilled employees. This was especially true of mechanics and clerks.[2] Trust and confidentiality were particularly important in small scale firms in which the manager relied on a few employees for efficient running of the enterprise.[3]

Summary and Conclusions

This chapter has examined the relationship of certain worker characteristics to capital intensity and foreign ownership and their relationship with wages. It was found that there are large differences in some of the characteristics of semi-skilled machine operators between both capital intensive and labour intensive, and foreign and domestic firms. These differences in personal characteristics of workers provide evidence for considerable labour market segmentation between these different groups of manufacturing firms.[4] However, characteristics of employees alone were not sufficient to

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1 Many supervisory personnel are recruited from among retired military personnel.

2 Taira (1966:289-92) argues that a strong commitment of salaried employees to the firm in many LDCs, and the wide range of tasks required of these employees, help explain their relatively secure employment and high levels of remuneration relative to manual workers.

3 One category of employee - professionals - has been excluded from this discussion mainly because this group of employees (accountants, engineers, secretaries) were employed only in a very small proportion of firms. But it is worth noting that the foreign-domestic differentials were relatively small for these employees; they too were highly paid in domestic firms partly because of the personalised recruitment processes and emphasis on a high degree of commitment to the firm (especially in Chinese-owned enterprises).

4 The third criterion of labour market segmentation given in Chapter Three was concentration of workers with certain characteristics in capital intensive firms.

explain the wage differentials that were closely related to capital intensity and ownership.

Employees in capital intensive and foreign firms differed from the rest of the sample mainly in education and in the percentage of females and rural employees. These were also the major factors contributing to interfirm wage differentials. Differences in educational status were significant for almost all categories of employee. But in contrast to the findings for machine operators, differences in several of the personal characteristics of technical workers, clerks and foremen (and to a lesser extent general labourers) were not so closely related to capital intensity and ownership. In labour intensive firms employees in these other occupations tended to be older males and to have worked several years more than machine operators. Much smaller interfirm differences in the characteristics of workers suggests stronger internal labour markets operated for these occupations in labour intensive firms.

Although the chapter has suggested that there is a relatively high degree of labour market segmentation in markets for unskilled and especially semi-skilled workers, we have not been able to identify the extent to which there is interaction between the different labour markets. This subject will be raised in the discussion of labour turnover in the following chapter. We will also examine other aspects of labour performance and the influence of 'institutional' factors on interfirm wage differentials.

CHAPTER TEN

LABOUR TURNOVER, ABSENTEEISM AND INSTITUTIONAL DETERMINANTS OF WAGE DIFFERENTIALS

In the previous chapter we saw that the labour market in the three industries was segmented according to various labour supply influences. But these influences did not entirely account for wage differentials between firms with varying capital intensity and ownership patterns.

In Chapter Three it was suggested that high wages in capital intensive firms may be adopted partly to raise labour productivity (wage productivity effects) and minimise labour turnover. Here we examine the extent to which the survey data support this proposition. The chapter also investigates the extent to which wage differentials related to capital intensity and ownership are the result of institutional pressures.

Capital intensive firms are likely to be particularly concerned with maximising labour productivity because of high costs of underutilisation or misuse of expensive capital equipment.[1] Moreover capital intensive and foreign firms may be induced to pay relatively high wages because of high turnover costs and greater skill specificity. The latter is likely to be related to the short term shortage of 'modern sector skills'. In weaving and cigarettes in Indonesia this shortage is one consequence of the rapid growth of investment in modern technology which has occurred since 1967. In part high wages are likely also to derive from the specific nature of tasks and of general labour practices demanded by foreign investors.

The first part examines the influence of capital intensity and ownership on two measures of labour 'performance', labour turnover and absenteeism. Similar to the approach taken in Chapter Seven, we also investigate the extent to which these firm

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[1] See Chapter Three for a discussion of these issues.

characteristics jointly influence labour turnover and absenteeism with certain features of labour supply. The second part examines the influence of institutional factors on wages and labour management practices of capital intensive and foreign firms. Data collected from the three industries suggest that these institutional factors have only a minor influence on wage differentials between domestic capital intensive and foreign firms on the one hand, and labour intensive enterprises on the other.

I. The Influence of Capital Intensity, Foreign Ownership and Worker Characteristics on Labour Turnover and Absenteeism

High rates of labour turnover and absenteeism of industrial workers have been identified by some writers (Kerr et al., 1973: 177, 179) as indicators of the lack of 'commitment' of workers to industrial employment in industrialising countries. High levels of both have been viewed as evidence of the continuing rural ties and the limited wants of new industrial workers.

In practice the patterns and causes of labour mobility and absenteeism in manufacturing appear to have been quite varied in predominantly agrarian societies. The importance of social and psychological factors influencing the commitment of industrial workers has probably been exaggerated by some writers. In many situations workers appear to have primarily adapted to different labour demand patterns. In India, relatively high rates of labour turnover and absenteeism appear to be only slightly (if at all) influenced by the failure of rural-urban migrants to view industrial work as permanent. Several studies indicate that a high proportion of workers have made a permanent move from rural areas and that high rates of labour turnover indicate considerable mobility (often in response to differences in wages and working conditions) between different non-agricultural employments (Morris, 1965:Ch.IV, 87-91; Sharma, 1974:9-11; Lambert, 1962:59). Moreover Morris has suggested that high levels of turnover among factory workers in Bombay in the early part of

the 20th Century were based on "thoroughly rational calculation" of management. After the initial years of establishment of the industry, low-wage, experienced workers could easily be obtained by factories. As a consequence managers placed little emphasis on policies that might encourage labour stability. Low wages, poor working conditions and long hours of work encouraged workers to move frequently between factories in search of better conditions. (Morris, 1965:199-205). In a quite different environment, Puerto Rico, higher rates of labour turnover and absenteeism (of what has been described as a 'committed' labour force) in some firms have been attributed primarily to quite rational worker response to wage and other labour management policies (Gregory, 1960:152-8).

In some urban situations (for example Uganda) manufacturing production does appear to have been disturbed by an unstable work force much of which tended to return to rural areas after only a few years employment (Elkan, 1956:6-16, 29-37). But even in these situations, labour management policy appears to have a major influence on rates of labour turnover. In addition to the persistence of social ties with villages, high rates of turnover among female workers in textiles in Japan appear to have been also the result of extremely low wages and poor working conditions in this industry (Koh, 1966:63-74; Saxonhouse, 1976: Shindo, 1961: 36-8).[1]

However high rates of labour turnover either between manufacturing establishments or rural and urban areas have not always been the norm. In contrast to the situation in textiles, lifetime employment systems adopted in large firms encouraged a high degree of stability of permanent employees in Japan (Taira,

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[1] Indeed most Japanese firms in the manufacturing sector relied on a cheap supply of temporary workers from the agricultural sector to assist in overcoming labour bottlenecks, especially during periods of more rapid manufacturing growth. (Taira, 1970).

1970; Shinohara, 1968). Morris attributes the high levels of stability among the workers at Tata iron and steel factory in India mainly to better wages and working conditions than in many other manufacturing firms (Morris, 1960). Also in Peru, workers in textile factories have exhibited low rates of turnover for several decades (Chaplin, 1967:Ch.6).

In contrast to most of the literature on interindustry and interfirm wage differentials in LDCs (Chapter Two), some of the above studies attempt to relate wages to turnover and absenteeism. These studies also indicate that both absenteeism and labour turnover are the result of historical, locational and economic factors which affect both the supply and demand for labour. But few studies have investigated these relationships in the light of dualistic (or differentiated) patterns of industrial development that have been a major factor contributing to interfirm wage differentials in many less developed economies.

Such a task is taken up in this chapter. The first section examines the relationship between labour turnover and absenteeism on the one hand, and capital intensity, ownership and other firm characteristics on the other. We indicate the extent to which labour turnover and absenteeism contribute to wage differentials between domestic capital intensive and foreign firms and other firms in the sample. This is followed by an investigation of the influence of two worker characteristics - sex and residence - on labour turnover and absenteeism.

1. Firm Characteristics

Consistent with the arguments developed in Chapter Three to explain wage differentials between capital and labour intensive firms, we would expect a strong negative relationship between capital intensity and foreign ownership, and both labour turnover and absenteeism. Also we expect these firm characteristics (rather than other firm characteristics such as size of firm, industry, location and years of operation) to be the major influences on turnover and absenteeism. These relationships were tested by multiple regression analysis with data collected from

the sample firms. We first present the results of the regression analysis and then discuss the findings in greater detail.

Labour turnover and absenteeism were specified as the dependent variables, and capital intensity, foreign ownership and other firm characteristics as explanatory variables in the regression equations.[1] In equations for both labour turnover and absenteeism an $\bar{R}^2$ of approximately 0.5 was recorded. In both cases the $\bar{R}^2$ for the regression equation was statistically significant at a one percent level.[2] In the case of labour turnover, the coefficients of the dummy variables for low capital intensity and foreign ownership were both negative and statistically significant at a five percent level (see equation (1) in Appendix Table 10.1).[3] The two other dummy variables for

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1 The results of the regression analysis are presented in Appendix Table 10.1 at the end of this chapter. The explanatory variables in equations (1), (3), (5) and (6) were the same as for equation (1) in Chapter Seven. In equations (2) and (4) we included a dummy variable for mechanisation in place of the capital intensity variables. These reduced equations included the dummy variables only for mechanisation, ownership and industry. For both labour turnover and absenteeism the semilogarithmic form (with the dependent variables specified in a natural log form) provided the best fit.

2 For labour turnover (log form) the $\bar{R}^2$ was 0.44 (R^2 0.51) and for absenteeism it was 0.48 (R^2 0.55).

3 Separation rates (quits plus dismissals) were used as a measure of labour turnover. Quit rates are a more appropriate measure of voluntary turnover but the data provided by firm did not always distinguish between voluntary and involuntary causes of turnover. However owing to the relatively small number of dismissals (in only 12.5 percent of firms did dismissals account for more than 25 percent of all separations), separation rates may be considered an acceptable proxy for quit rates. Separation rates were used as a substitute for quit rates throughout this chapter and are referred to as either labour turnover or separation rates. The formula used to calculate separation rates was $LT = 100. \frac{S}{\frac{1}{2}(L_1+L_2)}$ where LT = annual separation rates; S = the total number of separations per annum and L_1 and L_2 the firm's workforce at the beginning and end of the year respectively (all figures are for 1975). We were not able to obtain data on the labour turnover of particular occupations; LT refers to quit rates of all production workers.

capital intensity and ownership (high K/L and state/cooperative ownership) recorded quite large coefficients with the expected (negative) sign. The dummy variable for the cigarette industry was highly significant. But the dummy variable for kretek and the two other firm variables (location and years of operation) were not significant. Similar to the findings of the regression equation for wages, the coefficient of size of firm was not significant.

The overall $\bar{R}^2$ (0.49) was slightly higher for the equation with absenteeism and the coefficients of all four dummies for capital intensity and ownership were significant at a five percent level or higher (equation (3) in Appendix Table 10.1).[1] The coefficients for both industry variables (cigarettes and kretek) were quite large and recorded the expected signs in equation (4) (negative and positive respectively). But, similar to the equation for labour turnover, size of firm, location and years of operation recorded small, statistically insignificant coefficients. Exclusion of all these variables and replacement of the capital intensity dummy variables by a dummy variable for mechanisation improved the $\bar{R}^2$ slightly for the equation with absenteeism (see equation (4) in Appendix Table 10.1).[2]

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1 Absenteeism rates were calculated for machine operators only. The formula used to calculate absenteeism was $AB = \frac{A}{(N \times D)} .100$. Where AB = rates of absenteeism for machine operators A = number of mandays lost owing to absenteeism (excluding annual leave). N = Number of employees, D = number of days worked. Absenteeism was measured by levels of absenteeism in the month prior to the survey. A measure of 'normal' monthly rates of absenteeism (mean monthly rates of absenteeism over the past year) was also tested in the regression equation. The overall fit for normal rates of absenteeism and the size of indivudual variable coefficients were very similar to those recorded for absenteeism in last month. Consequently in all other compulations (unless otherwise specified) we used absenteeism for the last month as the measure of absenteeism.

2 A similar procedure was followed also for the equation with labour turnover giving a slightly lower $\bar{R}^2$, (equation (2) in Appendix Table 10.1).

The same explanatory variables were also tested with labour turnover and absenteeism for the weaving industry alone (equations (5) and (6) in Appendix 10.1). In the case of absenteeism the $\bar{R}^2$ was slightly lower (0.42) than for all firms in the sample. But the two capital intensity and ownership dummy variables all recorded statistically significant, negative coefficients. For labour turnover the $\bar{R}^2$ was very much lower (0.15) than for the sample as a whole. Although the coefficients of the dummy variables for capital intensity and ownership recorded the expected (negative) signs, only the dummy for low K/L was statistically significant.

Capital intensity and ownership. The regression equations with absenteeism confirm the hypothesis that capital intensity and foreign ownership were major factors affecting the rates of absenteeism in the sample firms. But the results for labour turnover were less conclusive. Although in all equations the coefficients for capital intensity and ownership were quite large and recorded the correct signs, none were significant in all the equations. Foreign ownership was significant for the sample as a whole but not for weaving. The low capital intensity dummy was significant in all equations and so too was the dummy variable for mechanisation.[1] But the coefficient for high K/L was not significant in any of the equations with labour turnover.

The pattern of differentials in absenteeism and labour turnover suggested by the regression equations is shown more clearly in Table 10.1. The table suggests that these were two major divisions between the sample firms. The first was the large differential between foreign and domestic firms. For the sample as a whole both rates of labour turnover and absenteeism were slightly less than half as large in foreign firms as in domestic capital intensive firms. The second division was the

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[1] Although the results are not reported in Appendix Table 10.1, the dummy variable for mechanisation was also significant in the equation with the other explanatory variables for weaving alone.

Table 10.1: Mean rates of labour turnover and absenteeism by capital intensity and ownership

Capital intensity and ownership	Labour turnover		Absenteeism	
	Weaving (1)	All firms (2)	Weaving (3)	All firms (4)
Domestic				
Non-mechanised	42.6	39.7	13.3	19.6
Mechanised: low K/L	22.0	21.6	7.0	7.2
high K/L	24.3	22.9	7.1	7.2
Foreign	18.3*	11.4*	3.5*	4.4*
All firms	26.8	27.4	8.0	11.6
N (firms)	54	79	54	82

* F statistic significant at one percent level

Source: Java Wages Survey, 1975-76

very much higher rates of labour turnover and absenteeism in non mechanical establishments compared with mechanised firms. The former were nearly twice as high as the rates for domestic mechanised firms and closer to four times the rate of turnover and absenteeism in foreign firms.

The table also confirms the regression findings which suggested that there were not large differentials between labour intensive and capital intensive domestic firms in either rates of labour turnover or absenteeism. It does not appear that the high wages in domestic capital intensive firms had a significant effect on rates of labour turnover and absenteeism. This is an important finding. It casts some doubt on the existence of a general relationship between capital intensity, wages and certain dimensions of labour management and performance. This point will be taken up again below.

Before discussing the economic significance of these findings, it is necessary first to examine the extent to which the pattern of differentials in labour turnover and absenteeism discussed above is related to wage differentials between firms of varying capital intensity and ownership. These relationships are demonstrated in Table 10.2. Two important conclusions may be derived from the table. First, as in the case of characteristics of workers, differences in labour turnover and absenteeism according to mechanisation and ownership were closely related to the level of wage payment. Not only did the high wages offered in foreign firms attract relatively educated urban males but they also encouraged greater stability of employment and better labour performance in these firms. The greater stability of employment (low rates of labour turnover) in these firms contributed to greater labour market segmentation. Employees in foreign firms are relatively protected in high wage jobs. On the other hand low paid employees in non-mechanised establishments are highly mobile, moving from one low wage job to another.

The second conclusion is that even when wage differentials are taken into account, foreign firms still tend to exhibit

Table 10.2: Mean rates of labour turnover and absenteeism by hourly wages by capital intensity and ownership[1]

Capital intensity and ownership	Labour turnover[2]				Absenteeism			
	Low wage	Medium wage		High wage	Low wage	Medium wage		High wage
	(<Rp 30) (1)	(Rp30-49) (2)	(Rp50-74) (3)	(Rp 74+) (4)	(<Rp 30) (5)	(Rp30-49) (6)	(Rp50-74) (7)	(Rp 74+) (8)
Domestic								
Non mechanised	39	42	-	-	23	14	-	(6)
Mechanised: Low K/L	(10)	22	24	16	(8)	8	7	3
High K/L	-	26†	31	13	-	6†	9	6
Foreign	-	-	17†	9	-	-	5†	5
All firms	37	31	25	12	22	11	7	5
N (firms)	22	23	17	16	22	23	17	19

1 Wages are for operator 2

2 Labour turnover for production workers only, absenteeism for operator 1 and 2

† Less than four firms in category

Figures in brackets are for one firm only

Source: Java Wages Survey, 1975-76

lower rates of turnover and absenteeism than other firms in the sample. For example in the high and medium wage groups (see columns (3) and (4)) labour turnover was very much lower in foreign compared with other firms. On the other hand in the low and medium wage groups rates of labour turnover and absenteeism were very much higher in non mechanised than in mechanised firms. Some other aspects of wage payment systems and the structure of earnings, and also labour management practises may help explain these differentials. The use of more stable monthly wage payment systems payments according to seniority in some foreign firms (see Chapter Eight) and generally greater opportunities for vertical advancement may help to explain the lower turnover in these foreign firms. Greater emphasis on efficiency and intensity of effort may also contribute to relatively low rates of absenteeism.

Not only were wages low in the non-mechanised sector but employees in these firms also experienced considerable fluctuations in hours of work owing to the firm's vulnerability to short term changes in demand and other factors affecting production (supply of inputs, credit, etc.).[1] Since machine operators in all these non-mechanised firms were paid on a piecework basis, changes in hours of work were a direct cause of variations in earnings.[2]

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1 See Chapter Five and Hill (forthcoming Chapter 4) for a discussion of factors contributing to fluctuations in production in small scale ATM and ATBM factories in weaving. All but two (94 percent) non mechanised firms in our sample experienced twenty percent or greater fluctuations in production over the past year compared with only half of all mechanised firms. In non mechanised firms production fluctuated by nearly 90 percent compared with 'normal' monthly production. Quite a high proportion of non mechanised firms operated for less than 35 hours a week in months when production was at a maximum.

2 Table 10.3 indicates the extent of these fluctuations in monthly earnings of machine operators (operator 1) in non mechanised firms compared with capital intensive and foreign firms. Machine operators in all non-mechanised firms experienced some monthly fluctuations in earnings compared with operators in approximately 60 percent of other domestic and only 20 percent of foreign firms (see column (2) in Table 10.3). Monthly fluctuations in earnings averaged 41 percent of normal earnings in these non-mechanised firms (indeed, in several of these firms

Table 10.3: Monthly fluctuations in earnings by capital intensity and ownership (operator 1)

Capital intensity and ownership	% firms with no signific-fluctuation in earnings[1]	Firms with a significant fluctuation in monthly earnings	
		% of firms	mean monthly[2] fluctuations
	(1)	(2)	(3)
Domestic			
Non mechanised	-	100	41
Mechanised: Low K/L	37	63	31
High K/L	40	60	30
Foreign	77	23	13

1 Firms in which fluctuations in monthly earnings of operator 1 were less than 10 percent were regarded as having no significant fluctuations in earnings

2 Mean monthly fluctuations measure the difference in maximum average monthly earnings and minimum monthly earnings over the past year as a percentage of earnings in a 'normal' month

Source: Java Wages Survey, 1975-76

Slumps in output were accompanied by temporary layoffs, quits in search of higher paying jobs in the same industry or in the agricultural sector, and higher rates of absenteeism as employees supplement their meagre earnings with income from other jobs.

Table 10.2 confirms the findings of the previous table that there is no discernable pattern of higher rates of labour turnover or absenteeism among low capital intensity compared with high capital intensity domestic firms. In each wage group there were no consistent differences between high and low K/L mechanised firms.

Why were rates of absenteeism and turnover high in domestic capital intensive firms despite higher average wages in these firms compared with more labour intensive mechanised establishments? In part this may be explained by the extent of wage differentials between the capital intensive firms and the more labour intensive enterprises. Differentials between the two groups of firms in hourly earnings was approximately 1.4:1. (this contrasts with a differential of almost 2:1 between foreign and domestic capital intensive establishments, see Table 7.4 above). The higher wages in domestic capital intensive firms may not have been sufficient to reduce turnover or absenteeism. But other factors probably also help to explain the smaller differentials in absenteeism and turnover among domestic mechanised firms. In several aspects of labour management domestic capital intensive firms followed policies which were closer to labour intensive firms than to foreign enterprises. These included less security of employment and earnings, a greater reliance on daily wage systems (see Chapter Eight) and fewer opportunities for vertical advancement in domestic capital intensive firms compared with foreign enterprises.

(continued)
minimum monthly earnings were less than half of earnings in a normal month). This constrasts with only a little over ten percent fluctuations in earnings in the small number of foreign firms in which earnings were not stable.

These enterprises did not pursue internal wage and labour management policies aimed at raising labour productivity to nearly the same extent as foreign firms.

Other firm characteristics. The influence of ownership and mechanisation on rates of labour turnover and absenteeism was, of course, closely intercorrelated with the influence of some of the other firm characteristics.[1] This was especially true of the dummy variable for industry. The significant coefficients recorded for the industry dummies in the regression equations highlights some major interindustry differences in these labour performance variables. The main contrast was between firms in the small group of cigarette firms and kretek firms. Average rates of labour turnover in kretek firms were more than five times higher than in cigarette enterprises; absenteeism was approximately four times higher.[2]

These differences reflect the two major divisions (foreign/domestic and mechanised/non-mechanised) between the sample firms in absenteeism and labour turnover. They were also closely correlated with much higher average wages in cigarettes compared with kretek and differences in the supply characteristics of workers in the two industries (see below).

None of the other firm characteristics - size of firm, location and years of operation - had a significant effect on labour turnover or absenteeism. The low regression coefficients for size of firm and location may be partly attributed to interrelationship with capital intensity, ownership and the industry dummy variable. But even within the kretek industry (which was relatively homogeneous in terms of capital intensity

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1 See Chapter Seven for a discussion of the interrelationship between these firm characteristics.

2 Labour turnover and absenteeism in kretek were 38 and 23 percent respectively compared with seven percent for both in cigarettes.

and ownership, size of firm was not closely correlated with either labour turnover or absenteeism (Table 10.4). A relatively, young mobile work force in many of the larger kretek factories helps to explain the slight differences in turnover compared with small scale firms.[1] The more intensive operations of these larger firms helps explain the relatively high rates of absenteeism (beyond a certain intensity of work, kretek rollers valued leisure more highly than additional earnings).[2]

The firm characteristics discussed above tend to be associated with labour demand patterns. Although these factors have been neglected in some of the literature on 'commitment' of workers to industrial work, we have seen that several of these demand factors - especially technology, ownership and industry - have a considerable effect on labour turnover and absenteeism. What of supply factors? How much do the characteristics of workers contribute to rates of turnover and absenteeism. We look at the influence of some supply side influences - particularly the percentage of rural and female employees - in the next section.

2. Worker Characteristics

In the introduction to this chapter we noted that some of the literature on labour turnover and absenteeism has emphasised the influence of labour supply response on the stability and

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1 Large kretek firms employed a much higher proportion of younger women and this group of workers tended to be more mobile for both economic and social reasons than older women. Younger, more able women tended to respond quickly to short term slumps in production in a particular firm by seeking employment elsewhere. In addition young unmarried women (aged 14-19) often moved for social reasons - to be with friends or to try a new environment - than older women.

2 In several of the larger kretek firms which operated over 60 hours seven days a week, employees were expected to take at least one days leave. A total work force of 20-30 percent higher than that required by a particular factory was generally enrolled for work. Much shorter hours of work in smaller factories obliged employees to attend more regularly to earn minimum daily needs.

Table 10.4 Mean rates of labour turnover and absenteeism by size of firm (kretek industry)

Size of firm	Labour turnover	Absenteeism[1]	N (firms)
< 100 employees	48	11	4
100 - 499	18	13	6
500 +	22	14	10
All firms	24	13	20

[1] Normal monthly rates of absenteeism

Source: Java Wages Survey, 1975-76

commitment of the work force to industrial employment in LDCs. Other writers have paid more attention to labour demand patterns as major variables affecting the performances of industrial workers. In the preceding section of this chapter we saw that specific labour demand patterns - mainly those associated with mechanisation and foreign ownership - are closely correlated with labour turnover and absenteeism. It is necessary to examine the extent to which these findings are influenced by certain characteristics of workers. Two questions may be posed: (i) Is there a close association between certain characteristics of workers and labour turnover and absenteeism? (ii) Does this association occur regardless of whether workers with certain characteristics are employed in foreign and mechanised firms rather than domestic or non mechanised firms? Or is the relationship between these worker characteristics and labour turnover and absenteeism mainly a consequence of the employment of certain kinds of workers in mechanised and foreign firms? For example, educated, male urban workers may record low rates of turnover because they are mainly employed in foreign firms. If the relationship implied in this latter question is found to be significant, it suggests that labour demand (associated with foreign ownership and mechanisation) and labour supply jointly influence rates of labour turnover and absenteeism. An interrelated influence of firm and worker characteristics on rates of turnover and absenteeism would tend to cast doubt on the notion that certain workers - for example, females and rural residents - have a natural propensity to high absenteeism and turnover.

The two supply characteristics which might be expected to have considerable influence on labour turnover and absenteeism are sex and residence (the percentage of employees living in rural areas).[1] As we have noted above, the rural links of the

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[1] Both age and seniority could also be expected to be closely correlated with rates of labour turnover: firms in which employees recorded longer years of service and higher average ages might be expected to have lower rates of labour turnover.

work force have been suggested by several writers as a major cause of the poor performance of industrial workers in LDCs. It is plausible also to expect that women are less attached to particular jobs (owing partly to attrition from the work force because of marriage, child bearing and child-raising).[1] Because of more commitments at home, females could also be expected to exhibit higher rates of absenteeism than males.

The differentials in rates of labour turnover and absenteeism by sex and residence are shown in Table 10.5. Firms which employed more than 75 percent of females (operator 1) and employees living in rural areas recorded two to three times the levels of labour turnover and absenteeism recorded in firms with less than 25 percent of female and rural employees. High rates of labour turnover and absenteeism are clearly both closely correlated with percentage of female and rural employees.

To what extent were these differentials a consequence of the employment of a high proportion of males and employees from urban areas in foreign firms? To answer this question the influence of sex and residence on labour turnover and absenteeism were tested in regression equations with the firm characteristics (mechanisation, ownership and industry) that were found to be significant in the earlier regressions (see equations (2) and (4) in Appendix 10.1).[2] The results are presented in Appendix 10.2 at the end of this chapter. Neither percentage of female

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1 High turnover rates among young female workers in the textile industry in Japan has, in addition to low wages and working conditions, been explained by their withdrawal from the work force and return to their villages upon marriage. (Koh, 1966).

2 Unless otherwise specified, percentage of female employees applied only to machine operators (operator 1) whereas percentage of rural employees was for the firm as a whole.

Table 10.5 Mean rates of labour turnover and absenteeism by percentage of female and rural employees

	Labour turnover	Absenteeism	N (firms)
Percentage of females			
a) all employees			
< 25 percent	15	7	17
25 - 49	23	7	29
49 - 74	31	10	11
75 +	39**	21**	14
b) operator 1 only			
< 25 percent	20	7	39
25 - 49	25	6	6
49 - 74	39	9	4
75 +	36**	19**	30
Percentage rural employees			
< 25 percent	19	7	24
25 - 49	23	6	12
50 - 74	28	9	22
75 +	40**	24**	21
All firms	27	12	82

** F statistic significant at one percent level

Source: Java Wages Survey, 1975-76

employees or percentage of rural employees recorded significant coefficients with labour turnover, and only the dummy variable for a high percentage of rural employees recorded a significant coefficient in the equation with absenteeism.[1] In both equations the dummys variables for foreign ownership and industry were similar to those recorded in equations (2) and (4) in Appendix Table 10.1.[2] The findings for all firms were also supported by results obtained for absenteeism in the weaving industry (equation (3) in Appendix 10.2).

What are the implications of these findings? The regression equations support the proposition that certain characteristics of employees are correlated with absenteeism and labour turnover mainly because of their association with firm characteristics. Educated male urban workers respond to higher wages and other labour management policies in foreign firms by lower rates of labour turnover and absenteeism. There is little evidence that female and rural employees are less stable in their jobs, or female employees less punctual, in foreign firms.

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1 We also ran separate regression equations for all the supply side variables (age, schooling, seniority outside experience, sex and residence. In these equations the $\bar{R}^2$ were similar (approximately 0.5) to those recorded for the firm characteristics. As might be expected, seniority recorded a very high, significant coefficient in the equation with labour turnover. The coefficients for percentage of female and rural employees, and for years of schooling were all significant in the equation with absenteeism but not in the equation with labour turnover. However none of these supply side characteristics (with exception of seniority in the equation with labour turnover and percentage of rural employees in the equation with absenteeism) recorded significant coefficients once they were included in the regression equation with the firm characteristics. We also included several institutional variables - influence of trade unions, existence of CLAs and work agreements and membership to producers organisations (bound by industry-wide CLAs) but none were significant either with labour turnover or with absenteeism.

2 The $\bar{R}^2$ for absenteeism improved from 0.52 to 0.59 but the $\bar{R}^2$ for labour turnover improved little with the addition of the two labour supply variables. Mainly because of its close association with percentage of rural employees and also to a lesser extent, percent of females, the mechanisation variable (D_1X_1) did not record a significant coefficient.

However there is likely to be a dynamic interaction between the labour demand patterns of certain types of firms and the wage rates they offer, and worker characteristics. Females and workers living in rural areas accepted low wage jobs in non mechanised kretek firms partly because these firms allowed a more flexible employment relationship. Females could take time off to attend to pressing household tasks and could also easily take up their old job (though perhaps in a different firm) after childbirth. In most kretek firms employees living in rural areas were allowed time off to participate in the harvest. Adult males on the other hand could not support their families from the low and irregular earnings in many kretek factories. Thus different groups of workers tended to choose work environments which best suited their overall pattern of living and work.

II. The Influence of Institutional Forces on Structural Firm Characteristics and Wages

Many studies of labour markets in LDCs have stressed institutional reasons for wage differentials (see Chapter Two). We suggested in Chapter Five that several institutional influences - primarily those resulting from government and trade union intervention in the labour market - are weak in Indonesia. Chapter Seven confirmed some of these influences did not significantly affect wage differentials in the sample firms. In this part we investigate the indirect effects of these variables on wage differentials mainly because of their association with particular patterns of labour demand (especially foreign ownership and capital intensity). Several aspects of these institutional influences are examined. These include the activities of trade unions and adherence to various work agreements, collective labour agreements and minimum wages. Although unions and labour agreements tend to be more common in foreign owned firms, these forces are not sufficiently powerful to explain the wage differentials that we have observed between these and domestic firms or between firms of varying

capital intensity.

1. Trade Unions, CLAs and Work Agreements

Trade unions did not play a major role in the determination of wages and working conditions in the sample firms. Less than half of all firms had a trade union and in less than a quarter were unions active in the negotiation of wages (Table 10.6). However the relatively high proportion of foreign firms with unions suggests that these may have contributed to wage differentials between this group of firms and the rest of the sample. A higher proportion of foreign firms also had CLAs and work agreements compared with other groups of firms.

However it should be noted that the distribution of trade unions and CLAs was quite uneven among the small group of foreign firms. Five out of six of the foreign firms with an active trade union were in the cigarette industry and all three firms with a CLA were in this industry (three out of the five foreign firms with work agreements were also in cigarettes). Few of the more recently established foreign firms in weaving had either CLAs or active trade unions and foreign managers (especially Japanese managers) discouraged the formation of trade unions.

Wages were on average higher in unionised firms than in firms without trade unions. However the inclusion of the two highest wage firms in the sample in the group of firms with trade unions greatly influenced this result. If these two firms are excluded, wage differences between these two groups of foreign firms were quite small.[1]

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[1] Average wages of operator 1 in firms which had trade unions were Rp 26,447 compared with Rp 18,282 in firms without trade unions. However if the two high wage firms are excluded from the former group average wages fall to Rp 18,643.

Table 10.6: Percentage of firms with active or inactive trade unions, CLAs and work agreements, and that were members of producers organisations

	Domestic			Foreign	All firms
	Non mechanised	Mechanised Low K/L	Mechanised High K/L		
1. Trade Union					
Active	7	36	-	43	22
Inactive	31	20	50	14	27
No trade union	62	44	50	43	51
	100[1]	100[1]	100	100	100
2. Work regulations/CLA					
Firm has a CLA	-	7	-	23	6
Firm has work regulations	0	4	30	39	11
No work regulations	100	89	70	38	83
	100	100	100	100[1]	100
3. Member of producers' organisations					
For wage negotiations	50	15	30	0	28
For annual bonuses	16	37	0	0	18
Not a member	34	48	70	100	54
	100	100	100	100	100
N (firms)	32	27	10	14	83

[1] One or more missing value in group

Source: Java Wages Survey, 1975-76

Unionisation or labour agreements do not appear to have greatly influenced wage differentials between various groups of domestic firms. Indeed not one high capital intensity, domestic firm had an active trade union or had signed a collective labour agreement. Both non-mechanised and mechanised domestic firms (the former almost all in kretek, the latter in weaving in Bandung) were members of producers' organisations bound by annual wage agreements. Especially in the kretek industry, these agreements appear to have served employers more than workers by placing a maximum to the level of piece rates to be offered in the industry. They certainly did not contribute to higher wages than those paid by firms that were not members of a producers' organisation.

Although institutional factors such as the influence of trade unions may not have had a major influence on wage differentials, this does not discount the effect of other less easily measured political or cultural factors. For example, attempts to buy political goodwill or humanitarian considerations on the part of foreign managers have been mentioned in the literature as major factors contributing to wage differentials between foreign and domestic firms. We cannot ignore these potential influences on wages in foreign firms. But they were unlikely to be a major concern of capital intensive domestic owned establishments. The quite large wage differentials between these and other domestic firms suggests that characteristics of workers and other factors associated with technology have a major influence on the extent of wage differentials.

2. Minimum Wages

Although there is no national minimum wage in Indonesia, there is quite a range of regional minimum wages set by provincial governments (and in some cases by the Department of Manpower). It is reasonable to expect that these minimum wages might have contributed to the pattern of wage differentials described in earlier chapters. In particular it is reasonable to expect that minimum wages might have

influenced these differentials because of stricter supervision of (and greater sensitivity to) government regulations by foreign and larger, capital intensive firms.

To test this proposition we have compared minimum wages in several regions (Jakarta, Bandung and Central Java) with actual earnings in the sample firms.[1] Table 10.7 demonstrates the extent to which the level of these minimum wages appear to be related to wages in firms divided according to capital intensity and ownership. The tables contrast the wages of unskilled, general labourers, and operator 1 in these different firms.[2] It is clear that (with exception of one foreign firm for unskilled workers) wages in foreign and capital intensive firms were considerably higher than the minimum levels established in each of the regions. Although mean wages in foreign firms were only slightly higher than the minimum established for public sector employees in Jakarta, they were well over twice as high as the minimum wage set in Bandung and Central Java.[3] It appears unlikely that these minimum wages had a significant influence on wages in most foreign firms in the sample.

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1 Two of the minimum wages (Jakarta, Central Java) were set for employees working on government projects but were also regarded by some firms as a benchmark for private sector wages. The minimum for Bandung refers to the minimum wage for various occupations agreed upon by the textile producers' representatives Perteksi and the National Labour Union (FBSI) for the city of Bandung.

2 Unskilled 'general' labourers accounted for only a small proportion of the work force and almost all were males. Operator 2 on the other hand were much more numerous and in many firms included a high proportion of females; this was the lowest paid occupation in many firms.

3 It should be noted that the industry wide minimum wages agreed on for Bandung did not strictly apply to the nearby town of Majalaya. But in practise the wage negotiated in Bandung was regarded by businessmen in Majalaya as also the appropriate minimum for that town.

Table 10.7: Monthly earnings of unskilled workers and operator 2 compared with minimum wages in Jakarta, Bandung and Central Java (Rp 000/month).

Capital intensity/ ownership	Jakarta	Bandung/ Majalaya	Central Java
1. Unskilled workers			
Domestic			
Non-mechanised	-	7.2	6.4
Mechanised: Low K/L	9.2	8.4	7.8
High K/L	15.6	10.8	5.5
Foreign	13.9	13.1	18.6
All firms	9.9	9.3	7.8
2. Operator 2[1]			
Domestic			
Non-mechanised	-	3.4	2.4
Mechanised: Low K/L	8.0	6.1	7.7
High K/L	14.0	11.4	5.9
Foreign	17.1	14.2	21.1
All firms	13.4	7.0	7.9
Minimum wage	11.3[2]	4.7[3]	4.6[4]

1 Excludes all kretek firms

2 Set by the Jakarta Provincial Government (for employees in government projects) in April 1975 at Rp 435 (Assumes 26 working days a month)

3 Set in regional-industry wide CLA for the textile industry in Bandung in mid 1975

4 Set by Central Java Provincial Government for employees working on government projects in early 1976

Source: Java Wages Survey, 1975-76

It is instructive to note that in almost all firms earnings of unskilled employees in all three regions were (even in most of the non-mechanised firms) higher than the minimum wages set in these regions. However this was not the case for operator 2. In several non-mechanised, and labour intensive mechanised firms, average earnings of operator 2 were lower than the minimum wage. For example, the average for all non-mechanised firms in Bandung and Central Java was below the minimum set in these two regions. Minimum wages could be more easily supervised in the case of daily wages for general unskilled labourers. But it was much more difficult to enforce minimum rates in the case of operator 2 who were generally paid on a piecework basis in labour intensive establishments.

Although some of these institutional factors contributed to wider wage differentials, especially between foreign and domestic firms, they were not sufficiently strong to account for the large differentials that we have described in earlier chapters. Differences in the characteristics of workers and in their performance are not merely a consequence of institutionally determined high wages. Rather they have played an important role in determining the extent of these differentials. This point will be taken up again in our concluding chapter.

Summary and Conclusions

The findings of this chapter support the proposition that high wages in foreign firms encourage low rates of labour turnover and absenteeism. Both rates of labour turnover and absenteeism were considerably lower in foreign firms than in domestic establishments. However, although there were marked differences both rates between domestic mechanised and non-mechanised establishments, the relationship between capital intensity and both turnover and absenteeism was not particularly strong. Within the group of domestic mechanised establishments, relatively capital intensive firms did not differ significantly

either in labour turnover or absenteeism from more labour intensive firms. Contrary to the argument developed in Chapter Three, higher wages in domestic capital intensive firms did not encourage a more stable or more productive work force.

However in the capital intensive, foreign firms high wages were associated with a more stable work force. To the extent that low absenteeism rates are an indication of greater work effort, employees in these firms worked more intensively than workers in other establishments. Employees in foreign firms clearly responded to higher wages. But other factors - the wage system adopted, payment of certain fringe benefits and relatively stable earnings - also encouraged greater intensity of work and stability of employment in these firms.

On the other hand, employees in non-mechanised establishments were much less committed to employment in particular firms. They recorded much higher rates of turnover and absenteeism than other firms in the sample. Low wages encouraged multiple job holding or tended to attract employees (especially women and children) who may not be committed to longer term employment on a full-time basis. Many employees in labour intensive firms were continually on the lookout for higher paying opportunities. Quite large seasonal fluctuations in earnings in these firms encouraged mobility especially of younger workers. And much greater contact with the agricultural sector enabled them also to find additional income from part-time employment in agriculture. Seasonal patterns of labour demand in agriculture also had some influence on rates of absenteeism and labour turnover in non-mechanised firms.

Certain characteristics of workers did not have a significant independant influence on rates of turnover or absenteeism. There was no evidence that females or employees living in rural areas had inherently higher rates of labour turnover. The stability of the work force appears to be much more closely affected by the interaction of labour demand patterns of foreign and

mechanised firms with certain worker characteristics than by these labour supply factors alone.

However it is noteworthy that absenteeism was higher among employees living in rural areas irrespective of these labour demand patterns. The agricultural commitments (especially at certain times of the year) of employees in rural areas appears to have had a major influence on rates of absenteeism.

The final section of the chapter examined the influence of some institutional forces on interfirm wage differentials. This questioned the extent to which high wages in domestic capital intensive and foreign firms were the result of these institutional forces rather than a consequence of wage policies adopted deliberately to employ higher quality workers and increase labour productivity. We presented data which suggests that institutional pressures appear to have some importance, especially among a small group of foreign firms in the cigarette industry. But these influences were not strong enough to explain wage differentials according to capital intensity and foreign ownership. This conclusion was especially supported by the fact that these institutional factors were of little importance in relatively high wage, capital intensive domestic owned firms.

These issues will be discussed at greater length in the concluding chapter. To what extent does our empirical study provide evidence of labour market segmentation in the three industries? What are the main features of labour market segmentation in the three industries? What are the broader implications of the findings for Indonesian labour markets and more general theories of labour markets in LDCs? These questions will be taken up in the concluding chapter.

Appendix 10.1: The coefficients of the regression equation for labour turnover and absenteeism with firm characteristics

Explanatory variable	Units	All firms				Weaving only	
		Log LT (Labour turnover)[1]		Log AB (Absenteeism)[2]		Log Lt (Labour turnover)[1]	Log AB (Absenteeism)[2]
		(1)	(2)	(3)	(4)	(5)	(6)
1. X_1 (number of employees)	Number (000)	-0.014 (0.010)	-	-0.009 (0.01)	-	-0.05 (0.12)	0.10 (0.09)
2. D_1X_2 (mech. high K/L)	Dummy	-0.27 (0.14)	-	-0.28†† (0.11)	-	-0.18 (0.14)	-0.29† (0.10)
D_2X_2 (mech. low K/L)	"	-0.26†† (0.10)	-	-0.26† (0.08)	-	-0.22†† (0.10)	-0.27 (0.07)†
3. D_1X_3 (all mechanised)	"	-	-0.16†† (0.07)	-	-0.26† (0.08)	-	-
4. D_1X_4 (foreign)	"	-0.32†† (0.13)	-0.25†† (0.12)	-0.34† (0.10)	-0.34† (0.09)	-0.16 (0.16)	-0.40† (0.12)
D_2X_4 (State/co-op)	"	-0.29 (0.16)	-0.33†† (0.16)	-0.26†† (0.12)	-0.26†† (0.11)	-0.27 (0.17)	-0.35† (0.13)
5. D_1X_5 (cigarettes)	"	-0.47† (0.14)	-0.50 (0.14)†	0.22 (0.11)	-0.23†† (0.10)	-	-
D_2X_5 (kretek)	"	-0.04 (0.11)	-	0.19 (0.09)††	0.17†† (0.08)	-	-
6. D_1X_6 (Jakarta)	"	0.08 (0.11)	-	0.02 (0.08)	-	-0.04 (0.11)	-0.03 (0.07)
D_2X_6 (Bandung)	"	0.10 (0.11)	-	-0.02 (0.08)	-	-0.06 (0.10)	a
7. D_1X_7 (< 5yrs production)	"	0.12 (0.08)	-	0.02 (0.06)	-	0.02 (0.10)	-0.04 (0.08)
Constant		2.52	2.50	2.08	2.08	2.54	2.08
R^2		0.44†	0.43†	0.49†	0.52†	0.15	0.42†
$\bar{R}^2$		0.51	0.46	0.56	0.55	0.28	0.50

† Significant at one percent level
†† Significant at five percent level
1 Production employees only
2 Operator 1 and operator 2 only
a Owing to low level of significance, variable was not entered into the regression equation

Source: Java Wages Survey, 1975-76

Appendix Table 10.2: The coefficients of the regression equation for labour turnover and absenteeism with basic firm characteristics and selected worker characteristics

	Units	All firms		Weaving
		Log LT (Labour turnover)[1]	Log AB (Absenteeism)[2]	Log AB (Absenteeism)
		(1)	(2)	(3)
1. D_1X_1 (Mechanisation)	Dummy	-0.13	-0.15	-0.17††
		(0.09)	(0.10)	(0.08)
2. D_1X_2 (foreign)	"	-0.24††	-0.33†	-0.34
		(0.12)	(0.09)	(0.09)†
D_2X_2 (state/co-op)	"	-0.33††	-0.22	-0.22††
		(0.16)	(0.11)	(0.10)
3. D_1X_3 (cigarettes)	"	-0.50†	0.24††	-
		(0.14)	(0.10)	
D_2X_3 (kretek)	"	-	0.18††	-
			(0.9)	
4. X_4 (percentage female)[3]	Percent	a	(0.001)	
5. D_1X_5 (> 75 percent urban)[4]	Dummy	-0.01	0.08	0.09
		(0.09)	(0.06)	(0.06)
D_2X_5 (>75 percent rural)	"	0.03	0.26†	0.22†
		(0.09)	(0.07)	(0.08)
Intercept		2.47	1.91	1.93
$\bar{R}^2$		0.42†	0.59†	0.51†
R^2		0.46	0.63	0.55

1 Production workers only
2 Operator 1 and operator 11 only
3 Operator 11 only
4 All employees
Source: Java Wages Survey, 1975-76
a Variables does not enter equation owing to low level of significance
† Significant at one percent level
†† Significant at five percent level

CHAPTER ELEVEN

CONCLUSIONS

This thesis has examined the extent and causes of wage differentials in the manufacturing sector in Indonesia. The study has exphasised the relationship between the wage structure and recent, relatively rapid growth of modern manufacturing. What have been the major findings of the study and what are its implications for more general labour market issues in Indonesia? What is its contribution to more general theories of wage differentials in labour surplus LDCs? We shall consider these questions in this concluding chapter.

I. The Major Findings

The major aims of this research project were to identify and explain wage differentials in the manufacturing sector in Indonesia. The study concentrated on the extent and causes of wage differentials associated with capital intensity and ownership. We examined several possible causes of high wages in capital intensive and foreign firms, including internal labour market factors, worker characteristics and certain institutional forces.

The major findings of the study should be viewed in the overall context of labour market conditions and the general wage structure in Java. The island suffers from acute problems of labour surplus and underutilisation of manpower. At least a section of the labour force is relatively mobile especially between rural and urban areas. But the secondary data surveyed in this study indicated that there are quite large wage differentials between major sectors, industries and regions in Java. There are also large differentials between state, foreign and domestic private owned enterprises. These differentials, especially between the public and private sectors, encompassed the form of wage payment as well as the level of wages.

There is little reliable time series data on changes in the structure of wages. But it is likely that differentials may have increased in recent years. The small size of the modern sector before 1967, and both high rates of inflation and substantial direct government involvement in the economy, probably contributed to quite narrow interfirm and interindustry wage differentials during the early years of independence.

But there is little evidence that greater wage differentials in Indonesia have been mainly caused by 'institutional' factors (government policies and trade union pressures). These have never had a major influence on wages in manufacturing in Indonesia. Both during the colonial period and throughout the period of independence successive governments have sought to curb the influence of trade unions on wages and working conditions. Since independence, governments of quite different political persuasions have also been wary of the possible effects that minimum wage legislation (and other government intervention in the labour market) might have on the level of wages and wage costs in the private sector.

Secondary data suggest that institutional pressures on wages certainly have not increased since the New Order Government took control in 1965. Indeed, the activities of trade unions have been even more tightly controlled than before 1965. Increased activities of the government controlled labour front (FBSI) and recent minimum wage and social insurance legislation may have some impact on wages in medium and large scale enterprises. But the majority of Indonesian workers in smaller scale establishments continue to be little affected by government and trade union activities.

To what extent were the findings of our field survey consistent with these broad patterns? Our study of the wage structure of the weaving, kretek and cigarette industries indicated the existence of large interfirm wage differentials for unskilled and semi-skilled workers. These were associated with capital intensity and foreign ownership rather than with

other firm characteristics. These two variables were much more important than industry or location of the firm in determining wage differentials. Indeed they helped to explain interindustry and interregional wage differentials. Moreover, once account was taken of variations in capital intensity and foreign ownership, wage differentials according to size of firm were relatively small.

The absence of a close relationship between location of the firm and wages is surprising especially in light of considerable attention given to high wages in Jakarta in much of the literature on wage differentials in Indonesia. Our study indicates that the concentration of modern sector firms in Jakarta has been the major cause of wage differentials between the capital and other regions.[1] Wages paid in foreign or domestic capital intensive and labour intensive firms were not substantially higher in Jakarta than in similar firms in other regions.[2] But it is interesting to note that fringe benefits accounted for a much higher percentage of the wage bill in the capital city. Wage systems in manufacturing in Jakarta have to a considerable extent been influenced by the large public sector in this city.

The failure of size of firm to influence wages once capital intensity and ownership were taken into account, is an important finding. It suggests that size of firm may have been given too much emphasis in the literature on wage differentials. In the literature, the relationship between size of firm and wages has generally been attributed to redistribution of some of the high

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[1] A second factor is the higher wages offered by the public sector in Jakarta compared with other regions of Java. The minimum wage for unskilled employees on government projects in Jakarta in 1975 (Rp 435) was substantially higher than minimum wages set by the government in any other region (see Table 10.7).

[2] Indeed once the higher cost of living in the capital is taken into account, real wages may actually have been lower in the capital city.

profits to workers in relatively concentrated industries. The greater influence of capital intensity on wages implies that internal labour market factors rather than factors associated with concentration, may be the major cause of interfirm and interindustry wage differentials.

There is little evidence from the field data of a dualistic pattern of wage differentials. But the distribution of wages according to ownership and capital intensity was not perfectly continuous. The labour market was divided into several segments. Four major segments were distinguished: foreign firms, domestic capital intensive and labour intensive mechanised establishments, and non-mechanised firms. Differentials were largest between foreign and all groups of domestic firms, and between all mechanised and non-mechanised establishments. But they were also substantial between domestic capital intensive and labour intensive mechanised establishments.[1] The differentials covered both the form of wage payment - including salary systems and fringe benefits - and the level of wages.[2]

What were the major causes of these differentials? The field survey confirms our general observation (Chapter Five) that institutional pressures have not had a major impact on interfirm wage differentials in Indonesia. Although the foreign-domestic dichotomy (which might be considered evidence of strong institutional influences) was one major dimension of wage differentials, there is little evidence that foreign firms were under a great deal of pressure from either the government or trade unions to pay high wages. It is likely that some less easily quantifiable influences - a desire on the part of foreign managers to maintain good relations with the Indonesian

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1 The distinction between these two groups of domestic firms broadly corresponds with Hills (forthcoming) distinction between firms with M1 (automatic looms) and M2 and M3 (semi-automatic looms) in weaving.

2 However state enterprises, cooperatives, some pribumi firms and firms located in Jakarta also tended to pay a higher share of their wages as fringe benefits than other firms in the sample.

Government and both humanitarian and equity considerations - may have encouraged foreign firms to offer high wages. But our survey does not indicate that these influences were sufficiently great to account for the large wage differentials between foreign and domestic firms for unskilled and semi-skilled workers.

Instead, it is argued that the high wages of unskilled and semi-skilled workers in foreign and capital intensive firms workers may mainly be attributed to the characteristics of workers, and to internal labour market policies. The survey findings suggest that these two sets of variables were closely interrelated. Foreign and domestic capital intensive firms employed young, mostly secondary educated and inexperienced workers. Most were male and lived in urban areas. The firm trained them to operate capital intensive machinery and they also learnt other tasks and work habits necessary for the efficient operation of the expensive equipment. Several of the foreign firms (especially Japanese enterprises) offered language courses in English and other foreign languages.

Workers in foreign firms exhibited much lower rates of labour turnover and absenteeism than workers in other firms in the sample. By contrast, labour intensive, non-mechanised establishments employed less educated, experienced hands, many of which were female and lived in rural area. These workers tolerated high rates of labour turnover. They moved from firm to firm in search of better paid jobs or because of seasonal slumps in production and earnings. In some cases workers in non-mechanised firms moved for social reasons (for example, to be with friends in a new work environment).

Absenteeism rates too were high in non-mechanised firms. Long hours of work (especially in some of the huge kretek factories), alternative income earning opportunities in agriculture,[1] the home commitments of females and seasonal

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[1] Since earnings in agriculture were not always higher than in the factory, these too were often attractive partly for social reasons (for example, a change in work environment or a chance to enjoy the harvest festivities).

fluctuations in earnings all help to account for high rates of absenteeism. The flexible labour management systems and low wages offered in these firms further encouraged both high levels of turnover and absenteeism. High rates of absenteeism and labour turnover were a consequence of the interaction between the labour management systems adopted by non-mechanised firms and the characteristics of workers that tended to be employed in these firms.

The contrast between foreign and non-mechanised establishments in wages, interfirm mobility and the characteristics of semi-skilled workers is illustrated in Figure 11.1. High wages in foreign firms are associated with low rates of interfirm mobility and with the employment mainly of secondary educated urban males. Non-mechanised firms on the other hand employ less educated rural females at very much lower wage rates than all other groups of firms. The figure indicates the high levels of mobility between firms in this sector. In between these two extremes are the state enterprises and cooperatives, and domestic capital intensive and labour intensive mechanised firms. There was not a great difference in wage rates or in the characteristics of workers employed between state enterprises and cooperatives on the one hand and private domestic capital intensive firms on the other. But the former group experienced much lower rates of labour turnover associated with greater security of employment and more generous fringe benefits.

Domestic capital intensive establishments contrast with mechanised labour intensive firms in both wage rates and the characteristics of workers recruited on the external labour market. But, despite relatively high wages in these capital intensive firms, labour turnover was very similar to that recorded for mechanised labour intensive establishments.

This was one major exception to the proposition that more capital intensive firms adopt higher wages in order to minimise turnover and to encourage high levels of labour productivity. The large differences between mechanised and non-mechanised

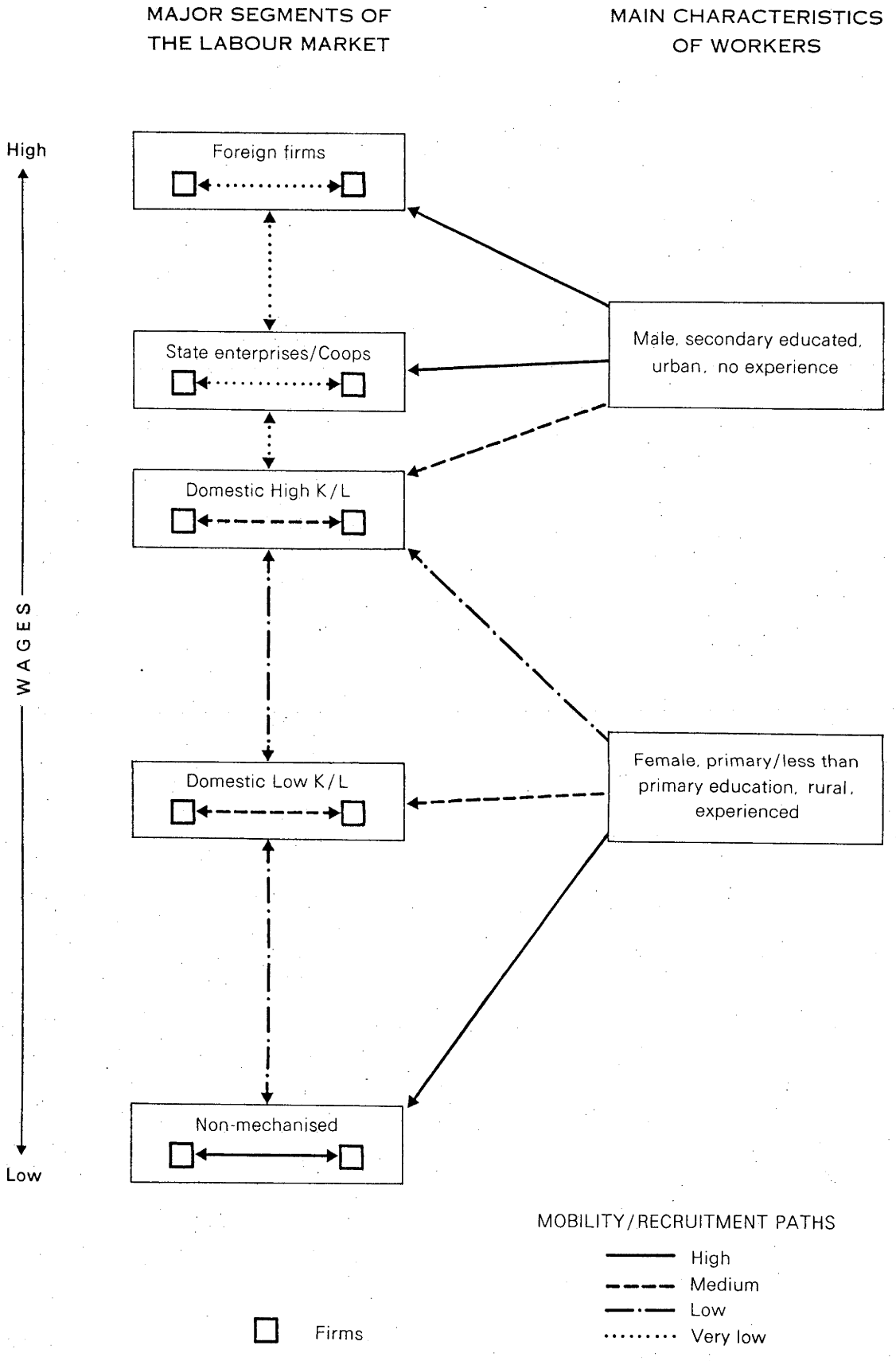

Figure 11.1: Wage differentials and labour market segmentation (unskilled and semi-skilled workers)

firms in both turnover and absenteeism may be largely attributed to the differences in wage rates and other management policies between these two groups of enterprises. But the relatively high wage, domestic capital intensive firms did not differ significantly from mechanised labour intensive establishments in either of these rates.

The labour management systems adopted by domestic capital intensive firms did not encourage stability of employment or a high degree of commitment to the firm. Their labour management practices were more adapted to Java's surplus labour conditions than those of foreign firms. It is probable that costs of recruitment and screening in domestic capital intensive firms were not as high as in foreign firms.[1]

But it is also likely that high rates of labour turnover of workers trained to operate new machinery, and high rates of absenteeism contributed to greater underutilisation costs in domestic capital intensive firms compared with foreign firms. While they were more flexible in taking advantage of surplus labour conditions than foreign firms, domestic capital intensive establishments had not adapted their management systems to make optimum use of costly capital equipment.

The higher wages paid in domestic capital intensive firms compared with mechanised labour intensive firms cannot be explained adequately by the influence of institutional or internal labour market factors. There is little evidence that trade unions were more active or government pressures on wages greater in domestic capital intensive firms; and relatively high rates of labour turnover and absenteeism suggest that internal labour market factors probably were not more important in these firms

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[1] Restrictions in the labour law on the dismissal of workers were felt more acutely by foreign firms (especially because the issue of dismissals by foreign firms tends to be a politically sensitive one). These restrictions probably induced foreign firms to place more emphasis and spend more on the recruitment and screening of workers.

than in mechanised labour intensive firms. Wage differentials between these two groups of firms may be attributed to differences in the characteristics of workers employed in each of the two groups of firms. But since secondary educated urban workers were mainly employed in capital intensive firms, pressure from surplus secondary educated urban workers might be expected to bring about much narrower wage differentials with mechanised labour intensive firms. The concept of a social minimum wage (see Chapter Three) among secondary educated urban employees may help to explain the persistence of quite large differentials between the two groups of firms.

To what extent does the pattern of wage differentials described above suggest that the labour markets for unskilled and semi-skilled workers in the three industries were highly segmented? Three criteria were mentioned in Chapter Three to indicate the extent of labour market segmentation: large and continuing wage differentials, little mobility between capital intensive and labour intensive firms and concentration of workers with different characteristics in each segment. On the basis of these three criteria we can conclude that the labour market is highly segmented between firms at the extreme ends of the capital intensity continuum. Foreign and domestic capital intensive firms paid high wages and employed workers with different personal characteristics who had rarely worked in non-mechanised establishments (indeed these firms preferred to employ workers who had no experience in labour intensive firms). According to these criteria labour market segmentation was greatest between foreign and capital intensive firms and between all mechanised and non-mechanised firms. It was less marked though still significant (especially in terms of wage differentials) between domestic capital intensive and labour intensive mechanised establishments.

Although foreign and domestic capital intensive firms mainly employed secondary educated urban males as machine operators, the labour market was not perfectly segmented in terms of these worker characteristics. On the one hand local

pressures induced several foreign firms to employ less educated workers who lived in rural areas. On the other hand some secondary educated workers did seek jobs as machine operators in mechanised labour intensive firms. However the failure of more unemployed secondary educated to find employment in low wage labour intensive firms must be attributed in part to their reluctance to accept jobs in these firms and their hopes of obtaining higher paid, modern sector jobs.

There was little indication of a preference for more educated workers in labour intensive mechanised and non-mechanised firms. It was very rare for any of these firms to screen workers on the basis of schooling. Prior work experience and a guarantee from an existing employee were far more important criteria for selection of new employees in these firms.[1]

Although the above discussion of labour market segmentation has stressed contrasts between groups of firms, some major differences within the major groups should also be mentioned. This applied particularly to the foreign sector. Wages of machine operators in the two well established cigarette companies were almost twice the average for the foreign sector as a whole, and almost three times as high as in the lowest wage foreign firms. Except for attrition owing to old age, sickness or accidents, there were virtually no quits in these firms and absenteeism was extremely low. Together with a handful of established foreign firms in other manufacturing industries in Java, employees in these factories are the real labour elite among semi-skilled and unskilled workers in the manufacturing sector in Indonesia. Wages and working conditions are comparable with those in the high wage, mining sector.

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[1] The assumption that education has little influence on productivity in the labour intensive sector is relevant to the labour market in the three industries. This assumption is probably more realistic than the alternative that education does affect productivity in this sector (see Chapter Three, Part II).

A notable difference within the domestic mechanised group was the contrast between both state enterprises and cooperatives on the one hand and private domestic establishments on the other. Although wages were not always higher in the former groups of firms, turnover and absenteeism were extremely low. This may be partly attributed to more generous fringe benefits (especially health care), more stable earnings and security of employment in these firms. It was also partly a consequence of a more paternalistic approach to labour management, especially in state enterprises.

The pattern of wages and labour market segmentation described above applied only to unskilled and semi-skilled workers. Interfirm wage differentials and differences in worker characteristics were much smaller for administrative and supervisory staff, and for skilled technical employees. The smaller differentials according to capital intensity and ownership for these occupations were attributable to much stronger internal markets for these occupations in labour intensive firms. There was one interesting consequence of the smaller wage differentials by capital intensity and ownership for these occupations compared with wage differentials for machine operators. Inequalities within the firm tended to be greater in labour intensive firms than in foreign and domestic capital intensive establishments.[1] The gap between the wages of machine operators on the one hand and administrative, supervisory, and technical personnel on the other tended to be much greater in labour intensive firms. Ironically, despite the shortage of skilled workers in the modern sector, differentials within these firms were <u>smaller</u> than in the labour intensive sector.

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[1] Two exceptions should be noted. These were the very large differentials between foreign and domestic personnel in foreign firms; some foreign firms also paid extremely high wages to Indonesian managers especially in the fields of finance and accounting.

II. General Implications of the Study for Labour Market Theories and Labour Markets in Indonesia

What is the significance of this study for various theories of wage differentials discussed in Chapters Two and Three? The first important finding is that institutional factors do not appear to have a significant influence on wages in the private sector. This conclusion supports the results of various studies of the labour market in Japan which attribute wage differentials to 'economic' factors rather than cultural and social influences. Although institutional influences - governments and trade unions - may play a significant role in determining wages in some LDCs, this study suggests that these influences are not a necessary condition for large wage differentials within the manufacturing sector.

It is likely that the impact of these institutional factors has been exaggerated in many studies of the wage structure in LDCs. This overemphasis may have arisen because of the interrelationships between institutional factors and other influences on wages. As we have stressed above, institutional variables are likely jointly to determine wage differentials together with internal market factors and worker characteristics. The influence of institutional forces on high wages in foreign firms has been given considerable attention because redistribution of foreign investors' profits to workers is generally considered a legitimate means of maximising the benefits of foreign investment. But excessive attention to these relationships has tended to obscure the internal market objectives of wage policies adopted by foreign firms, and their tendency to pay high wages to obtain better quality workers.

The association of large wage differentials with capital intensity and foreign ownership despite the absence of strong institutional forces does suggest that interfirm wage differentials may be a structural aspect of development in many LDCs. High

rates of rural urban migration, urban employment and underemployment related to high wages in certain segments of the manufacturing sector may be an automatic consequence of a pattern of capitalist development in which there is rapid technological change, a wide range in technologies and foreign investment.

A second important conclusion from this study is that internal market objectives are likely to be given greater emphasis by foreign firms than by domestic enterprises. Foreign enterprises in the sample paid higher wages and offered a wider range of fringe benefits than domestic capital intensive establishments. Foreign firms also placed considerable emphasis on formal training organised by the firm. Absenteeism and labour turnover were much lower than in domestic capital intensive firms.

A third finding was that the relationship between wages and worker characteristics was significant for both foreign and domestic capital intensive firms. Thus the survey suggests that where there is a wide range in technologies, wage differentials are likely to be determined by the characteristics of both firms and of workers.[1] The study does not support either pure human capital interpretations of earnings differentials, or some of the more extreme labour market segmentation theories that are highly sceptical of the relationship between human capital factors and earnings. Worker characteristics differ between firms partly because they provide signals which enable foreign and domestic capital intensive firms to select from long labour queues. But these worker characteristics may also have a direct impact on labour productivity. Employees with more schooling are likely to respond faster to training and to learn to operate new technology more quickly. Male educated employees may be preferred in capital intensive firms partly because these enterprises are interested in the performance of

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[1] See Chapter Three for a discussion of these issues.

workers over a range of jobs and in a longer term employment relationship. Males are preferred to females because the costs of turnover owing to childbearing or marriage are likely to be high in capital intensive firms.

On the other hand this study also suggests that the relationship between workers' characteristics and wages is not independent of the demand patterns of capital intensive compared with labour intensive firms. For example, there was little evidence of more educated urban male employees earning higher wages than less educated rural females who performed similar jobs in labour intensive firms. But the crucial point is that firm characteristics and worker characteristics tend jointly to influence wages. Uneducated females from rural areas are rarely employed in foreign firms and it is unusual for urban males to find jobs in labour intensive establishments. Given the joint determination of wages by firm characteristics and worker characteristics, it makes little sense to argue about which has the greatest influence on wages.

This study has highlighted the differentials in earnings within three manufacturing industries in Java and has suggested that the labour market is quite highly segmented. To some extent these findings may be specific to the three industries. For example, the very wide range in technology in weaving provides a contrast in intraindustry wages and labour management practices which may not be so marked in many other industries. The kretek industry stands out from other Indonesian industries the highly labour intensive operations in the kretek industry and this industry's extreme dependence on female workers from rural areas is almost unique in Indonesia.

Nevertheless, the manufacturing sector as a whole in Java is marked by contrasts in technology, size of firm, and ownership similar to those which play a central role in the three industries. The study indicates that wage differentials

for unskilled and semiskilled workers in manufacturing are very large. It suggests that these differentials are to some extent inherent in the pattern of development followed by Indonesia since 1965.

What are the implications of this pattern of wage differentials for the allocation of labour especially between rural and urban areas in Indonesia? Our data support the findings of an increasing number of research projects dealing with Java which suggest that rural employees come to the cities mainly to seek low wage jobs rather than because of the lure of high wages in the modern sector (Temple, 1975, 81; Hugo, 1978: 183). The probability of most rural urban migrants obtaining modern sector jobs is small for two reasons. First, they are unlikely to have contracts within foreign or capital intensive firms (or among more powerful figures in urban areas) which would facilitate their entry into the modern sector. Second, since a high proportion of foreign and capital intensive firms prefer to employ secondary educated workers, most rural urban migrants will not be eligible for jobs in the modern sector. The vital role which contacts play in the migration process and in obtaining any job in urban areas (Jellinek, 1978), suggest that high modern sector wages are likely to be of little relevance in attracting migrants to urban areas.

The large variations in wages related to capital intensity and ownership question the relevance of aggregate measures of urban or manufacturing wages in studies of rural urban migration or mobility between industries in Indonesia. It will be much more relevant to derive measures of wages which apply to particular segments of manufacturing (or of the urban sector) and to study labour flows in response to these wage rates. For example, high foreign sector wages are relevant to the supply response of particular groups (for example, educated,

urban males) of job seekers only; aggregate measures of manufacturing wages will not be able to identify the relationship between high wages in these firms and the job search process of different groups of workers.

How are these research results for Indonesia related to studies of the causes and consequences of wage differentials in other economic environments? The study confirms the findings of research in other countries which suggests that wage differentials are the consequence of relatively rational behaviour of different groups of firms reacting to quite distinct economic pressures. High wages in capital intensive firms are partly a result of internal market considerations concerning the appropriate means of maximising labour productivity. In this respect capital intensive firms in Indonesia react in a similar way to those in Japan or United States. However, the relationships between new technology, certain labour management objectives, wages and human capital varies according to contrasting business practices in different countries. Internal markets are not nearly as strong in Indonesia today as they were in Japan several decades ago. Moreover, foreign investment plays a central part in introducing new systems of labour management with the new technology in Indonesia.

Nevertheless, despite the huge differences in the labour markets and broad institutional environment in which firms operated in Japan, North America and Indonesia, there are some major similarities in the way in which wages are determined in certain segments of the labour market in each country. A major challenge of future research on labour markets (especially in labour surplus LDCs) is to identify the extent to which some of the broader influences or wage differentials found in this study are also common in other similar economic environments.

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BIES	Bulletin of Indonesian Economic Studies
BPS	Biro Pusat Statistics
CAMS	Council for Asian Manpower Studies
EDCC	Economic Development and Cultural Change
EJ	Economic Journal
EKI	Ekonomi dan Keuangan Indonesia
HJE	Hitotsubashi Journal of Economics
IJIR	Indian Journal of Industrial Relations
ILO	International Labour Organisation
ILRR	Industrial Labour Relations Review
JDE	Journal of Development Economics
JEL	Journal of Economic Literature
JPE	Journal of Political Economy
LEKNAS	Lembaga Ekonomi Kemasyarakan Nasional
OECD	Organisation for Economic Co-operation and Development
OEP	Oxford Economic Papers
QJE	Quarterly Journal of Economic s
RES	Review of Economics and Statistics
SAKERNAS	Survey Angkatan Kerja Nasional
SUPAS	Survey Antara Sensus Nasional

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APPENDIX 4.1 A Note on Secondary Sources of Wage Data[1]

Owing to the variety of sources of data on wages in Indonesia (and specifically on manufacturing in Java), and their varying coverage and reliability, any survey of the wage structure is likely to be a confusing operation. Since there is no one major source of data and since all have quite major shortcomings, it will be useful to summarise the information provided by the major sources, the samples covered and pitfalls involved in using the data collected in various surveys and series. We will divide the sources into three major groups: data collected by the Department of Manpower (Departemen Tenaga Kerja or DEPNAKER), by the Central Bureau of Statistics (BPS) and that collected by other government departments.

Department of Manpower Sources

The Department of Manpower collects data from special surveys and also from regular quarterly reports from provincial offices. Three major surveys provide wage data from a wide range of sectors and regions:

1. Laporan Hasil Survey Upah dan Gaji Penelitian Tenaga Kerja Persiapan Pembentukan REPELITA II [Report of the results of the wage and salary survey for the preparation of The Second Five Year Plan] Indonesia, Dept. of Manpower, Jakarta, 1973 .

This survey covered 1,278 firms in 13 major cities in Indonesia (including seven in Java) and was conducted in late 1971. The data are presented in a large number of appendix tables by region, sector and type of firm (government owned, foreign or domestic private). Although it is now a little out of date, the survey still was the most detailed source of wage data available in Indonesia to the end of 1976. Most of this data has not been analysed except for a rather superficial coverage

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[1] This note covers the results of all major surveys published to the end of 1976.

in the main report. It is especially useful because all wage data is broken down by occupation giving average, minimum and maximum wages of each group of firms in particular ownership groups, in each industry and location. The section on wages in the 1972 ARTEP (Asian Regional Training and Employment Programme) report (ILO, Bangkok) on manpower in Indonesia was largely based on the preliminary findings of this survey.

The major shortcomings of this study are:

(1) There is no analysis by firm characteristics except for ownership, and no data on the average size of firms included in the survey. This is a major problem since there is a wide range in the number of employees (5-2000) in various firms included in particular ownership categories (especially domestic private firms).

(2) Quite a wide range in wages for the same occupation in the same industry, location and ownership group suggest that in several cases the data is not reliable. These variations were especially large for professional employees (managers, secretaries, accountants and production managers) which suggests that firms were not always prepared to give accurate data on wages in these occupations. (Some examples of the variations between wages of these senior employees in Jakarta include (i) a range of Rp 4,400-43,200 for directors' secretaries in domestic owned foodstuffs firms, (ii) a range of Rp 7,500-162,000 for directors' salaries in domestic owned firms in printing and (iii) a range of Rp 10,000-300,000 for directors' salaries in domestic owned chemical firms.)

2. Survey Pengupahan dan Household Budget [A survey of wages and household budgets] Indonesia, Dept. of Manpower, Jakarta, 1975 .

This survey covered a sample of 971 firms in thirteen provinces and in all major sectors in each province. The survey was

conducted in 1974 and aimed to provide information to the National Wages Board for minimum wage legislation. Published data include minimum wages paid by firms in each region, average wages paid to staff, monthly and daily employees in each region and sector, and the costs of health care and social contributions by sector and region.

There is no published information on the sampling methods used in this survey or on the size and ownership of firms included in the survey; sampling seems to have been at the discretion of provincial manpower officials who supervised the survey in different regions.[1] Other shortcomings of the survey include:

(1) Average wages by sector and region that are quoted in the report of the survey are misleading because they take no account of the number of employees in each skill category (staff, monthly and daily employees were given the same weight in overall averages);

(2) Although the report does indicate the variation in wages between regions and sectors, some of these differences are so large as to seriously question the reliability of the data (for example, average wages in manufacturing in Central Java and Yogyakarta were recorded as approximately Rp 13,000 and Rp 12,000 respectively whereas in East Java they were recorded at Rp 29,000).

3. Report on Employment and Training Patterns, Problems and Requirements in the Manufacturing Sector in Indonesia
Indonesia, Dept. of Manpower and ILO, 2 Vol., 1975 .

This survey was conducted in November-December 1973 and covered 183 large and medium enterprises (approximately a

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[1] In Jakarta only seven of the 71 manufacturing establishments employed more than 100 workers and none employed more than 250; the mean number of workers was 44, well below the mean for all large and medium sized firms recorded in the 1974-75 Industrial Census.

10 percent sample of all large and medium enterprises in Indonesia) in a range of manufacturing industries in all provinces in Java and in the other major islands (Sumatra, Sulawesi and Kalimantan); sampling was conducted on a random basis in selected industries and regions. Wage data cover maximum and minimum wages and the number of firms giving fringe benefits for nine occupations in each region. One advantage of this survey over several other sources of data on wages is that it covers a range of occupational groups. Because the survey did not collect data on average wages of different occupations it is not comparable with several other wage surveys. Other data problems include:

(1) There is no breakdown in published data of interindustry or interfirm wage differentials; all data are aggregated by region;

(2) There is some data on the size of establishments included in the survey but no data analysis on wage differentials is conducted according to this variable. The survey provides no information on other firm characteristics such as ownership or capital intensity of the sample.

In addition to these reports the provincial manpower offices collect wage data (including maximum and minimum wages and payments in kind per enterprise) on a quarterly basis from a sample of major firms in their region. The data is of limited usefulness because in most cases there is no breakdown by occupation. Moreover the huge variations in wages reported by different firms suggests that the data are rather unreliable. The Nota Keuangan (Financial Notes) accompanying the Indonesian annual budget regularly publishes similar data collected by the Dept. of Manpower for a sample of large scale firms in various regions of Indonesia. This data is in no way representative of wages in each sector and for the economy as a whole.

Data Collected by the Central Bureau of Statistics BPS.

1. Daily wages by occupation in estates in various regions in Indonesia is the most comprehensive source of wage data collected by BPS. This data is collected annually and goes back to the early 1950s. Although extremely useful for time-series analysis, it has not been an important source of data for this study which concentrates on interfirm and interindustry differentials especially in manufacturing.

Statistik Industri [Industrial Statistics] BPS, Jakarta.

2. The annual survey of industrial establishments was first conducted in 1970 and collects data on wage expenditure by industry group for all Indonesia. It covers large and medium establishments and since 1975 has been a census of these establishments. To 1971 the data was broken down by large and medium groups and included data on male and female employees. In the first year (1970) wage data was also broken down by cash and kind components. This series suffers from various irregularities and as a result is much less useful for time series than for cross-sectional analysis. The data is also of limited usefulness for any in-depth analysis of wages because they do not include any breakdown by skill categories. Data on other firm characteristics (electricity and other inputs consumed and purchased, value of output and value added) may permit some analysis of the causes of wage differentials but because of the unreliability of much of this data any slightly sophisticated statistical analysis (e.g. regression) is of limited usefulness.

Industrial Censuses (1964, 1974-75) BPS, Jakarta.

3. This data is presented by sector and by region and in 1974-75 included a breakdown of wages for overtime, annual bonuses, contributions to pension and other funds, gifts and other expenditures. This data is also presented for firms with different ownership patterns (foreign, government owned and domestic private). Collection of similar data to the annual surveys of industrial establishments also permits some

analysis of the causes of interindustry wage differentials. But because of anomalies in much of this data (and rather crude indicators of variables such as capital intensity) such exercises suffer from the same problems as analysis of the annual industrial statistics data.

The Intercensal Survey 1976 (SUPAS) and the National Labour Force Survey, 1976 (SAKERNAS).

4. Both provide data on the distribution of incomes of wage and salary earners broken down by sex and rural urban location. The SUPAS data are cross-tabulated by sector (including manufacturing) and the SAKERNAS data provide cross-tabulations by province. The survey also collects data on hours of work by sector (SUPAS) and province (SAKERNAS). Although wages are only one component of income, these surveys are a useful approximation of rural urban and male-female wage differentials.

5. Over the period 1972-74 BPS published wage data from selected medium and large scale enterprises in Java on a quarterly basis, and also collected data on wages of various skill groups in the construction sector in different regions (1973-74).

Wage Data Collected by other Government Departments

1. Daily wage rates of construction workers in INPRES projects 1971/72-1977/78 (BAPPENAS, Jakarta).

This data is collected for various occupations by kabupaten throughout Indonesia. It is probably the most comprehensive source of regional wage differentials collected in Indonesia.

2. Daily Wage Rates of Employees on Department of Public Works Projects in Various Provinces in Indonesia, various years (PUTL, Jakarta).

This data collected by the Department of Public Works is very similar to that also collected by BAPPENAS but is a little less comprehensive in its coverage.

Appendix Table 4.1: Average wage costs and various characteristics of medium and large scale firms in selected manufacturing industries, Java 1974-75

	Average wage cost[1] (Rp/month) (1)	Size of firm: Av.no. of employees per firm (2)	Skill: $ of employees not directly in production (3)	Indicators of capital intensity: Elect. consumed ann. per employee (4)	Av. annual exp.on spare parts/employee (Rp000) (5)	Percentage of firms mechanised (6)	Value added/ worker (Rp) (calculated at market prices) (7)
Cigarettes	25.7	377	21.4	2.2	12.9	92	8,067
Footwear	17.4	172	16.6	8.5	0.3	55	617
Structural metals	16.2	134	27.9	9.3	7.0	99	876
Machinery	12.1	106	21.1	0.9	19.7	95	1,341
Spinning	11.1	460	16.8	8.5	6.4	92	608
Sub total	16.7	250	20.7	5.9	9.2	87	861[3]
Printing	8.1	68	21.3	1.7	4.7	82	820
Plastics	8.0	206	13.7	0.3	1.1	88	334
Weaving	6.6	81	10.1	3.4	3.9	46	466
Batik	6.3	37	4.2	0.1	1.2	15	220
Sub total	7.4	98	12.3	1.4	2.7	58	360
Tea processing	5.8	110	27.1	0.4	3.7	68	590
Kretek	4.3	515	5.5	0.3	0.7	54	689
Tobacco drying/ processing	3.3	70	5.6	0.3	1.6	11	153
Sub total	4.477	232	12.7	0.3	2.0	44	477

[1] Wages and salaries in cash and kind (includes housing, transport etc.) but excludes, overtime, bonuses, pension and other welfare contributions.

[2] Unweighted mean for all industries in group.

[3] Excludes extreme value for cigarettes.

Source: Indonesian, Industrial Census, 1974-75.

Appendix table 4.2: Average monthly wages of selected occupational groups in several manufacturing industries in Jakarta, 1971 (Rp000)[1]

Occupation	Industry						
	Chemicals			Beverages		Food	
	Foreign	Domestic State	Domestic Private	Foreign	Domestic private	foreign	Domestic Private
Director/manager	122.8	62.6	31.7	355.0	13.4	130.0	20.9
Production chief	62.3	35.0	26.7	85.4	14.2	22.5*	19.0
Secretary of manager	44.0	20.0	-	30.0*	14.9	52.3	19.8
Accountant	71.2	30.0	28.6	-	17.4	70.0	9.6
Clerk	16.8	11.1	12.3	21.0*	6.5	32.2*	12.2
Typist	16.5	10.7	8.5	18.5	7.1	24.3	10.3
Foreman	31.3	-	9.7	27.4*	7.7	-	9.8
Skilled	13.0	13.8	9.6	17.0*	6.7	10.0*	12.1
Semi-skilled	13.9	-	4.2	14.1	4.6	7.5*	17.9
Unskilled	9.4	8.4	5.6	9.9	4.4	5.5*	4.2
No. of firms	7	2	28	3	22	4	28
Av. no. of employees	115	1522	127	379	34	170	66

* Data collected from one firm only.

[1] See note to Table 3.14.

Source: Indonesia, Dept. of Manpower (1973) Appendix 1.

Appendix Table 4.3: Payments in kind as a percentage of wages in manufacturing, large and medium firms, all Indonesia, 1970.[1]

	Number of employees (000)	Average number of employees/ firm	Average wage (Rp/month)	Percentage wages in kind
Cement	3.6	1217	16,400	53
Non-metallic minerals	0.8	71	8,300	44
Paper and paper prods.	4.7	53	5,200	38
Rubber and rubber prods.	115.6	177	3,800	32
Foodstuffs	270.6	36	3,300	29
Plastics	6.4	33	4,000	25
Sub total	401.7	62	6,000 (3,600)[2]	39
Beverages	5.2	30	5,600	21
Printing	15.1	29	4,500	21
Other industries	7.6	39	2,000	21
Other chemicals	22.0	57	6,300	19
Textiles	165.7	35	3,100	18
Wearing apparel	4.9	36	9,100	17
Sub total	220.5	36	5,100 (3,600)[2]	20
Leather products	2.0	32	3,700	16
Glass	3.2	70	3,600	13
Electrical machinery	3.5	63	4,700	12
Footwear	3.7	59	5,900	10
Other non-metallic min.	2.9	16	2,300	9
Wood and wood prods.	10.3	15	3,500	9
Sub total	25.6	21	4,000 (3,900)[2]	12

Appendix Table 4.3 (Continued)

	Number of employees (000)	Average number of employees/ firm	Average wage (Rp/month)	Percentage wages in kind
Furniture	4.3	20	3,300	8
Transport machinery	7.1	24	5,000	8
Metals	16.7	31	4,700	8
Tobacco	173.4	169	1,900	6
Basic chemicals	5.4	62	6,700	6
Machinery	4.8	45	5,100	5
Sub total	211.7	89	4,500 (2,400)[2]	7
All firms	859.5	51	5,100 (3,300)[2]	19.5 (22.7)[3]

[1] Includes all non mechanised firms with 10 or more employees and all mechanised firms with five or more employees.

[2] Weighted by number of employees.

[3] Weighted by total value of wage payments.

Source: Indonesia, Industrial Statistics, 1970

Appendix Table 5.1: Minimum physical requirements (KFM), areas of Indonesia, average for 1974

Region		Average for 1974	
		Worker only	Married worker + two children
Jakarta		11.8	27.0[2]
West Java	- Bandung	11.7	29.3
	Bogor	9.4	24.5
	Cirebon	6.9	21.2
Central Java	- Semarang	7.5	22.5[1]
Yogyakarta		7.7	20.6
East Java	- Surabaya	7.8	22.8[1]
	Malang	6.3	18.0
	Kediri	5.5	18.0[1]
Sumatra	- Banda Aceh	11.9	30.8[1]
	Medan	8.9	21.3
	Padang	9.7	24.6
	Jambi	10.4	30.5[1]
	Pakanbaru	13.3	31.8
	Palembang	11.7	31.8
	Lampung	9.3	25.0
Sulawesi	- Menado	8.9	24.9
	Ujung Pandang	8.2	23.3
Kalimantan	- Banjarmasin	9.3	25.1
East Indonesia	- Bali	10.4	22.6
	Mataram	8.2	20.9[1]
	Jayapura	16.2	41.6

[1] Less than 12 months

[2] South Jakarta only

Source: Indonesia, Dept. of Manpower, Unpublished data.

Appendix Table 6.1: Wages, and annual bonuses in negotiated labour agreements, Kotamadya Bandung, 1968-77

Year	Minimum wages (Rp/day)			Price of rice	
				Bandung	Rural Java
	Daily	Piece[1]	Monthly	(Rp/litre)	(Rp/kg)
1968	35[2]	-	1,000	36[3]	40
1970	60	90	2,500	39	43
1972	75	115	3,250	46	50
1975[4]	180	225	6,250	90	93
1977[4]	360	385	12,500	123	152
Percentage increase	928	327	1,100	241	253

1 Minimum earnings of loom operators

2 Includes a premi of Rp 10.

3 No data available for 1968, figure refers to 1969.

4 Applied to both kotamadya and kabupaten of Bandung.

Source: Wage Agreements, 1968-77; Statistical Procketbooks, various years.

Appendix Table 6.2: Real wages in the kretek industry in Kudus 1951-77

Year	Daily (Rp)	Piece (Rp/1000 cigs)	Rp/Litre rice (Semarang)	Value of wage in litres of rice	
				Daily	Piece
1951	3.5	2.8	1.7	2.1	1.6
1955	3.5	3.3	2.2	1.6	1.5
1960	6.5	4.2	3.7	1.1	0.7
1964	125.0	70.0	120.0	1.0	0.6
1970	43.0	24	37	1.1	0.6
1975	125.0	60	84	1.5	0.7
1976	170.0	70	107	1.6	0.7

Source: Castles (1967:148-9). Statistical Pocketbook, various years. Wage Agreements between PPRK (Kudus Kretek Manufacturers) and Labour Unions, 1970-76.

APPENDIX 7.1 The Field Survey

The field survey was conducted from December 1975 to August 1976. Data was collected from individual establishments through interviews based on a structured questionnaire. Here we briefly describe the sampling procedure, major methods of data collection and problems encountered in the field survey.

1. Sampling procedure

A stratified random sample was chosen from the three industries. Four criteria were used to randomly stratify the three industries (weaving, kretek and cigarettes). These were: location, size of firm, mechanisation and ownership (Table 7.1A). Firms were chosen from several of the major producing areas of each industry (weaving in Jakarta, Bandung/Majalaya and Solo/Pedan; kretek in Kudus and Malang/Kadiri; cigarettes in Jakarta, Central Java and Malang). The sample was selected from three size groups, from among mechanised and non-mechanised firms in weaving and on the basis of ownership in weaving and cigarettes. Interviews were requested from 104 firms. Sixteen firms refused and another five were excluded due to inaccurate or incompelte data.

2. Data collection

I collected all the data directly from interviews based on a pretested questionnaire.[1] To facilitate interviewing, a summary checklist of the questions included in the interview schedule was drawn up. This list (which excluded some of the more sensitive questions on the interview schedule) was presented prior to interviews. Owing to the wide range in the forms in which data was provided and the unreliability of many answers, few questionnaires were filled in during the interviews.

The data obtained from individual firms differed enormously in reliability and comprehensiveness. The success of

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[1] A summary of the questions included in the questionnaire is provided in Appendix 7.2.

Table 7.1A: Criteria used for selecting sample of firms

1.	Industry:	Weaving	Kretek	Cigarettes
2.	Location	Jakarta Bandung/Majalaya Solo/Pedan	Kudus/Malang (Kediri) Solo	Jakarta, Semarang, Malang
3.	Size[1]	←——Large, medium, small——→		
4.	Technology	Mechanised/ Non-mechanised	-	-
5.	Ownership	Foreign, State, Domestic	-	Foreign/ Domestic

[1] Large >500 employees, medium 100-499 employees, small <100 employees.

interviews depended on a variety of factors: the willingness of management to provide time and access to hard data in company records, the level and ability of personnel entrusted with the task of providing data, and the completeness of company recording systems. The approach taken was to collect as detailed data as possible in interviews with cooperative and knowledgeable respondents and from firms with relatively complete records. Details obtained in these interviews helped considerably in checking and making estimates of data which I was unable to obtain (or which was obviously incorrect) from other firms. One can gain some idea of the variations in the quality and quantity of data obtained from different firms from an estimate of the duration of interviews. For about 30 percent of firms I made three to five visits covering durations of interviewing and data collection of 10-20 hours; two to three visits were made to about half the sample for durations of five to 10 hours and I made only one visit to the remaining 20 percent of firms.

The precision and reliability of information obtained from different questions on the interview schedule also varied considerably. The kinds of data obtained in major sections of the questionnaire are summarised below:-

(i) Production data: With the exception of foreign cigarette and some large kretek factories, I was able to obtain relatively accurate information from firms on present production, seasonal variations and capacity utilisation. For a small number of firms I made estimates of production based on the number and quality of machines and in kretek factories on the number of employees involved in rolling cigarettes.

(ii) Investment data: This was the most difficult data to obtain accurately. In each firm I attempted to get detailed listing of capital equipment and to obtain estimates of the present value of capital equipment based on current market prices. In

larger, more recent firms whose equipment did not have a price in second hand capital markets, the present value of capital equipment was obtained from standard depreciation calculations applied to the initial value of investments.

(iii) Characteristics of employees: Data on age, education, marital status, present residence, years of service and job experience were probably the least precise of all the information collected. A few larger companies had data on education and years of service of employees but almost none had records of age, marital status and employment experience. Therefore this data were based on estimates of personnel managers, managers and foremen. My only means of checking was through visual impressions and questions to workers during visits to the factory. Despite these problems, the data do give us a fairly clear picture of differences in socio-economic status of employees in different kinds of firms, industries and regions.

(iv) Wages and wage components: As this comprised the key data required in the survey, I spent a considerable amount of time obtaining accurate information. Most of this data were obtained from wage sheets for the previous month or week and for piece rate workers for different periods of the year. Wherever possible I noted down the real wages of a sample of employees in different occupations, noting maximum and minimum wage levels and linking these to seniority and years of service. For 20 percent of firms, wage data were given orally by the manager.[1] In other cases they were taken from wage sheets. Almost no firms provided 'hard' data on professional and staff salaries. But about half the firms were

[1] I was able to cross-check this data by questioning foremen, workers and some competitors.

remarkably honest about these (a further 10-20 percent understated salaries of upper level personnel by 100-400 percent). Most however did provide data on the wage bill for various categories of employees. Almost all were willing to give information on wage increases, annual bonuses and fringe benefits for employees at all levels. I was able to check the data provided by managers during short visits to the factory and to rely on estimates to adjust data which were obviously incorrect.

(v) Labour Management: This comprised information on labour turnover, absenteeism, training and recruiting. Data on labour turnover were least complete, a large number of firms being able to only give rough estimates for the past year. Information on absenteeism was easy to obtain but in a variety of forms - in some firms data were for a sample of employees for a couple of weeks with estimates of seasonal variations; in others they pertained to all employees for periods of up to a year. No problems were encountered in obtaining information on training programs for employees or on recruiting procedures (although 'irregular' procedures for selection of personnel in high wage companies were hard to investigate).

(vi) Institutional influences on wages: Data on this subject were difficult to obtain owing to the relatively sensitive nature of trade union activities in Indonesia. Few managers were prepared to provide detailed information on the activities of enterprise unions and their membership. Data on trade union activities were consequently incomplete (the large sample size prevented a more in-depth study of this subject). Since the majority of firms had no enterprise union, the lack of detailed data

on trade union activities should not affect the overall findings of the survey.

APPENDIX 7.2 Abbreviated English Translation of Firm Questionnaire

A. Basic Data on Production

1. Year began operations.
2. Production operations (various stages).
3. Type and quality of output and percentage sold.
4. (Weaving only)
   Type of thread.
5. Number of factories: comparison of investment, employment and production in this factory compared with all other factories.
6. Value of investment in land and buildings, machinery, and other equipment (present value and value at the time the firm began operations).
7. Electricity required and used last month and a normal month.
8. (Weaving/Cigarettes only)
   Number of machines (looms); number operating last month and normal month; production per machine, operators per machine; value of machines (at time of purchase and present value).
9. Production last week/month (total volume and value of production).
10. (i) Production, employment and value of sales throughout 1975 (normal month, maximum month, minimum month); reasons for variations.
    (ii) Number of shifts, average hours and days of work a week last month, normal month, maximum (production) month, minimum (production) month.
    (iii) Alternative source of income of majority of employees besides earnings from the factory. Nature of jobs taken, regular or seasonal, number of months, hours and days worked, estimated earnings.

B. Employment

11. (i) Number of employees male and female according to system of wage payment: daily (permanent and casual) piece rate, monthly (permanent and contract). Reason for choosing different wage systems.
    (ii) Major and minor reasons for choosing mainly male or female workers.
12. Number of workers by occupation and system of wage payment.
13. (i) Fixed salary scale and groups of workers (daily and monthly, only monthly) to which it applies.
    (ii) Wage group, system of wages, minimum educational and age requirements of each group, maximum, minimum and average (mode) wages for each group, occupations included in each group.
14. Data on basic wages, age, education, marital status, years of service and external experience for a range of occupations. Includes maximum, minimum and average (mode) wages and minimum and average (mode) age, education etc. for each occupation. Occupations include: unskilled workers, machine operators, foremen, supervisors, clerical staff, secretaries, machine mechanics, engineers, accountants and managers.

C. Wage Components

15. Collective labour agreements or work agreements with workers (annual renewal of agreement, frequency of renewels, number of years for which present agreement has existed).
16. Value of regular wage components for daily, piece and monthly workers (meals, meal allowances, transport allowance, attendance allowances, payments in kind).
17. Value of family allowances (for wife and children); wage groups or occupations which do not receive family allowances.

18. Cost of living allowances, occupations which do not receive cost of living allowances.
19. Overtime: wage components included in overtime and system of calculating overtime for daily, piece and monthly workers. Occupations that often receive overtime and value of payments per month.
20. (i) Loans or credit provided by the firm: value of loans to different groups of workers, reasons for giving loans and methods of repayment.
    (ii) Value of social contributions (marriage, death, circumcision) to employees. Value of clothing allowance.
21. Value of Hari Raya bonus and other bonuses given in the last year to daily, piece and monthly employees.
22. Value of housing facilities and housing allowances provided by the firm: number of employees provided with housing and criteria for allocating housing to certain groups of workers.
23. Medical facilities provided by the firm: maximum limit to monthly expenditures; coverage of family for medicine, doctor's fees and hospital fees; mean annual expenditure per worker on health care of workers.
24. Transport provided for workers: Number of workers taken to work in company vehicles; number provided with their own vehicle; criteria for providing transport for certain groups of workers.

D. Wage Bill

25. Total expenditure last week/month on basic wages of daily piece and monthly (staff and other monthly employees) employees. Value of expenditure on major wage bill items last week/last month (overtime, payments in kind, family allowances, cost of living allowances, social contributions, medical expenses, housing, transport and other items).

26. Expenditure in the last year on training, recruiting, bonuses, clothing and other items.
27. Wages as a percentage of total costs.

E. Labour Management

28. General problems of labour management.
29. Recruitment
    (i) area of recruitment, distance from factory and reasons for recruiting labour from other regions.
    (ii) major methods of recruitment for selected occupations.
    (iii) recruitment direct from educational institutes.
    (iv) jobs which are easiest and most difficult to fill.
30. Training: Type of courses or training provided by the firm; place of training, duration of training; and number of employees receiving training over the past three years.
31. Turnover: Number of employees in major occupational categories leaving the firm over the past year (1975) and major reasons for separation; comparison of separation rates with the previous two years and major reasons for changes in rates compared with the previous two years.
32. Absenteeism: Absenteeism rates of machine operators (operator 1 and 2) last month and in a normal month; major reasons for absenteeism (sickness, menstruation leave, special leave); monthly variations in absenteeism over the past year and major reasons for fluctuations in absenteeism.
33. Wage Increases: Major reasons for wage increases over the past three years and size of wage increases for daily, monthly and piece employees; minimum wage increases over the past year for various wage groups; occupations in which wage increases were largest in past three years; role of trade unions in wage demands over the past three years; role of the government in wage changes over the past three years; changes in the value of major wage components over the past three years.

34. Comparison of the firm's wages with firms of the same size in the same industry, with large and smaller firms and with government wages.
35. Role that wages and labour supply played in determining the location of the factory.
36. Major factors influencing the choice of wage rates when the factory first opened.
37. (For foreign firms only)
    How does the level of wages, their composition and various factors influencing wages compare with other countries in ASEAN.

Appendix Table 7.1: Regression coefficients for hourly earnings by firm characteristics, various occupations

Explanatory variables	Dependant variable: mean hourly earnings				
	Operator 2 (log y_2)	Unskilled (log y_3)	Mechanic (y_4)	Clerk (log y_5)	Foreman (y_6)
D_1X_1 (High K/L	0.21*	0.13	a	0.07	68.49**
	(0.63)	(0.07)		(0.15)	(27.61)
D_2X_1 (Low K/L	0.09	-0.04	-18.6	-0.03	18.16
	(0.05)	(0.06)	(15.6)	(0.14)	(23.21)
D_1X_2 (Foreign)	0.21*	0.19*	24.90	0.05	109.65*
	(0.06)	(0.07)	(23.60)	(0.07)	(25.54)
D_2X_2 (State/coop)	0.031*	0.24	-26.18	0.04	74.45**
	(0.08)	(0.08)*	(27.12)	(0.09)	(30.98)
D_3X_2 (Non-pribumi)	-0.04	0.007	1.65	-0.06	2.94
	(0.04)	(0.04)	(15.13)	(0.06)	(16.66)
X_3 (No. employees '000)	0.11**	0.004	12.69	0.0031	-1.52
	(0.05)	(0.01)	(16.65)	(0.01)	(2.15)
D_1X_4 (Cigarettes)	0.19*	0.09	48.11**	0.15*	16.68
	(0.07)	(0.07)	(23.01)	(0.07)	(27.67)
D_2X_4 (Kretek)	-	0.05	-	0.31*	17.66
		(0.07)		(0.14)	(27.46)
D_1X_5 (Jakarta)	0.20*	0.15*	11.73	0.18	24.05
	(0.06)	(0.06)	(13.82)	(0.06)*	(20.77)
D_2X_5 (Bandung)	0.17	0.11	a	0.18	21.17
	(0.05)*	(0.06)		(0.08)*	(21.00)

(continued)

Appendix Table 7.1 (Continued)

Explanatory variables	Dependant variable: mean hourly earnings				
	Operator (log y_2)	Unskilled (log y_3)	Mechanic (y_4)	Clerk (log y_5)	Foremen (y_6)
D_1X_6 (<10 yrs. op.)	-0.01 (0.04)	-0.05 (0.04)	-20.62 (13.44)	-0.05 (0.05	-16.00 (14.51
Intercept	1.27	1.51	121.52	1.96	80.39
$\bar{R}^2$	0.82*	0.53*	0.33	0.39*	0.53*

[a] Variable was not entered in the equation

* Significant at one percent level

** Significant at five percent level

Source: Java Wages Survey, 1975-76.

Appendix Table 7.2: Regression equations for hourly earnings by worker characteristics, various occupations

1. Operator 2

$$\log y_2 = 1.21 + \underset{(0.024)}{0.075X_7}^{*} + \underset{(0.015)}{0.028X_8} - \underset{(0.001)}{0.002X_{10}}^{**} + \underset{(0.062)}{0.11X_{11}}$$

$$\bar{R}^2 = 0.59^{*}$$

2. Unskilled

$$\log y_3 = 0.84 + \underset{(0.02)}{0.13X_7}^{*} + \underset{(0.01)}{0.026X_8}^{*}$$

$$\bar{R}^2 = 0.37^{*}$$

3. Mechanics

$$\log y_4 = 1.77 + \underset{(0.01)}{0.030X_7}^{*} + \underset{(0.01)}{0.009X_8} - \underset{(0.042)}{0.053X_9}$$

$$\bar{R}^2 = 0.20^{*}$$

4. Clerks

$$y_5 = 2.43 + \underset{(9.49)}{7.04X_7} + \underset{(3.23)}{9.51X_8}^{*} + \underset{(0.23)}{0.26X_{10}}$$

$$\bar{R}^2 = 0.11^{**}$$

5. Foremen

$$\log y_6 = 1.31 + \underset{(0.009)}{0.071X_7}^{*} + \underset{(0.007)}{0.01X_8}$$

$$\bar{R}^2 = 0.41^{*}$$

$y_2 - y_6$ = hourly earnings of each occupational category

X_7 = mean years of schooling

X_8 = mean years of service

X_9 = more than 50% of employees with external experience (dummy variable)

X_{10} = percentage of employees female

X_{11} = more than 75% of employees live in urban areas (dummy variable)

Note: Age was not significant in any of the equations and was excluded from all. Data on external experience was only collected for machine mechanics. Sex of employees was only included in the equations for operator 2 and clerks since almost all employees in the other occupations were male. Residence was only included in the equation for operator 2 because employees in the other occupations almost all lived in urban areas.

APPENDIX TABLE 8.1: Coefficients of firm variables in regression equation with value of fringe benefits, percentage of wage bill devoted to fringe benefits and total wage bill excluding fringe benefits

Explanatory variables	Dependent variables		
	f_1 (Fringe Ben. Per worker Rp000/mth) (1)	f_2 (Av. Wages excl. Fringe Ben. RP000/mth) (2)	f_3 (Fringe Ben. as % of Wages Bill) (3)
D_1X_1 (Mech, high K/L) Dummy	5.05* (1.40)	10.20* (1.89)	10.15* (3.82)
D_2X_1 (Mech, low K/L) Dummy	0.81 (1.04)	6.20* (1.40)	3.76 (2.84)
D_1X_2 (Foreign) Dummy	5.82* (1.30)	9.3* (1.75)	8.12** (3.54)
D_2X_2 (State/Coop) Dummy	9.87 (1.56)	0.74 (2.10)	33.90* (4.26)
X_3 (No. of employees) (000)	0.04 (0.16)	0.16 (0.22)	-0.19 (0.46)
D_1X_4 (Cigarettes) Dummy	+3.63** (1.43)	6.52* (1.93)	6.52* (.390)
D_2X_4 (Kretek) Dummy	+1.02 (1.17)	1.48 (1.57)	11.19* (3.19)
D_1X_5 (Jakarta) Dummy	3.61* (1.06)	1.71 (1.43)	13.42* (2.90)
D_2X_5 (Bandung) Dummy	1.25 (1.09)	1.86 (1.45)	8.22 (2.97)
D_1X_6 (≤5 yrs operation) Dummy	-1.42 (0.84)	-3.38* (1.13)	-2.06 (2.29)
Intercept	3.97	10.84	13.27
$\bar{R}^2$	0.74*	0.76*	0.65*
Mean	4.3	11.2	20.5
SD	5.7	8.0	13.3

* significant at 1 percent level

** significant at 5 percent level

Source: Java Wages Survey, 1975-76

Notes to Appendix Table 8.1

The regression equations for each dependent variable included the same explanatory variables:

$$f_1(f_2,f_3) = a + b_1X_1 = b_2X_2 = b_4X_4 + b_5X_5 + b_6X_6$$

where f_1 = value of fringe benefits per worker

f_2 = average earnings excluding fringe benefits (all employees)

f_3 = fringe benfits as a percentage of the total wage bill

X_1 = capital intensity

X_2 = ownership

X_3 = size of firm (number of employees)

X_4 = industry

X_5 = location

X_6 = years of operation.

As in equation (1), Chapter Seven, X_3 was a continuous variable and X_1, X_2, X_4-X_6 were represented by dummy variables where:

D_1X_1 = 1 if the K/L ratio was > Rp 1.5m and the firm was mechanised, 0 if otherwise.

D_2X_1 = 1 if the K/L ratio was ≤ Rp 1.5m and the firm was mechanised, 0 if otherwise.

D_1X_2 = 1 if the firm was foreign owned, 0 if otherwise.

D_2X_2 = 1 if the firm was state/coop. owned, 0 if otherwise.

D_1X_4 = 1 if the firm was in the cigarette industry 0 if otherwise.

D_2X_4 = 1 if the firm was in the kretek industry, 0 if otherwise.

D_1X_5 = 1 if the firm was located in Jakarta, 0 if otherwise.

D_2X_5 = 1 if the firm was located in Bandung, 0 if otherwise.

D_1X_6 = 1 if the firm had operated more than five years,
0 if otherwise.

The results of the regression equation are presented below.