ECONOMIC REFORMS, MANUFACTURING EMPLOYMENT AND WAGES IN VIETNAM

by

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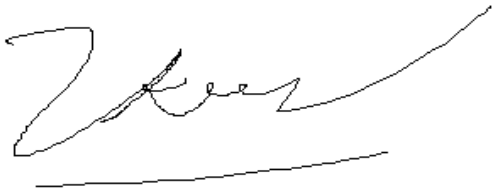
Declaration

I, *Kien Trung NGUYEN*, declare that this thesis, submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the Arndt-Corden Department of Economics, Crawford School of Public Policy, College of Asia and the Pacific, The Australian National University, is wholly my own work unless otherwise referenced or acknowledged. This thesis has not been submitted for qualifications at any other academic institution.



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Abstract

The purpose of this thesis is to examine patterns and determinants of manufacturing employment and wages in Vietnam during the process of economic transition from a centrally planned to a market- oriented economy during the period 1990-2011.

The thesis begins with an interpretative survey of the theoretical and empirical literature on manufacturing employment and wages in a labour-abundant economy, in order to provide the analytical context for the Vietnam case study. The second chapter surveys the market-oriented economic reforms in Vietnam over the last quarter century, with special emphasis on policies directly relevant for examining labour market outcomes. The next four chapters form the analytical core of the thesis. Chapter 4 examines structural changes in employment patterns in the economy with emphasis on the shift in the patterns of labour deployment from agriculture to manufacturing. Chapter 5 probes the impact of manufacturing export expansion on sectoral employment patterns. Chapter 6 deals with the determinants of inter-industry patterns of manufacturing employment, paying particular attention to the role of export orientation and firm ownership. Chapter 7 focuses on the determinants of manufacturing wages and wage premium. The empirical analysis in these four chapters makes use of a new firm-level panel dataset compiled from unpublished returns to the Annual Enterprise Survey undertaken by the Vietnamese General Statistical Office. The final chapter summarizes the key findings and provides policy implications.

The findings suggest that the reforms have resulted in a significant shift in the pattern of labour absorption in the economy from the agriculture to manufacturing over the past three decades. Employment expansion in the manufacturing sector has been underpinned by a significant change in the employment pattern by ownership. Private sector firms, especially foreign-invested enterprises (FIEs) have played a pivotal role in labour market transition. In particular, FIEs in export-oriented industries have accounted for the bulk of new jobs in the manufacturing sector. The expansion of manufacturing exports contributed to a notable increase in overall employment growth. Additionally, there has been a considerable spillover effect of export expansion on job creation in other sectors. There is also evidence that FIEs generally pay higher wages compared to both state-owned enterprises and domestic private firms, and the presence of export-oriented FIEs has contributed to widening the wage premium between skilled and unskilled workers. In general, the Vietnamese experience of employment generation

through export-oriented strategies is comparable to that of the other East Asian economies. However, growth of manufacturing employment in Vietnam has begun to falter from about 2006, owing to macroeconomic policy slippage. The findings in this thesis make a strong case for sound macroeconomic management in order to sustain the favourable labour market outcome of liberalization reforms.

List of Abbreviations and Acronyms

AFTA	ASEAN Free Trade Area
ASEAN	Association of South East Asian Nations
BTA	Bilateral Trade Agreement
BCC	Business Cooperation Contract
BOT	Build-Operate-Transfer Contract
CEPT	Common Effective Preference Tariff
CIEM	Central Institute for Economic Management
CPI	Consumer Price Index
EO	Export-Oriented Industries
EOI	Export-Oriented Industrialization
EPZs	Export Processing Zones
FDI	Foreign Direct Investment
FE	Fixed Effect Estimation
FIE	Foreign-Invested Enterprise
GSO	General Statistic Office of Vietnam
HO	Heckscher-Ohlin
HOSS	Heckscher-Ohlin-Stolper-Samuelson
HS	Harmonized System
IC	Import-Competing Industries
IO	Input-Output Table
IV	Instrumental Variable
ISIC	International Standard Industrial Classification
JETRO	Japan External Trade Organisation
LDCs	Less Developed Countries
LFS	Labour Force Survey

MOLISA	Ministry of Labour – Invalids and Social Affairs
NICs	Newly Industrialized Countries
NRB	Natural Resource Based Goods
OLS	Ordinary Least Squares Estimation
RE	Random Effect Estimation
SITC	Standard International Trade Classification
SOE	State-Owned Enterprise
VHLSS	Vietnam Household Living Standards Survey
VLSS	Vietnam Living Standards Survey
VSIC	Vietnam Standard Industrial Classification
WTO	World Trade Organization

TABLE OF CONTENTS

List of Tables

List of Figures

List of Appendices

Chapter 1

Introduction

1.1 Purpose and scope

Over the past quarter century, Vietnam has undergone a notable transition from a centrally planned to a market-oriented economy. A key objective of market-oriented policy reforms has been to generate sufficient employment to relieve the pressure from the rising wave of labour force entrants and to shift a massive pool of unskilled workers from low-productivity agriculture into high-productivity manufacturing. Based on the experiences of the other East Asian economies, export-oriented industrialization (EOI) is expected to play an important role in this process. However, whether the Vietnamese economy, as a latecomer to East Asian industrialization, can replicate the early East Asian experience remains the subject of an on-going policy debate in the design of an industrialization strategy in Vietnam.

The purpose of this study is to broaden our understanding of on-going process of structural transformation in Vietnam during the reform era with emphasis on its impact on manufacturing employment and wages. In addition to informing the Vietnamese policy debate, it aims to contribute to the literature on the role of export promotion strategy on employment and wages in the context of economic development.

There is a sizeable literature on structural change and the role of manufacturing in employment generation in newly industrialized economies (NIEs) in East Asia, namely Hong Kong, Taiwan, South Korea, and the four Southeast Asian economies of Indonesia, Malaysia, the Philippines, and Thailand (ASEAN-4). However, the experience of Vietnam has not been adequately studied. Given the unique patterns of structural transformation during an era of central planning, it is hazardous to draw on the available studies of the other East Asian economies in the policy debate in Vietnam.

The previous studies on Vietnam have mainly focused on structural change and employment patterns only in the initial stage of the reforms where import substitution was in vogue (Athukorala, Manning & Wickaramasekara 2000; Diehl 1995). Only a few studies have investigated the effects of international trade and foreign direct investment on manufacturing employment and wages (Fukase 2013; Jenkins 2004a, 2006; Kien & Heo 2009; McCaig 2011). Even these studies have mostly focused on the overall picture

of manufacturing employment and wages using macro- or industry-level data. There is a dearth of systematic analysis of the impact of export-oriented industrialization on employment expansion and wages growth. This study aims to fill this gap by undertaking the systematic analysis of manufacturing employment and wages in Vietnam over the period 1990-2011, with a special emphasis on the role of export expansion and foreign direct investment.

The study begins with a survey of a policy switch from import-substitution toward export-oriented industrialization. This is followed by an analysis of structural change and employment patterns in the economy during the period 1990-2011. To gain perspective, the Vietnamese experience is also compared with other labour-abundant East Asian economies using macro-level data sources. Next, the relative contribution of export-oriented and domestic market-oriented manufacturing to employment generation is examined under the input-output framework using Input-Output tables of 2000 and 2007. Finally, an econometric analysis of the determinants of employment expansion and wage patterns in Vietnamese manufacturing is undertaken using a new firm-level dataset compiled from unpublished returns to the annual Enterprise Surveys (2000-2009) undertaken by the General Statistics Office of Vietnam (GSO).

1.2 Structure and preview

The thesis consists of eight chapters. Chapter 2 sets up the analytical framework for examining structural change, manufacturing employment and wages in a labour-abundant economy. It starts with a discussion of the Lewis-Fei-Ranis economic growth model of a labour surplus economy and relates this to the theoretical frameworks of international trade and investment for understanding these possible effects on manufacturing employment and wages. Two analytical tasks relating to the research theme are thoroughly discussed in the chapter. The first is a discussion of the shift in labour away from agriculture into manufacturing in a labour-abundant economy facing structural transformation in the initial stages of economic development. The second takes into account for the effect of export expansion and foreign direct investment on employment generation and changing wages patterns in the manufacturing sector. Along with this discussion, the chapter also reviews the existing empirical studies on employment transformation, manufacturing employment and wages in the East Asian labour-abundant economies.

Chapter 3 discusses the market-oriented policy reforms in Vietnam over the past quarter of a century with emphasis on policies directly relevant for examining labour market outcomes. A key theme running through this chapter is the role of policy reforms in setting the stage for the exploitation of comparative advantage based on ample availability of low-cost labour through export-oriented industrialization. The main objective of the reform agenda is to improve and liberalize the regulatory and institutional aspects of trade, investment, and enterprise legislation. This can help to improve labour market conditions and to create a positive impact on employment and wages outcomes.

The analytical core of the thesis contains four chapters dealing with employment transformation (Chapter 4), export-induced employment (Chapter 5), labour absorption in manufacturing (Chapter 6), and manufacturing wages (Chapter 7). Chapter 4 studies structural changes in the Vietnamese economy during the reform era, with emphasis on the role of the manufacturing sector in employment generation. It also focuses on the ownership pattern of manufacturing performance and employment generation. The employment transition in Vietnam is also compared with the experience of other East Asian labour-abundant economies. Finally, this chapter also explores the slowdown in growth in manufacturing employment in recent years.

Chapter 5 examines the impact of export expansion on employment generation. Following a stage-setting examination of manufacturing performance in the reform era, it undertakes an empirical analysis using the standard input-output framework to examine the contribution of manufacturing exports to employment generation using Input-Output tables of 2000 and 2007. The input-output analysis is well suited for the purpose of this chapter since it captures both direct and indirect repercussions of export expansion on employment for the whole economy.

Chapter 6 deals with the determinants of labour demand in the manufacturing sector, with emphasis on firm ownership category. The core of this chapter is on an econometric analysis of the determinants of labour demand in a manufacturing firm using the panel dataset of the period 2000-09 drawn from the annual Enterprise Survey conducted by the General Statistical Office (GSO) of Vietnam. Following a background investigation of manufacturing employment by firm ownership groups, this study first explores the effect of firm ownership on labour demand at the firm level, with a special focus on the role of export expansion and ownership category on job creation. Next, this

chapter investigates the possible impact on labour demand of government interventions and macroeconomic developments since 2006 which marked a departure from the liberalization reforms over the past two decades. The econometric analysis aims to capture how firms adjust labour demand in the short and long terms in a changing economic environment.

The purpose of Chapter 7 is to explore key aspects of the behaviours and determinants of manufacturing wages, in particular the foreign wage premium and the wage skill premium, resulting from the outward-oriented liberalization, using the same firm-level dataset used in the previous chapter. This chapter begins by providing an overview of wage growth and its pattern in Vietnamese manufacturing as a prelude to the econometric analysis. It then examines determinants of manufacturing wages, with an emphasis on the impact of foreign-invested enterprises on wage differentials between foreign firms and domestic firms, with the latter disaggregated into state-owned enterprises and domestic private firms. Finally, the chapter also examines the impact of trade and investment liberalization on the wage premium between skilled and unskilled workers.

Chapter 8 summarizes the key findings of the study. It also discusses policy implications for achieving successful outcomes of export-oriented industrialization and establishing a suitable business climate for employment generation through export-oriented industrialization. The chapter ends with some suggestions for further research on manufacturing employment and wages that emerge from this study. The findings of the thesis make a strong case for sound macroeconomic management for international competitiveness of domestic manufacturing.

Chapter 2

Structural change, employment and wages in a labour-abundant country: An analytical framework and empirical evidence

2.1 Introduction

It is widely accepted that employment creation is an important objective of economic development for a labour-abundant economy. In the process of structural change in any labour-abundant economy, manufacturing sector has to play a pivotal role in absorbing surplus labour from the agricultural sector by creating new job opportunities for mostly unskilled workers.

The purpose of this chapter is to survey the analytical and empirical literature on manufacturing employment and wages in a labour-abundant economy, with emphasis on the role of export-oriented industrialization, in order to set the stage for the analysis in the ensuing chapters. It is structured in five sections. Section 2 provides a review of relevant theories of employment and wages in a labour-abundant economy in order to provide the analytical framework for the present study. Section 3 surveys the empirical evidence of employment expansion and changes in wages in a manufacturing sector in East Asian countries relation to the process of export-oriented industrialization. The next section reviews the fledgling literature on manufacturing employment and wages in the Vietnamese economy, which is important for identifying the gaps. The final section provides key arguments and proposes ideas for exploring the theme of manufacturing employment and wages in this thesis.

2.2 Analytical framework

2.2.1 The Lewis-Fei-Ranis model

The standard analytical framework used for studying growth and structural transformation in a labour-surplus economy is the Lewis-Fei-Ranis model. In this section, we first consider the basic Lewis model of a dual economy, and then discuss the Fei and Ranis extension to the Lewis model, which provides the analytical context for examining employment and wages in an open economic context.

The Lewis model

The Lewis model of economic growth with unlimited supplies of labour (Lewis 1954) is based on a dichotomy between the subsistence and modern sectors.[1] In the modern sector, profit maximization operates in competitive markets as postulated by the neoclassical economists; labour is paid the value of its marginal product. Demand for labour in this sector depends on the availability of capital, technological progress, and the demand for industrial goods. In the subsistence sector that is not limited to agriculture, traditional methods of production employ simple technology with little capital; and the wage rate is *institutionally determined* at or near the subsistence level in the tradition of classical economics.

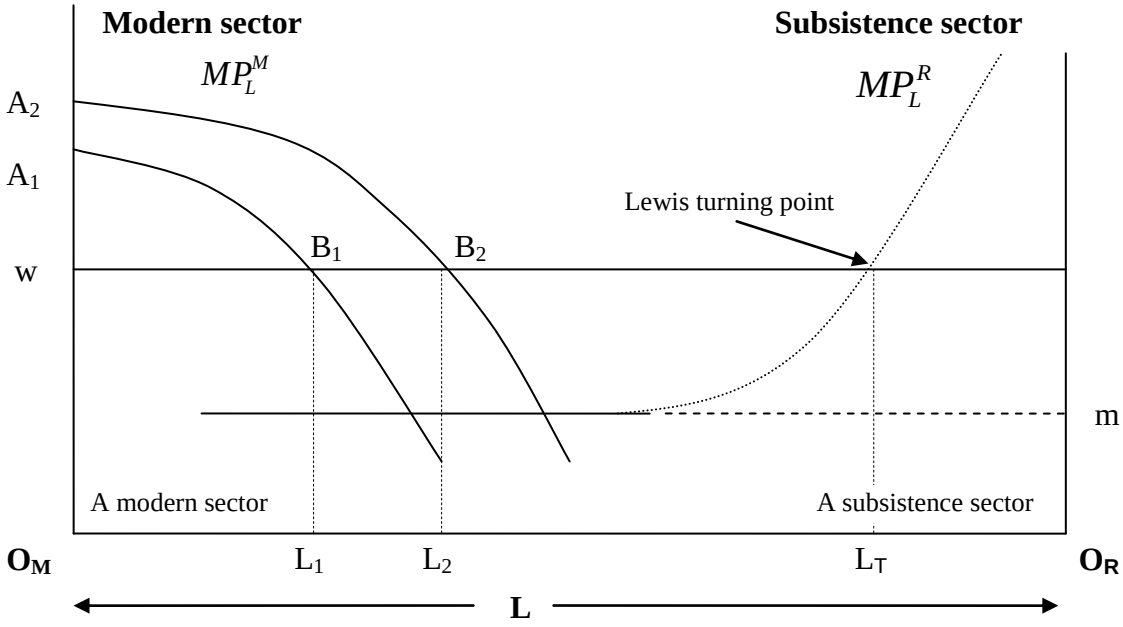
In the subsistence sector, there is an excess supply of labour at the institutionally determined wage. This situation ensures perfectly elastic supply of labour from the subsistence sector to the modern sector.[2] However if the modern sector wishes to attract workers, it must pay a higher wage rate that is set slightly above the subsistence level to compensate for the higher costs of living in the modern sector over the subsistence economy. Given the abundant supply of labour at this wage rate, output expansion in the modern sector does not raise wages but increases the share of profits in the national income.

The operation of the Lewis model showing a shift of labour away from the subsistence sector to the modern sector is illustrated in Figure 2.1. In this diagram, O_R and O_M are origins of the subsistence sector and the modern sector, respectively. Next, L is the total labour force in the economy, leaving the role of population change aside. The marginal product of labour in the subsistence sector (MP_L^R) is assumed to be constant at the subsistence level. In the modern sector, the marginal product of labour (MP_L^M) is rigid downward and the modern-sector wage (*w)* is significantly higher than the subsistence level. In the period 1, the marginal product of labour (*MPL* curve) is A_1B_1. In order to maximize profits, a modern-sector employer as a wage taker recruits O_ML_1 units of labour. Thus, the remaining labour, O_RL_1 stays in the subsistence sector with marginal earning (*m*).

[1] For a succinct textbook treatment of the model, see Basu (1997, Chapter 7), Thirlwall (2006).

[2] For example, non-agricultural rural sector or the Z-goods sector (Hymer and Resnick, 1969).

Figure 2.1: Labour reallocation in the Lewis model



Source: Basu (1997)

Investment in the modern sector is the driving force for labour reallocation in the model. This model assumes that workers are too poor to save. Only enterprises in the modern sector save and invest their total profits to expand their production. Suppose some economic policy changes trigger production expansion in the modern sector: for example, a policy transition from a planning to a market economy, or an industrial development plan proposed by a government, or technological progress that enhances production efficiency. The profit in the modern sector in the initial period is A_1B_1w. As output expands, profits increase and capital stock rises due to profit augmentation. Thus, the marginal product of labour rises and its curve becomes A_2B_2 lying above A_1B_1. As a result, modern-sector employment rises to O_ML_2 and subsistence-sector labour is O_RL_2. The newly gained profit (A_2B_2w) is reinvested, leading to an additional movement in the modern-sector marginal product of labour. Industrial development continues a positive transformation process: gained profits, promoted investment, continual industrial expansion, and additional employment creation until there is no surplus labour left.

Absorption of labour in the modern sector continues at the given wage rate until the surplus labour pool is depleted. This critical stage of labour market transition is called the 'Lewis turning point'. At that time, O_ML_T units of labour are employed. Up to this point, the total increase in GDP resulting from the expansion of the modern sector does not result in a reduction in subsistence-sector output. That is, the output growth in the

modern sector makes a net contribution to an aggregate GDP. Beyond that point, the wages in the two sectors begin to move toward maintaining parity and the economy begins to look very much like a developed economy. Then, the dualistic character of the economy disappears; the subsistence sector becomes a part of the modern economy in which the wage rate and per capita income continue to rise along the upward-sloping labour supply curve. Finally, increased capital formation in the modern sector causes an increase in wages, reduction in profits, and a low level of savings and investment.

Extensions of the Lewis model by Fei and Ranis

The basic Lewis model discussed so far assumes a closed economy with no trade between the two sectors. Fei and Ranis extended the Lewis model in three ways: adding product dualism in the model; establishing the requirement for continuous labour reallocation into industry; and integrating the model into the international economy (Fei & Ranis 1964; 1997; 1975; Ranis & Fei 1961; 1963).

First, while the Lewis model examines only organizational dualism, Ranis and Fei (1961) incorporate 'product dualism' between the two sectors. Product dualism relates to the exchange between foods produced by the agricultural sector and the industrial goods produced in the modern sector. Agricultural and industrial goods cannot substitute for each other, because the food-producing sector ensures a necessary input for industrial development, but the inverse condition does not exist. The terms of trade between the two sectors, therefore, become a prime determinant of structural transformation under modern growth.

Based on product dualism, Ranis and Fei (1961) elaborate on features of the marginal product of labour in the agricultural sector in three periods. The first period starts with zero marginal product in agriculture so that a shift in labour from agriculture to industry does not reduce the former's output. However, when the marginal product becomes positive (second period), labour reallocation does not force the agricultural wages to rise, as long as in agriculture the marginal product is less than the wage rate. The third period begins when the marginal product reaches the wages, causing a further shift in labour to the industrial sector, accelerating both the marginal product and wages in the agricultural sector to the same degree. This is defined as the commercialization point. In addition, this critical point of labour transition is basically the Lewis turning point.

Second, Fei and Ranis establish the precondition for labour movement from agriculture to industry. Initially, the economy is characterized by unfavorable resource endowments and increasing labour force pressure. However, a process of labour reallocation must be rapid in order to transform the economy's center of gravity to the industrial sector.[3] Thus, the authors propose that the growth rate of industrial employment (η_L) must exceed the growth rate of the labour force (η_P) as a necessary condition (Fei & Ranis 1997).

Furthermore, Fei and Ranis suggest that the growth of industrial labour absorption is caused by capital accumulation, technology change, and wage growth in the industrial sector. Of these, the technological factor is related to the rate of innovation intensity as well as the level of labour-using in this related technology. These causal factors can be summed up in the following formula:

$$\eta_P < \eta_W = \eta_K + (J + B_L)/\varepsilon_{LL} - \eta_{w_{na}}/\varepsilon_{LL} \qquad \textbf{(2.1)}$$

where:

η_K	:	the rate of industrial capital accumulation;
J	:	the innovation intensity;
B_L	:	the labour-using bias of innovation;
$\eta_{w_{na}}$	:	the growth in non-agricultural wages;
ε_{LL}	:	the law of diminishing returns to labour.

However, given the unlimited labour supply and that the wage rate is institutionally determined in the agricultural sector, the real wage does not rise until the labour supply is depleted; that is $\eta_{w_{na}} = 0$. Then, the inequality (2.1) becomes

$$\eta_P < \eta_W = \eta_K + (J + B_L)/\varepsilon_{LL} \qquad \textbf{(2.2)}$$

Finally, a novel feature of the Fei and Ranis reformulation of the dual-economy model is the extension to an open economic context. The Lewis model contains a brief discussion on the open economy (Lewis 1972). Drawing on the vent for surplus theory

[3] The history of the economic development of Japan around 1920, Taiwan and South Korea during the 1970s provides evidence of the successful rapid movement of agricultural labour into the industrial sector. Section 2.3 discusses the economies of Taiwan and South Korea in detail.

of Myint (1958), Fei and Ranis postulate how in an open economy context demand forces can accelerate capital accumulation and technological change in the modern sector.

In the Fei-Ranis open dualistic model, goods, services, and capital are assumed to freely move within the world economy. These open economy interactions, such as international trade and investment, and technology transfer, would facilitate labour withdrawal from agriculture to industry in the following ways. First, international trade can contribute to industrial employment growth through the expansion of labour-intensive manufacturing exports. Secondly, foreign capital contributes to capital accumulation and innovation intensity in the modern sector, thereby inducing labour reallocation. Finally, this open economy can choose a full range of technology alternatives through imported capital equipment and foreign investment in order to facilitate better labour utilization.

According to Fei and Ranis' open economy extension of the Lewis model, there are four sequential turning points in the typical growth transition: (a) commercialization point, (b) reversal point, (c) export substitution point, and (d) switching point (Fei & Ranis 1997).[4]

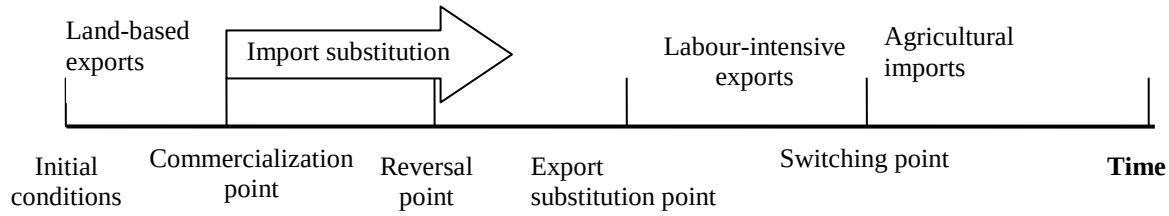
During the initial phase, the economy depends on the exports of natural resource-based (NRB) goods to build up its import substituted industries. When these industries are close to meeting the domestic demand for industrial consumer goods, the import substitution ceases. A commercialization point indicating the end of labour surplus comes when in agriculture the marginal product of labour exceeds the institutional wage rate. The commercialization point is bolstered by two effects that are further intensified because of the international context.[5] These include the 'push' effects of technology change in agriculture in conjunction with the 'pull' of industrial labour demand both domestically and internationally. In other words, the Lewis turning point in an open economy signifies the end of labour abundance. Arrival at this point is likely to alter

[4] These very important points for less developed countries (LDCs) draw heavily on the comparative analysis of the post-war (1950-70) Taiwan experience and to a lesser extent that of South Korea (Fei and Ranis, 1975).

[5] As noted earlier, a commercialization point coincides with the Lewis turning point in the Lewis model (Ranis and Fei, 1961).

trade composition. The export of manufacturing goods, previously based on low-cost labour, is gradually opened to incorporate skills and capital goods.

Figure 2.2: Phases of growth in the open dualistic model



Next, the reversal point indicates the beginning of an absolute decline in the agricultural labour force. This illustrates a situation where the growth of the industrial labour force is higher than that of the total labour force for a sufficient long period, thereby resulting in a large proportion of industrial labour in the total.

Then, in a small labour surplus economy, the process of export-substitution starts when labour-intensive manufacturing begins to replace traditional exports as the dominant export commodities in the world market. In this phase, no conflict between employment and growth is expected. This is because as labour service is embodied in exports to the world market, export expansion contributes to both rapid growth and substantial job creation. In this way, this economy will be able to make use of its abundant labour supply at the outset of industrialization.[6] Conceivably, a latecomer to industrialization should adopt labour-using innovations with modest capital requirements in order to utilize the abundant labour effectively.

Finally, a switching point indicates a switch from an agricultural exporting economy to an importing one at some stage in the successful development process.

Other than these significant effects of trade during the stages of economic development, the inflow of foreign investment can hinder employment growth. It is likely that this capital inflow will accelerate capital accumulation in the industrial sector, thus increasing the demand for labour as well as expanding output. However, if government policy had aimed at the industrial development through expanding production of investment goods, there would be a conflict between job creation and

[6] A study of Ranis (1973) uses the Japanese experience in the 19th century to clarify this assumption.

output growth. This is because the basic capital goods are capital-intensive rather than labour-intensive. Given that the prime objective in the labour-abundant economy is to achieve a greater manufacturing share in total employment, an efficient labour utilization of capital expansion is achievable only when the inflow of foreign capital is likely to be involved with industries which have low capital-labour proportions (Fei & Ranis 1997).

Further, Fei and Ranis decompose technological change into two components. First, innovation intensity (*J*) implies the adaptation of external technology to domestic production. This technology permits expanding output without increasing capital or labour stock. Second, a factor bias of production is related to the selection of imported technology: labour using or capital using. Of great concern is appropriate technology importation and adaption that conform with the current resource endowment in order to follow a more labour-intensive growth path. More importantly, a supplementary condition of the development of private sector firms is to offer them the best incentives to pursue appropriate technology. In contrast, distortions in factor market as a type of financial repression due to government interventions would probably lead to an abuse of technological intensity and factor bias. Thus, given low capital-labour proportions, labour-intensive technology should be adopted in order to combine the utilization of labour-abundance and the extensive use of scarce capital.[7]

Implicit in the discussion so far is the hypothesis that manufacturing employment growth is stimulated by the withdrawal of labour from agriculture in the open economy dualistic model. This process is initially triggered and then accelerated by appropriate economic policies that regulate capital accumulation and technological change. However, the dual model carries with it various notable limitations that have been observed over the past several decades. One criticism is that a labour surplus issue appears to ignore the microeconomic foundation. Rosenzweig (1988) argues that agricultural worker behaviour is more relevant within an analytic framework of work-leisure choice taken from neoclassical economics. Up to this point, the analytic argument has been to offer a theoretical framework to examine employment and wages

[7] For example, the Japanese government policy focused on technological complementarity and substitution that utilize lower-quality inputs and a greater volume of unskilled workers in production (Ranis, 1973).

in a manufacturing sector at the aggregate level. From this view, these microeconomic-based critiques do not matter.

The assumption on the elasticity of labour supply in agriculture has been challenged by actual labour markets in most developing countries. However, in his retrospective work Lewis (1972, p.77) clarifies that "whether marginal productivity is zero or negligible is not at the core of fundamental importance to our analysis…this has led to an irrelevant and intemperate controversy". Evidently, it is not necessary to assume an infinitely elastic labour supply or zero marginal product of labour in the subsistence sector. What is necessary is that the labour supply to the modern sector is elastic in the early stages of development. In another limitation, it has been pointed out that the labour markets are often fragmented into many parts, and then dualism is rather restrictive. However, Basu (2003) argues that the assumption of duality is merely for analytical convenience, thus dualism is the simplest assumption. The purpose of the dualistic model and of the theoretical frameworks discussed so far is to provide an analytic model to analyze employment transformation at the early stage of development. From this perspective, the assumptions of elastic labour supply and duality are sufficient.

On the whole, this integrated groundwork summarizes key predictions on structural changes and employment transformation in the labour-abundant economy under the Lewis-Fei-Ranis growth model. This model predicts a shift in labour away from agriculture into manufacturing, coupled with wage growth during the economy's structural change. At the outset of development, real wages of unskilled workers are repressed by an abundant labour supply in agriculture. Low-paid labour is the important impetus for capital accumulation, thus the profit share increases and industry expands. Only when the industrial sector starts to withdraw a considerable proportion of unskilled workers, does labour become scarce and do real wages begin to rise. During this economic development process, capital accumulation in the manufacturing sector is an important thrust for changing the employment pattern in the economy.

2.2.2 Outward-oriented development, manufacturing employment and wages

The Lewis-Fei-Ranis model deals with structural change in a labour-abundant developing economy in the process of industrialization at the aggregate level. The purpose of this section is to survey other theories relevant for a better understanding of changes in employment and wages within manufacturing in the process of economic

transition. First, we address the linkages of alternative trade policy with employment expansion in a manufacturing sector based on the Heckscher-Ohlin trade model. Then, we discuss theories relating to changes in inter-industry wage differentials as well as the wage skill premium between skilled and unskilled workers in this sector, resulting from export expansion and increasing foreign investment.

Manufacturing employment

The standard analytical framework for understanding trade effects on manufacturing employment and wages is the Heckscher-Ohlin (HO) trade model. In this model, trade can be explained by cross differences in the endowments of labour, physical capital, land, and other factors of production. Then, a reduction in trade barriers allows a developing country to realize its comparative advantage, usually in labour-intensive goods. This implies that the export-promoted sector expands while the import-substitution one contracts. The HO model postulates that outward-oriented industrialization in a labour-abundant economy brings about a shift in the production structure toward labour-intensive sectors.

To explain the relevance of the HO model to this analysis, assume the world is divided into two groups of countries – the North (developed) and the South (developing) – producing two commodities, each with two factors of production: skilled and unskilled labour. The South has a comparative advantage in the production of an unskilled labour-intensive commodity (prior to trade the relative price of the unskilled labour-intensive commodity is lower in the South than in the North). Suppose when trade starts between the North and the South, domestic prices for these two commodities will be equalized, and thus there will be no further movement of goods. This implies an increase in the relative price of the unskilled-intensive commodities in the South and a fall in the relative price of the same commodities in the North. According to the Stolper-Samuelson (1941) theorem, this situation will lead to an increase in the relative demand for unskilled labour in the South. Therefore, wages of unskilled workers would rise in the South relative to that of skilled ones, leading to decreasing wage inequality between skilled and unskilled workers in developing countries. Even though this prediction refers to an overall economy, clearly it is still valid within a manufacturing sector.[8]

[8] The impact of South-North trade expansion on manufacturing employment is investigated empirically in Wood (1994).

Based on the standard Heckscher-Ohlin-Stolper-Samuelson (HOSS) model, Krueger et al. (1981) postulate two important linkages between alternative trade regimes and manufacturing employment.[9] One possibility is that export industries require more labour per unit of capital, thus potential employment creation would arise through an export promotion policy. This implies that a labour-abundant economy should specialize in labour-intensive manufacturing for exports in order to fully exploit its comparative advantage. Second, a distorted trade regime that subsidizes importation of capital goods may encourage firms to adopt high capital-intensive techniques. For example, a tariff structure that supports importation of capital goods may cause the overwhelming expansion of capital-intensive production. If such policies result in a greater capital-labour ratio and a lower labour-output one, then employment growth will be constrained while capital deepening continues. Possibly, all these interactions can work individually or simultaneously: the direction or magnitude of these linkages requires further consideration.

Starting from the basic HO explanations of trade patterns, Krueger (1983) incorporates natural resources into the model. In this formulation, the two-goods model consists of manufacturing goods and natural resource-based (NRB) goods. Producing these goods uses three factors of production in which labour is required for both goods, while capital is specific to the production of manufacturing goods, and natural resources are specific for NRB goods. When opening to trade, a labour-abundant economy exports NRB goods and imports manufacturing goods at the outset of development. This is because of the small capital stock as well as the lower productivity of labour. As capital accumulation increases, labour moves into a newly developed manufacturing industry, and then gradually the economy becomes a net exporter of manufacturing goods. This extended model illustrates the significance of specialization on labour-intensive manufacturing for exports in a labour-abundant economy at the early stages of economic development.

Krueger also argues tariff and non-tariff protection will inevitably result in distortions in goods markets with adverse implications for employment generation (Krueger 1983). It is likely that industries with higher levels of protection mostly

[9] The Krueger et al. country studies (1981) follow the analytic framework for an individual country while Krueger (1983) synthesizes the theoretical issues of the study. This study was sponsored by the National Bureau of Economic Research.

generate less employment than those with lower levels (Krueger et al. 1981).[10] This is because goods market imperfections can drive a wedge between domestic prices and international prices, and hence factor prices in the domestic market cannot express the real opportunity cost of factor employment due to this distortion. This would significantly affect the trade composition in a way that is not consistent with factor endowments. Thus, a labour-abundant country may export more capital-intensive goods. Finally, given factor market distortions in the manufacturing sector, it can be concluded that scrutiny of the observed pattern of production and trade alone cannot offer valid inferences about its efficient patterns (Krueger 1983).

The theoretical framework of Krueger et al. (1981) and Krueger (1983) examines the inter-industry employment effect of trade reform in the long-term. However, it ignores the adjustment of employment during the transition following trade reform as well as the short-term effect. The reform can also motivate firms to increase the efficient utilization of factor production, encouraging labour productivity in all firms and labour movement to efficient firms. Reflecting this argument, a theoretical work by Edwards (1988) explores adjustments in employment and wages following liberalization reforms in developing countries. The study investigates how outward-oriented reforms affect employment and wages in both the short- and long-term as well as in the transition period. The model assumes an economy with three sectors: exportables (X), importables (M), and non-tradables (N). Production functions employ capital (K) and labour (L). Labour is assumed to be perfectly mobile among the three sectors, while it is assumed that capital is sector specific in the short run. Factor intensity assumes that exportables are labour-intensive while importables are capital-intensive. These postulated effects in the Edwards model are consistent with the Krueger's findings. Job creation expands in the labour-intensive export sector in both the short- and long-run while it contracts in the capital-intensive import sector. The employment effect in the former is expected to be positive in the transition period, in spite of the ambiguous effect in the latter. In this model, it is found that the degree of wage rigidity will not change the employment effect.

[10] See empirical evidence in country studies in the work of Krueger et al. (1981).

Wage inequality

Up to this point, we have discussed theories relating to the possible job expansion across manufacturing industries as a result of EOI. Next, we examine possible changes in the relative labour demand for skilled to unskilled workers.

As discussed, an important postulate of the standard neo-classical trade model is that export-oriented industrialization in an unskilled labour-abundant developing country results in an increase in the wages of unskilled workers relative to those of skilled workers, and therefore the wage premium between skilled and unskilled workers narrows with export expansion in that developing country. However, this theory has not been able to explain sufficiently the wage premium in the context of economic globalization because it ignores the role of multinational enterprises (MNEs) (operating through foreign direct investment (FDI)). Feenstra and Hanson (1996) have extended the neo-classical model by incorporating FDI. This model takes into account the fact that foreign investors in a host country normally pay higher wages in order to recruit the best quality local workers, leading to an increase in demand for skilled workers following the large inflow of foreign investment.

In the Feenstra & Hanson model of trade and investment, the world economy consists of two countries, North and South, which have different endowments of capital, skilled labour, and unskilled labour. Under conventional assumptions, the return to capital and the relative wage of skilled to unskilled workers is lower in the North than in the South. A single manufactured good is assumed to be produced using many intermediate inputs, and each input varies in its requirements for skilled and unskilled workers. Initially, given no international factor mobility, factor prices are not equalized between countries. The South produces an unskilled labour-intensive output while the North makes a skilled labour-intensive one. When the North establishes investment projects in the South, which is regarded as outflow of capital from the North to the South, it moves a rising proportion of output production to the South. From the North's perspective, these production movements are the ones that employ a relatively higher ratio of unskilled workers. Conversely, from the South's perspective, these production establishments require comparatively greater amounts of skilled labour.

In contrast to the HOSS model, the Feenstra and Hanson model predicts that the increasing global production network would result in an increase in the wage gap

between skilled and unskilled workers in both the developed and the developing countries. This prediction is consistent with the proposition of the widened wage premium resulting from skill-biased technological change (Acemoglu 2003; Robbins 1996; Wood 1995).

2.3 Empirical evidence

This section surveys the empirical evidence of structural change, manufacturing employment and wages in labour-abundant developing economies at the early stages of industrialization. This survey mainly covers the literature pertaining to economies in East Asia, including newly industrialized economies (NIEs): namely Taiwan, South Korea and the bigger Southeast Asian economies of Indonesia, Malaysia, the Philippines, and Thailand (or ASEAN-4). This examination is set in the context of policy reforms that foster significant structural change as well as manufacturing employment and wages, in order to identify the most relevant comparisons for studying the Vietnamese experience under market-oriented policy reforms.

The transfer of labour from agriculture to manufacturing has been a priority in the development policy agenda in the East Asian developing countries over the previous decades. At the outset of industrialization, these economies fitted well with the Lewis-Fei-Ranis growth model of labour surplus. An examination of this employment transformation in these economies, therefore, helps in understanding the features in terms of employment expansion and wage patterns in a typical labour-abundant economy in the process of industrialization.

Taiwan is a classic example of transformation from an agricultural to an industrialized economy based on utilization of labour abundance. As a result of industrialization, this country experienced an extremely rapid shift of low-income workers into more productive work. Agriculture accounted for around 60 per cent of the total employment and a third of domestic production at the early stage of economic development (Ranis 1995). The economy went through stable rapid growth over the 1950s - 1970s. The agricultural sector reduced to less than 15 per cent of GDP by the early 1970s, counterbalanced by an accelerated share of manufacturing to nearly 40 per cent (Kuznets 1979). Accompanying this structural change was a dramatic shift in employment pattern. On average, industrial employment grew nearly six per cent per annum during the 1950s, reaching a striking figure of ten per cent during the 1960s

(Ranis 1979). By 1975, the industrial sector absorbed over 40 per cent of the labour force (Galenson 1979). More importantly, manufacturing employment accounted for over 27 per cent of the total (Athukorala & Manning 1999).

Rapid growth in real wages accompanied by employment expansion has been a key feature of industrialization in Taiwan. Real wages grew very rapidly, averaging above five per cent per annum during the 1960s (Galenson 1979). After the low starting wage level and the abundance of unskilled labour in the initial years, a sustained rise in labour productivity assisted the impressive wage growth. Taiwan's labour productivity and wage growth demonstrate consistency with the expectations of the Lewis-Fei-Ranis model.

South Korea is also an interesting case of a labour-abundant country that underwent a remarkable employment transformation. In the early 1960s, a majority of the non-agricultural workers were involved in low productivity rural sectors, while urban manufacturing employment accounted for only a small fraction of the labour force (Bai 1985; Kuznets 1976). However, during the 1960s-1970s the country's manufacturing became the dominant sector and the expansion of labour-intensive manufacturing contributed to employment growth (Athukorala & Manning 1999; Kuznets 1976). Aside from the shift of low-income workers into manufacturing among developing countries at that time, this country witnessed a real wage growth increase above the double figure rate within a decade of the 1970s. Dramatic labour productivity growth in manufacturing supported that of wages (Amsden 1989).

Compared to Taiwan and South Korea, less dramatic jobs growth was experienced in Malaysia and Thailand. Although Thailand started to industrialize in the 1960s, employment transformation in Malaysia was faster with higher intensity in manufacturing employment generation (Athukorala & Manning 1999). The Malaysian economy displayed a slow steady shift in employment in the 1970s-1980s (McGee, Linge & Missen 1986; Snodgrass 1976) with sustained growth in real wages around the mid 1980s, a decade after it embarked on export-oriented industrialization (Manning 1995). On the other hand, in Thailand there was an uneven and slow shift in labour from agriculture to manufacturing in the 1960s, perhaps due to its large agricultural sector (Athukorala & Manning 1999) while real wages did not increase sharply until the late 1980s (Sussangkarn 1993). To a considerable extent, the experience of these two

Southeast Asian followers is consistent with the employment pattern in two labour-abundant East Asian leaders.

Unlike the economies discussed so far, the Philippines and Indonesia experienced a slow and less intensive shift in employment to manufacturing due to a longer period of import substitution. The Philippines illustrates a disappointing case of employment and wage growth during the 1960s-1980s (Tidalgo 1976, 1988). In Indonesia, the shift of labour into manufacturing was slower than Taiwan, and less decisive over the same period (Ananda, Atalas & Tjiptoherijanto 1988; Manning 1995). Also, Indonesia's pattern of wage growth did not fit with the elastic labour supply condition due to its large, segmented labour market (Manning 1998).

The differences in real wage movement between the two NIE leaders and their followers are the basis of a study by Manning and Posso (2010). Taiwan and South Korea performed better than Malaysia, Thailand and Indonesia in average annual growth of unskilled wages. Both labour demand and supply characteristics are plausible explanations of the different outcomes among these economies, but supply side factors are more significant. It is possible that the abundant farming land and low-productivity agriculture slowed wage growth and consequently made a slower shift of unskilled labour into manufacturing in Malaysia, Thailand, and Indonesia.

The patterns of labour market adjustment in all these countries are generally consistent with the predictions of the Lewis-Fei-Ranis model. However, there are two notable differences among these countries relating to the speed of labour movement from agriculture into manufacturing and wage growth in manufacturing.

First, the speed of labour reallocation into manufacturing was uneven among these economies. An intensified shift of labour to manufacturing was witnessed in Taiwan and South Korea during the 1960s -1970s, reaching a striking growth of ten per cent per annum. Similarly, Malaysia and Thailand experienced a slow process in employment transformation. A less consistent, indecisive shift in employment transformation occurred in Indonesia, while the disappointing case was the Philippines.

Second, the real wage growth accompanying employment expansion was also varied among these countries. Rapid growth in real wages coupled with that in labour productivity has been remarkable in the early stage of development in the two labour-abundant NIEs. Real wages started to rise rapidly within less than a decade following a

successful move to manufacturing exports in these economies (Manning 1995). A similar wage trend occurred in Malaysia and Thailand where real wages increase was rapid but in a low intensified fashion. A less consistent wage trend was found in other Southeast Asian economies: Indonesia did not experience a sustained wage growth in manufacturing, while real wages declined in the Philippines.

Finally, how well does the model work in these economies? The experience of the Taiwan economy is the single most remarkable one that matches well with the predictions of the Lewis-Fei-Ranis model. To a considerable extent, the key notable consequences of the model are demonstrated in some of the countries that lagged behind Taiwan. As shown before, employment patterns and wages expansion in the ASEAN-4 were not consistent with the remarkable employment and wage outcomes of the Taiwanese economy, particularly in the case of the Philippines. However, other East Asian developing economies with a large labour endowment still satisfy the conditions for the Lewis-Fei-Ranis model to operate (Ranis 2006). Possibly the economic development model of a labour-abundant economy could work well in other Southeast Asian followers.

The industrialization of these East Asian developing economies indicates that an export-oriented strategy has facilitated labour absorption. A greater access to the international market for labour-intensive manufacturing goods increased the capacity to withdraw unskilled workers from agriculture into manufacturing in a labour-abundant country. Therefore, at the outset of industrialization, labour-abundant developing economies should make use of export markets in order to fully benefit the economies of scales in labour-intensive manufacturing (Booth 1999). The shift from import-substitution to export-oriented industrialization in Taiwan was a mainstay of the country's overall employment growth (Fei & Ranis 1975; Fields 1994; Ranis 1973). This growth was attributed to the expansion of labour-intensive exports together with the attraction of foreign direct investment (Kuo & Fei 1985; Ranis & Schive 1985). Relaxed by wage repression, the Taiwanese economy's export-promoted strategy went hand-in-hand with rising real wages (Fields 1994). Next, an export-oriented foreign investment was also a significant factor contributing to favourable employment and wages outcomes in South Korea (Balassa 1985; Koo 1985). In the ASEAN-4, Malaysia and Thailand adopted a similar strategy of EOI that fostered a similar shift in labour into manufacturing. However, their slow shift was partly due to the late priority placed on

the development of labour-intensive manufacturing (Pang 1988). By contrast, a longer import substitution period that involved highly protected and inefficient manufacturing resulted in a slow withdraw of unskilled workers from agriculture in Indonesia, and a particularly sluggish employment growth in the Philippines.

Manufacturing employment

The EOI was conceived as the main driver of manufacturing employment expansion in these economies. Over the period 1950s-1970s, the export-promoted strategy led to a structural change in labour intensity in Taiwanese manufacturing, resulting in higher job creation (Banerji & Riedel 1980). Over that period, these labour-intensive industries such as processed foods, garments, and electronics occupied approximately 75 per cent of the Taiwanese employment increment (Galenson 1979). This strategy was also significant in South Korea (Hong 1981).

The export promotion policy also replicated similar benefits in the ASEAN-4, typically in Thailand in the 1970s and Indonesia in the 1970s-1980s (Akrasanee 1981; Fujita & James 1997; Pitt 1981). These findings suggest that a neutral trade protection regime can generate higher employment. Interestingly, a heavy reliance on imported inputs and weak domestic input linkages can contribute to higher job creation, as long as the labour-abundant economy links its manufacturing with the network of vertically integrated industries featured by a process of 'slice up the value chain' (Krugman, Cooper & Srinivasan 1995) as was the case of Indonesian manufacturing in the 1980s (Athukorala & Santosa 1997).

As discussed earlier, the negative impact of market imperfections on labour absorption was reflected in the South Korean experience during the 1960s-1970s. An extensive capital subsidy in the manufacturing sector led to distortions in the country's labour market (Hong 1981). This implied that manufacturing exports would have generated much greater employment if capital intensity caused by the subsidy program had not risen rapidly in the export-oriented industries, as compared to the import-competing ones. Thus, under some types of market imperfections, an expansion in labour demand stimulated by the EOI may not translate into job creation.

Wage inequality

As expected, throughout the 1960s-1970s export expansion narrows the wage premium between skilled and unskilled workers in East Asian economies. In Taiwanese manufacturing, the wage inequality between white-collar employees and blue-collar ones reduced over that period (Kuo 1989). Similarly, a reduction in the wage premium was significant in South Korea during that period (Galenson 1992; Wood 1997). These findings are quite consistent with the prediction of HO standard trade models. In contrast, in the Philippine the wage premium was not significantly narrowed in the manufacturing sector over the period 1980s because wages of unskilled workers in labour-intensive industries were not affected because of the country's unskilled-labour abundance (Hasan & Chen 2004).

Foreign investment coupled with technological advances is also important for affecting the relative demand for skilled workers, and has with mixed effects on the wage premium. In Indonesia the relative demand for unskilled labour rose while the wages of unskilled relative to skilled workers decreased in the manufacturing over the period 1970s-1980s following the trade reform (Suryahadi, Chen & Tyers 2001). This finding appears consistent with the prediction of the trade models; whereas, contrary to Feenstra and Hanson (1996), foreign participation raised the relative demand for unskilled workers.

This section has surveyed the empirical literature on employment and wages during economic growth with structural change. Although the empirical evidence as to the causes and effects of the shift of unskilled labour to the manufacturing sector reflects the expectation of the Lewis-Fei-Ranis model, however, to some extent it has become less dramatic, less consistent and even more complex in Southeast Asian followers. In addition, employment generation and wage changes in the manufacturing sector are found to have a strong connection with open economic interactions such as export expansion and foreign investment. However, there remain some debates over the expected outcomes of manufacturing employment and wages resulting from trade and investment liberalization during the process of EOI.

2.4 Studies on Vietnam

There have been studies of employment transformation and employment growth following the economic reform (Athukorala, Manning & Wickaramasekara 2000; Belser 2000; Diehl 1995). A number of other studies have examined specifically the impact of international trade and foreign direct investment on manufacturing employment and wages

Athukorala et al. (2000) and Diehl (1995) draw upon the structural change and employment pattern following the reform up to the mid 1990s but use different comparative contexts. Diehl (1995) compares the Vietnamese economy with the former centrally planned economies in Eastern Europe in order to explore a palpable structural change in Vietnam, whereas Athukorala et al. (2000) examine the Vietnamese economy's changing structure compared with other labour-abundant economies in the Mekong region. The findings of Diehl (1995) indicate that during the period 1986-1993 manufacturing employment growth continued to remain sluggish. This is because the majority of the manufacturing enterprises involved with state-owned enterprises were focused on capital-intensive investment and import-substitution production. In the study of Athukorala et al. (2000), the lackluster employment expansion was attributed to the half-hearted nature of the reform process. Given state patronage, trade policy was biased toward import substitution, mainly through SOEs. This policy bias provided privileged access to inputs and capital-intensive investment. Therefore, the employment benefits of the reform were not generated due to misallocation of resources.

Among the studies on employment growth, Belser (2000) used data from the Vietnam Living Standard Survey (VLSS) to examine employment growth between 1992/93 and 1997/98. He finds that employment growth in manufacturing lagged behind output growth in that sector, compared to other labour-abundant East Asian economies.

Next, Jenkins (2004b) alluded to a paradox of rapid economic expansion and slow employment growth in the 1990s. In his study, Jenkins decomposed industrial employment growth into three main factors: output growth, structural change, and productivity growth. His work showed that productivity growth rather than structural change was a main cause of slow employment growth. This finding supports the hypothesis that productivity changes within industry rather than the misallocation

toward capital-intensive sectors were the main causes of sluggish job creation. Compared to other East Asian economies, the author argues, the low starting base of labour productivity in Vietnam restricted a shift of labour into manufacturing.

The impact of outward-oriented liberalization on manufacturing employment has been examined in Jenkins (2004a), Jenkins (2006) and Kien and Heo (2009). The study by Jenkins (2004a) estimates an industry's labour demand model in order to examine the employment effect of trade expansion on the Vietnamese industry during the 1990s. In doing so, export intensity and import penetration are incorporated in the model. Later, Jenkins (2006) explores the impact of foreign investment on industry employment in order to capture the job expansion resulting from increased foreign capital. Similarly, a share of foreign participation in production is included in industrial labour demand. Both Jenkins' studies explore the labour demand model during the period when policy reform was mainly involved with import-substitution industries. As a result, the policy limited the employment outcome. The major limitation is that these models omit some exogenous determinants of labour demand, and perhaps they do not deal with the endogeneity of wages or output.

Kien and Heo (2009) examine the employment effect of trade liberalization using panel data covering the industrial sector which includes mining & quarrying, manufacturing, and electricity & water supply, at the two-digit industries of Vietnamese Standard Industrial Classification (VSIC) level over the period 1999-2004. The GMM estimator is used to deal with the endogeneity problem due to the presence of a lag dependent variable as one of the explanatory variables. It is difficult to interpret the findings of this study because of the combining of a manufacturing sector with mining & quarrying and electricity & water supply sectors. Because the manufacturing sector is considered the main employment generator following liberalization reforms, another problem with this model is that it does not include some important determinants of labour demand such as firm ownership and capital intensity.

With regard to the empirical findings on the employment outcome, in the study of Kien and Heo (2009), a positive effect of export expansion is found, whereas there is an insignificant impact of import penetration. As for foreign investment, the increasing foreign participation in labour-intensive manufacturing has not had a significant effect on employment mainly due to high productivity, low industrial value-added and weak domestic linkages (Jenkins 2006). However, the use of industrial labour demand might

overlook firm behaviour, so neither Jenkins (2004a, 2006) or Kien and Heo (2009) is able to observe firm-level adjustments to trade liberalization which is important in the related literature (Costantini & Melitz 2009).

With regard to the wage patterns, Gallup (2004) examined the wage inequality in Vietnam over the 1990s using two rounds of the VLSS between 1992/93 and 1997/98. The findings suggest a moderate decline in wage inequality between these two time points. However, there are some noteworthy shortcomings in that study. First, the VLSS sample does not reflect the appropriate picture of wages for all workers, since this household survey could not capture the worker entrants from agriculture to manufacturing, in particular at urban centers. Second, Gallup (2004) examines the average wages by quintile to illustrate changes in wages. This method has a serious limitation since it can neglect the sectoral or regional effects on wages.

Liu (2004) uses household-level data in the same rounds of VLSSs studied by Gallup (2004) to examine the changing wage structure following the economic reform in Vietnam, focusing on gender wage gap and the overall wage inequality between skilled and unskilled workers. She uses a Mincerian earnings equation together with a decomposition method to delineate the determinants of these wage gaps based on ownership groups, controlling for worker's characteristics. However, instead of using several ownership dummies, she only undertakes the estimation on various sub-samples classified by these features. Liu's model does not take into account the specific characteristics of economic reforms such as firm ownership or tariff reduction.

The study by Fukase (2013) explores the two rounds of Vietnam Household Living Standards Survey (VHLSS) in 2002 and 2004 in order to examine the wage premium between skilled and unskilled workers in the aftermath of the 2001 Bilateral Trade Agreement (BTA) with United States. Presumably, the BTA would impact wage growth through an expansion of labour demand due to a rise in labour-intensive manufacturing exports, using the HO trade model in which changes in inter-regional industrial wages are controlled for by fundamental factors such as industrial output, the number of workers employed, export intensity and other determinants such as gender, educational attainment, experience. The model in Fukase (2013) includes some exogenous factors such as industrial share, agricultural share, and initial wages which are not considered in previous studies. Another strong point is that potential endogeneity of export intensity is addressed by using the province-tariff reduction as an instrument. The findings show

that increasing exports lead to growth in wages of unskilled workers in those provinces that experience more exposure to trade liberalization. This rise in wages is consistent with the East Asian economies in the process of EOI. A major limitation of this study is that it examines the impact of only a single trade agreement on industrial wages, without appropriately controlling for the impact of comprehensive trade and investment liberalization in the overall economy during the same period. Another limitation is that the study does not explore determinants of inter-industry variations in wages, which is important for assessing the wage outcome of the industrialization process.

2.5 Conclusions

This chapter has surveyed both the theoretical and empirical literature on structural change, manufacturing employment and wages in a labour-abundant economy during its economic development, focusing on several perspectives. First, the Lewis-Fei-Ranis model of labour dynamics in a surplus labour economy is helpful for understanding potential structural change associated with a compositional shift in employment. Second, export-oriented industrialization that emphasizes the role of foreign investment can be a mainstay for higher job creation and wage growth in manufacturing. More importantly, the experience of labour abundant economies in East Asian has exhibited the crucial role of EOI on job creation and poverty reduction in these countries. Would this development model based on the expansion of labour-intensive manufacturing exports work in the Vietnamese economy? To answer this question, further research is needed to evaluate the process of industrial growth with a focus on manufacturing employment and wages during the transition from centrally planned economy toward market-oriented economy.

Recently, there has been growing interest in labour market adjustment following the economic reforms in the Vietnamese economy. However, the few available studies are now much dated, as they are based on data for the 1990s when industrialization was still in the formative stage. Most of the econometric studies also suffer from the omitted variable problem, given the nature of the database at the time. Furthermore, none of these studies has paid attention to the role of export-oriented strategy, in particular export-oriented foreign investment, in determining the nature of manufacturing employment and wages.

Chapter 3

Economic reforms in Vietnam

3.1 Introduction

The process of economic transition in Vietnam from a centrally planned to a market-oriented economy began in 1986. The reform process since then has been uneven. The reforms in the second half of the 1980s were hesitant and mild. Significant structural reform toward an open, market-oriented economy was introduced in the early 1990s, but the reform process slowed down following the East Asian crisis of 1997-98 (Thanh 2005) and domestic policy reversal (Athukorala 2006; Freeman & Nestor 2004). However, during the period 2000-05 there was an increasing attempt at resuming the unfinished reform agenda, with an important emphasis on liberalizing investment and trade. From about 2006 there has been some development in the sphere of macro-economic policy which runs counter to the policy emphasis until then on export-oriented industrialization (EOI).

This chapter surveys the evolution of market-oriented policy reforms in Vietnam. A key theme running through the analysis is the policy transition toward a market-oriented economy in the broader context of EOI strategy since the early 1990s when Vietnamese manufacturing enterprises became involved. This examination provides the stage setting for exploring themes of employment and wages in the manufacturing sector in the ensuing chapters.

The structure of this chapter is as follows. Section 2 reviews market-oriented policy reforms in Vietnam since 1986. Section 3 discusses an enterprise reform, illustrating the changes in firm ownership that are typical of a transitional developing economy. This is followed by an examination of changes on trade policy in Section 4. Then, Section 5 deals with labour market conditions in order to capture potential effects on employment pattern and wage growth. The final section summarizes key features of the reform, which led to changes in job generation and wage patterns in the Vietnamese manufacturing sector.

3.2 An overview of economic reform in Vietnam

In 1986, Vietnam announced the reform policy *(Doi moi)* at the Sixth Party Congress. It aimed to transform the Vietnamese economy from a command economy into a market-oriented system. Generally, the economic reforms have extended over three interrelated stages. The first in the 1980s was a gradual reform to increase the efficiency in agricultural and industrial production. Then, from the late 1980s onward, the policy shifted from a planned economy toward a more market-driven economy. At that stage, state-owned enterprises (SOEs) were exposed to more market disciplines, trade and investment regimes were gradually liberalized. The third stage was marked by extensive trade and investment liberalization that occurred, beginning in the early 2000s, with an added strong focus on liberalization of trade and investment policies and enterprise reform.

The most notable steps in a reform process began earlier in agriculture (Rama & Võ 2008).The contract system[11] introduced in the early 1980s, promoted household farming in the agricultural sector. [12] Household, rather than collective farming, became the basis of farm production. Each household was allowed to buy and sell a large proportion of agricultural output in free markets, *i.e.* liberalizing agricultural input and output markets. In addition, the terms of land use rights were modified to create stable, favourable conditions for the effective privatization of the agricultural sector.

By the late 1980s, the transitional, centrally planned Vietnamese economy was characterized by stringent trade and market controls together with state interventions in all areas of economic activity. Similar to other socialist countries during the era of central planning, Vietnam placed heavy emphasis on the rapid development of heavy industry under the guise of a rapid industrialization strategy (Rama & Võ 2008; Van Arkadie & Mallon 2003). This strategy was overwhelmingly concentrated on heavy industries such as basic metals, chemicals, rubber, and mining. As a result, the business operations of industrial enterprises were seen as a hindrance to the industrialization process, owing to the poor performance of basic goods production.

[11] This system stipulated output quotas for household units rather than for whole cooperatives and permitted each household to keep and sell any excess output over its quotas to a free market.

[12] For a useful survey of the agricultural reform in Vietnam, see Dang (2009); Fforde & Vylder (1996); Kerkvliet (2004); Que (1998); Riedel & Comer (1997); Van Arkadie & Mallon (2003).

Around 1989 the Vietnamese government made a clear policy switch toward an open, market-oriented economy. A key aim of the industrial reform during that period was to increase the efficiency of the SOEs by giving greater autonomy in production and business activities, decentralizing business decisions and improving management in the SOE sector. The shift was also made toward export substitution reliant on the returns of primary exports from traditional industries in order to obtain the required imported inputs.

As an important part of the policy reforms in the second stage, measures were taken to reform Vietnam's trade policy. During the 1990s, these trade measures included several institutional and regulatory improvements relating to tariff barriers, import restrictions, and export-import management, which we will discuss later. These improvements were aimed at motivating both domestic and foreign entrepreneurs to follow an EOI strategy. However, the trade measures were somewhat undermined in an attempt to foster the EOI process. A plausible reason for this is that trade policy reform, which started under a deep-rooted protectionist trade regime, turned out to be a dual regime: supporting both export promotion and import substitution (Athukorala 2006).

Throughout the 1990s several policy measures were taken to establish market-based disciplines. These included eliminating subsidies to consumers and producers, liberalizing domestic markets and experimenting with market-driven forces to determine prices of goods (Han & Baumgarte 2000). Following these sweeping reforms, Vietnam stood out as a one of the emerging market economies by the middle of the 1990s (Perkins 1993).

Accompanied with these significant market-oriented reforms, the second stage witnessed a slowdown in the reform process that occurred during the mid-1990s. As briefly noted, apart from the impact of the East Asian crisis of 1997-98, the slowdown was caused by the growing complacency among the Vietnamese government leaders, arising from the success of the initial reforms. This led to several backsliding policies on the attraction of foreign direct investment (Athukorala & Tran 2012). These policies were mainly involved with restrictions on foreign investment projects such as strict regulations on investment approval and limitation on investment in labour-intensive industries.

To give the export-oriented strategy momentum, a significant liberalization package was implemented over the period 2000-05. This included the dramatic liberalization of the trade and investment policy as well as enterprise reform. Typical policies were the removal of discrimination against private sector firms including foreign-invested enterprises; further abolition of trade barriers and tariff reductions policy to meet ASEAN Free Trade Area (AFTA)'s requirements and those of a Bilateral Trade Agreement (BTA) with the United States; and several crucial changes to the foreign investment legislation. Of greater concern was that the BTA which came into effect in 2001 was an important step toward membership in the World Trade Organization (WTO). In particular, the negotiation for WTO's accession resulted in several formal requirements in the reform agenda such as comprehensive revisions of all legal regulations on enterprise and investment policies. All of these policy reforms were consistent with the strong impetus on the development strategy based on export-oriented, labour-intensive manufacturing.

The landmark event of Vietnam's integration into the world economy was accession to WTO membership in 11 January 2007.[13] In the lead-up to WTO accession, Vietnam undertook significant trade and investment liberalization in order to comply with the accession criteria. As a result of membership of the WTO, the government has committed to intensify trade and investment liberalization in order to assist trading rights, intellectual property rights, and foreign investment treatment, in both goods and services.

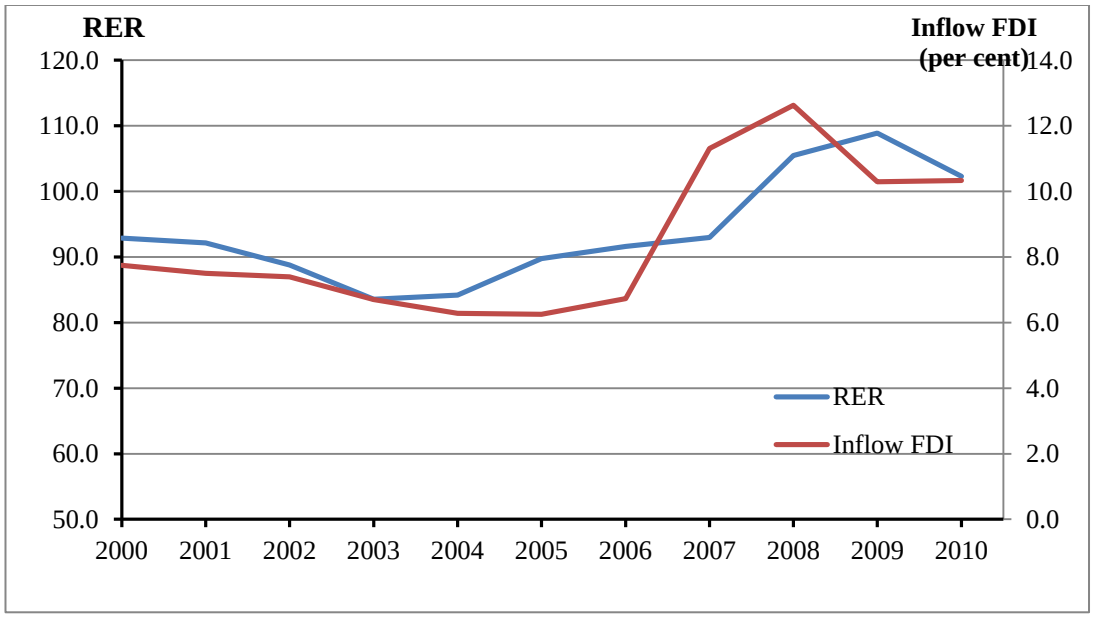
Despite these notable liberalization reforms, since about 2006 there has been a policy reversal that could be a setback for this export promotion strategy. From that time, the EOI process suffered from a shift in government support for labour-intensive manufacturing toward capital-intensive and high-tech industries. State intervention over the past few years has supported some selected industries/enterprises and macroeconomic developments in the Vietnamese economy that do not fit with trade and investment liberalization in manufacturing growth. During the period 2006-10, the entire economy experienced high inflation and faced a macroeconomic crisis. This disturbing situation was caused by the government's grandiose economic plan for the

[13] The WTO's General Council approved Vietnam's accession package on 7th November 2006. Vietnam gained its full ownership member on 11th January 2007 after Vietnam's Parliament ratified the agreement.

development of capital-intensive industries (Viet 2009) and an investment boom fuelled mainly by foreign direct investment.

As illustrated in Figure 3.1, the foreign direct investment increased significantly following Vietnam's official WTO membership in 2007. Relative to the size of the economy, the country experienced a massive inflow of FDI in the period 2006-2010 as compared to the previous period. It absorbed inflow FDI disbursement amounting to 11 per cent of GDP in 2007 and more than 12 per cent in 2008. More importantly, the surge in the inflow FDI into Vietnam since 2006 was closely associated with an appreciation of the real exchange rate (the relative price of traded to non-traded goods). It becomes evident that the Vietnamese economy encountered a 'real exchange rate problem' during the period 2006-2010 since such massive capital inflow can bring about an appreciation of the real exchange rate (*RER*) with negative effects on manufacturing production (Corden 1994). The uptrend of the *RER* index in Figure 3.1 must therefore be examined in light of the macroeconomic circumstance in Vietnamese economy.

Figure 3.1: Inflow FDI (percentage of GDP) and Real exchange rate (1995=100) for Vietnam, 2000-2010



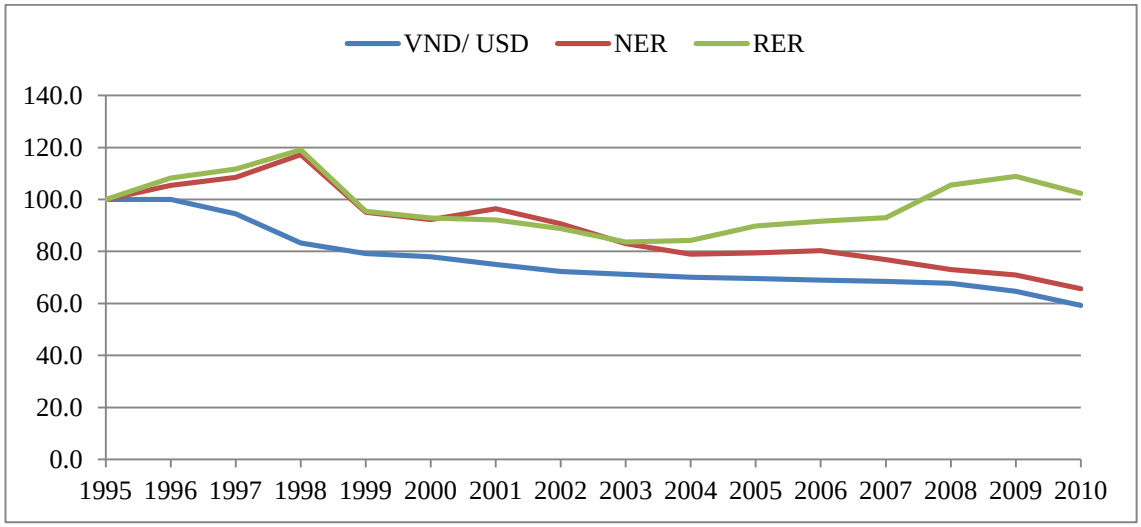
Notes: (a) An increase (decrease) in the index indicates an appreciation (depreciation).

(b) Inflow FDI is the percentage of annual foreign capital disbursement in GDP.

Sources: Compiled from various data sources described in the Appendix 3.1

The real exchange rate is commonly computed as the ratio $RER = NER * P^W / P^D$, where *RER* is the index of the real exchange rate, *NER* denotes the index of the nominal exchange rate, P^W is an index of foreign prices, and P^D is an index of domestic prices. *NER* is weighted averages computed across trading partner countries. Due to the available indices proxied for tradable and non-tradable prices, the real exchange rate (*RER*) measured in this analysis is the ratio of export-weighted index of consumer prices in trading partner countries expressed in domestic currency relative to the consumer price index of the domestic country.[14]

Figure 3.2: Real exchange rate index (RER), Nominal exchange rate index (NER) and Nominal VND/USD, Vietnam, 1995-2010 (1995=100)



Note: An increase (decrease) in the index indicates an appreciation (depreciation).

Source: Compiled from various data sources described in the Appendix 3.1

The patterns of *RER* and *NER* behaviours illustrate a discernible difference over the period 2006-10 (Figure 3.2). The trend of the *RER* index was similar to that of the *NER* index until 2004. A plausible reason for this consistent trend lies on the flexible adjustment of the nominal exchange rate of *VND/USD* by the government that reflected acceptable differences in the level of inflation between Vietnamese economy and the world economy. Since that time, the *RER* index started to appreciate and then accelerate over the period 2006-10. However, the nominal exchange rate of the Vietnamese dong per unit of US dollar experienced continuous depreciation during the whole period. The

[14] Detailed explanations on measurement on the real exchange rate are discussed in the Appendix 3.1 to this chapter.

rate of depreciation for this nominal rate of *VND/USD* was 20 per cent in 2010 while the degrees of *NER* depreciation were rather higher, ranging from 15 per cent to 25 per cent between 2006 and 2010.

The *RER* appreciated by about 20 per cent during the period 2006-10. A theoretical explanation for this real appreciation is that the Vietnamese economy suffered the consequences of the Dutch Disease due to the investment boom. As discussed, there was a surge in capital inflows, both short-term (mostly portfolio investment) and foreign investment during the period. The pressure of these capital inflows on domestic non-tradable prices further aggravated a significant change on their sectoral composition compared to the previous years: the bulk of these flows went to non-tradable sectors such as real estate, hotel and restaurant sectors, rather than to manufacturing and to other tradable sectors. The resultant rampant non-tradable inflation caused an appreciation in *RER* despite a mild depreciation of the *NER*.

In addition, the abolition of trade protection in the form of both tariff and non-tariff barriers also contributed to a lower degree of competitiveness in Vietnamese goods at the domestic market. All these impacts can affect job creation in the manufacturing sector through their output impact in labour demand.

In short, the investment boom precipitated a loss of macroeconomic control, resulting in high inflation and therefore a macroeconomic crisis started in 2008 at the end of 15 years of macroeconomic stability (Pincus 2009; Riedel 2009). Domestic inflation coupled with 'leaning-against-the wind' intervention by the Bank of Vietnam (the Central Bank) to stabilize the dong/US$ exchange rate (Menon 2009; Pham & Riedel 2012) resulted in a notable appreciation of the real exchange rate, eroding competitiveness of the economy. To make matters worse, the economy continued to be burdened by the impact of the 2009 global financial crisis and its consequences for macroeconomic instability. Thus, the macroeconomic stability needed for reaping the benefits of EOI was largely missing for most of the years after 2006.

All in all, the Vietnamese economy has been in policy transition for two and half decades. Unlike other developing economies that underwent economic reform during the early stages of economic development, Vietnam's policy reforms were aimed at operating the Vietnamese economy under market-based disciplines while remaining faithful to its socialist orientation. This was reflected in improved laws that promoted

the establishment of private sector firms that included both domestic private firms and foreign entrepreneurs. However, the government maintained strong economic control of state-owned enterprises. This ownership diversification is important in terms of job creation and wages pattern during the reform process. Therefore, the reform process in Vietnam conveys a question of how firm ownership matters in the early stages of economic development in Vietnam. We explore this issue in the next section and in so doing, it is important to take into account recent policy backsliding from the liberalization commitments and the macroeconomic policy slippage that has resulted in a significant appreciation of the real exchange rate.

3.3 Enterprise reforms

It had become clear in Vietnam by the early 1980s that unless there was a significant breakthrough in industrial production, the inefficiency of SOEs would cause industrial stagnation (Beresford 1993; Fforde & Vylder 1996). It was argued that state enterprises were inefficient and should be handed over to private sector firms as private ownership ensures greater incentives in decision-making and performance, both of which are lacking in the case of state ownership (Kornai 1990; Lin, Cai & Li 1998). This view was reflected in the Vietnamese enterprise policy package in the 1990s-2000s, which shaped a clear departure from the dominance of SOEs toward various private sector enterprises. This policy package included rationalizing public enterprises and promoting private business entities, including both domestic private firms and foreign-invested enterprises (FIEs). Given the dominance of SOEs in the Vietnamese economy, the emphasis on enterprise reform involved improving and liberalizing governance of the enterprises as well as decentralizing the SOE position in the industry sector. In the next section, we first look at policy reform of SOEs, followed by a discussion on policies implemented to develop domestic private firms as well as FIEs. Reform milestones are summarized in Table 3.1.

Table 3.1: Major changes in enterprise policies, 1987-2010

Year	Policy change	Remarks
1987	Enactment of Law on Foreign Investment	First law provides guidance as well as shows State guarantees for the operation of foreign investors.
1990	First Revision of the Law on Foreign Investment	Private firms were allowed to make joint ventures with foreign partners.
	Enactment of Law on Private Enterprises	First law controls formation and operation of private unlimited liability enterprises.
	Enactment of Law on Companies	First law regulates formation and operation of joint-stock companies and private unlimited liability companies.
1992	Second Revision of the Law on Foreign Investment	This revision reduces discrimination in favour of joint ventures over wholly owned FIEs and introduces a new investment form – Build-Operate-Transfer (BOT).
		This also provides incentives for attracting foreign investment in export processing zones.
1994	Law on Domestic Investment Promotion	First law specifies licensing guidelines and incentives for domestic investment.
1995	Enactment of Law on State-owned Enterprises (SOEs)	First legislation summarized all effective regulations on SOEs.
1996	Major Amendment of the Law on FDI	This amendment provides incentives for inducement of export-oriented foreign investment
		Foreign investors are allowed to freely choose forms of investment, share of capital, and domestic partners.
1998	Second Revision on the Law on Domestic Investment Promotion	This revision offers improved incentives and simplified access for domestic investors
1999	Fourth Amendment of the Law on FDI.	This amendment simplified the procedure for a business registration certificate.
2000	Adoption of the Enterprise Law	This law unifies both the Law on Private Enterprises and the Law on Companies in order to remove all discrimination against private enterprises.
		This transforms business licensing into a business registration system.
2003	New Law on SOEs adopted to replace the 1995 law	This law aims to separate regulations for equitized SOEs and fully state owned enterprises.
		This also provides guidance for restructuring and equitization.
		This removes most subsidies and priorities for SOEs.
2005	New Investment Law and New Enterprise Law. Both became effective in July 2006.	The comprehensive investment law unifies the FDI law and a law on promotion of domestic investment.
		The united enterprise law harmonizes legal rules for SOEs, domestic private enterprises, and FIEs.

Sources: Van Arkadie & Mallon (2003), WTO (2006) and relevant legal documents issued by the Vietnamese government.

3.3.1 State-owned enterprise policy

An SOE policy has been an important issue of policy reforms as historically this sector has been assigned an important, pivotal role in the Vietnamese economy under centrally planned economy. However, until the 1980s many SOEs have not only performed poorly, but have also been propped up by government subsidies, and this has been a large contributor to the country's budget deficits. Despite of these features, the SOEs were a strong source of wage employment for the whole economy (Clarke 2004). Therefore, any reform initiative that could threaten job outcomes was a sensitive problem in such a labour-abundant, job-scarce economy.

The SOE reform experiment was pioneered in an industry sector starting in the 1980s. Together with the contract system in agriculture, the three-plan system was a major breakthrough in industry during the initial reforms (Riedel & Comer 1997).[15] A change in management of industrial production originally stemmed from the 'fence-breaking' phenomenon in several state enterprises, [16] reflecting the first stage of changing SOEs away from an orthodox centralized plan toward one of market disciplines (Beresford 1988; Kimura 1989). This improvement significantly affected management of the SOEs in several aspects. For the first time, managers in these state enterprises had the right to decide what, how and for whom, to produce. For industrial enterprises, this indicated a breakthrough in the journey toward a market-based economy (Riedel & Comer 1997). This change had a significant impact on the behaviour of SOEs toward production efficiency, a reflection of the government relaxation on state industrial production and the shift toward market forces as an appropriate way to run business (Fforde & Vylder 1996).

After the promising start of the SOE reform experiments, a comprehensive program was implemented to improve SOE operations in the early 1990s. By that time, a majority of SOEs were running at a loss, causing a large number of bad debts for state-owned commercial banks as well as causing state budget deficits. For this reason, a

[15] The three-plan system allowed SOEs to extend their business production to a limited extent in non-plan activities. For detailed discussion of this system, see Fforde & Vylder (1996) and Van Arkadie & Mallon (2003).

[16] SOEs threatened by economic difficulties, made business transactions with other SOEs, collectives or private enterprises beyond the state plan. These transactions were initially seen as illegal.

restructuring of the SOEs was needed in order to provide them with more autonomy, thus increasing competition and tightening budget constraints. The SOE reform had two tasks: (1) privatization or equitization of non-strategic state enterprises, *i.e.* a proportion or the whole state of the enterprise assets are liquidated to the private sector; (2) restructuring strategic SOEs with market-based disciplines. Although this SOE reform was a hesitant and gradual process, it reduced the number of SOEs and increased the number of equitizated firms (O'Connor 1996; Sjöholm 2006).

One of the most important aspects in SOE reform is a legal framework that regulates the business operation of state enterprises. There were no official laws in Vietnam for public enterprises until 1995. Then the State Enterprise Law was initially enacted, giving the first basic legislation for regulating SOEs. Under this law, all SOEs were given a legal status that allowed them to freely make business transactions with each other and with private sector firms, including FIEs. Within policy guidelines, each SOE was given greater financial incentives and managerial autonomy. In particular, SOEs were allowed to make their own decisions on employing and dismissing their workers in order to reduce the number of redundant staff. In other words, this SOE legislation decentralized decision making down to the managers of SOEs rather than letting it remain with top levels of the government bureaus. Later, a revised State Enterprise Law was adopted in 2003 to speed up the equitization process by legalizing a new corporate form of SOEs – a shareholding company where the shareholders were the state enterprises. This law lasted until 2006 when uniform legislation for all enterprises was adopted. This new legislation (the 2006 Enterprise Law) reconstituted all SOEs as private limited liability companies or joint-stock companies, and allowed the possible participation of foreign investors in the process.

Over-expansion of SOEs

The evolution of SOEs over the period 1990-2010 has run counter to the objective of enhancing efficiency during a structural adjustment of the economy. First, only a few loss-making SOEs were either transferred into the domestic private entrepreneurs or closed down; many others continued to operate even though they performed dismally and caused a heavy deficit in the state budget (Clarke 2004; Kokko & Sjoholm 2000). The government continued to support those enterprises through financial subsidies, extending tax returns and rolling over or even writing off bad debts. All together, this caused a burden on the state budget (Tran 2001). Second, there is evidence that the

government continued to increase investment in SOEs during the early 1990s. It seems that the system of SOEs has been the same as it always was, despite the fact that a number of ambitious policy measures had been at work in order to limit the size of the SOE sector (Riedel & Comer 1997).

Notwithstanding the policy emphasis on transition from central planning to a market-oriented economy, SOEs have continued to play a leading role in the Vietnamese economy. This role is anchored in the commonly held belief that the public sector must be given a priority in a socialist economy. This view is somewhat inconsistent with the reform objective of downsizing the state industrial sector. The promotion of large-scale state enterprise groups or conglomerates is an example. The government's decision in 1994 to establish the state corporation (General Corporation 90 and 91) was a policy reversal. This policy was mainly based on the view of the top Vietnamese leaders that size and concentration are crucial for attaining efficiency and enhancing an industrial product's competitiveness in the world market (Riedel & Comer 1997). By that time, there had been criticism of the adoption of this model because the Vietnamese government intervened in the industrial structure using administrative measures to achieve a desired outcome. Based on the serious problem of South Korean *chaeols*, the state-owned large corporation model gave rise for concern. This concern mainly rests on the fact that these large, powerful enterprises have had intimate connections with various political decision-makers, and have been in a strong position to use this political power to distort trade and investment liberalization or other reforms that may have reduced their privileges (Van Arkadie & Mallon 2003*).* In Vietnam, it was worse by late 2006 when, in response to the WTO accession, the government immediately placed a major emphasis on SOEs as a means of enhancing 'economic independence'. This included recapitalizing the SOEs as well as capitalizing newly established large conglomerates (Leung 2010; Viet 2009). Moreover, these state conglomerates were allowed to move their business into a wide range of fields outside their principal business; for example, they moved into the financial and real estate sectors, which involved a large amount of inefficiently invested funds.

3.3.2 Private enterprise policy

Promoting private entrepreneurs as an engine for economic development has been a central theme of Vietnam's reform agenda as it moved toward a market economy. Private enterprises are one of the most efficient business forms for pursuing EOI in a low-wage, labour-abundant economy (Djankov & Murrell 2002; Megginson & Netter 2001). For the Vietnamese economy, private enterprises are able to make full use of its comparative advantage in labour abundance and thus have the potential to provide employment for the newcomers to the workforce and the workers retrenched from SOEs. Thus, the SOE reform needed to be accompanied by the establishment of a strong private economic sector. This has been a challenging and difficult process for the transitional economy of Vietnam. It is a process that can be divided into three periods: before 2000, from 2000-2005, and from 2006 onwards.

The 7th Vietnamese National Party Congress passed its resolution in 1991 to promote a greater transparency in a private business sector: 'The private sector is to develop without restrictions in terms of scale, location, sectors as well as fields of business that are not prohibited by law' (CPV 1991). Then in 1996 this promotion policy enhanced emphasis on its commitment to greater expansion of the private sector by emphasizing that 'the state establishes an appropriate economic and legal framework to encourage long-term investment of private entrepreneurs, to diversify business cooperation with domestic and overseas partners' (CPV 1996). At that time, there were six clearly defined sectors of economic ownership: state economy, collective economy, individual economy, private-capitalist economy, state-capitalist economy and foreign-invested economy.[17] Combined with the policy initiatives, a legal framework was also required to establish a level playing field for all economic sectors.

By the late 1990s, however, the legal notion on equal treatment for all firms in the different ownership categories had not yet been established. This was inconsistent with the clear objective of ownership non-discrimination – because possibly more favourable conditions were given to SOEs in terms of land rent, capital loans, and access to

[17] These economic sectors were regulated, by the Law on State-Owned Enterprises (1995, 2003), Collective Law (1996), Law on Private Enterprises (1990, 1994), Law on Companies (1990, 1994) and Law on Foreign Investment. The law on foreign-invested enterprises was initially approved in 1986, then amended and revised. A following section discusses this issue in details

overseas markets (Kokko 2004; Kokko & Sjoholm 2000). Moreover, the law prior to 2000 led to problems with bureaucracy and corruption since the pre-inspection and post-inspection procedures gave state officials the opportunity and power to impose difficulties or barriers for the domestic private firms. These firms experienced difficulties in terms of acquiring land, obtaining credit, and getting business registration certificates. Consequently, development of the domestic private firms until 2000 was relatively weak compared with other firms (Mallon 2004).

Several major changes in favour of domestic private firms were introduced in a new Enterprise Law in 2000. Most importantly, the government unconditionally assured the long-term development of private entrepreneurs by recognizing rights of asset ownership and other interests as well as committing not to nationalize or expropriate assets or capital. Of particular significance was the simplified and transparent procedure for obtaining business licences. Previously, the procedures for setting up a new enterprise were not clearly defined, and took at least a month. Following the 2000 Enterprise Law, steps were taken to streamline procedures for business entry, requiring only four documents to be completed and 15 days' notice to get the business licence approved. Although the law simplified paperwork for business registration, sub-licences were still required in many sectors and locations.

However, the subsequent revisions of the legal and regulatory framework for enterprises during the period 2000-05 still ran counter to the objective of assuring a non-discriminatory environment for different types of firm-ownership. One of major criticisms was existence of a specific law in favor of SOEs until 2006. The 2003 State Enterprise Law was viewed not only as a protective barrier for the state's interests but also an obstacle to establishing a consistent business setting for enterprises of all kinds. With a view to creating a united legal framework applicable to all firms, both domestic and foreign, the new Enterprises and Investment Laws (which we explore in the following section) were approved and became effective in July 2006. This legislation was a major element of the policy reform package for WTO accession later in that year.

The 2006 Enterprise Law was an important measure to resolve problems relating to business registration, forms of corporate ownership, and discrimination against private enterprises. This new legislation standardized regulations and rules for participants in the economy: SOEs, domestic private enterprises, and FIEs. These improvements reflected the government's intention to build a consistent legal framework as well as a

common investment climate for these three main players (Tran 2008). This was done by eliminating ownership restrictions, simplifying business registration, and abolishing the power of related ministries and local authorities to grant sub-licences. SOEs, domestic private enterprises, and FIEs are now able to run their business activities in an equitable business climate.

3.3.3 Policy on foreign-invested enterprises

Attracting foreign investment has been a major element of Vietnam's policy reform package, giving strong impetus to its export-oriented industrialization. The most important aspect of foreign investment policy was the approval of the new Law on Foreign Investment in 1987. Under this law, there were three investment entries for foreign investors: (1) joint ventures, (2) wholly owned foreign-invested enterprises, and (3) business cooperation contracts (BCC).[18] At the inception, there were several restrictions on investment entry and invested sectors. For example, the government gave entry priority to joint ventures with SOEs, since it wanted to exploit foreign technology and modern management techniques to improve efficiency in the SOEs. The establishment of wholly owned FIEs was only limited in several industries. Over time, this law was revised in 1990, 1992, 1996, 2000, and 2003 to relax these restrictions as well as to resolve practical issues. More importantly, as with the similar treatment of domestic investors, the government undertook a constitutional guarantee for long-term interests of foreign investors by assuring it would not nationalize their assets or capital (Dollar & Ljunggren 1997).

Subsequent policy revisions reduced the restrictions to investment entry for overseas investors. The first revision in 1990 saw the relaxation of the entry for joint ventures between domestic private firms with foreign partners. Two years later, a revision ended discrimination between joint ventures and wholly owned FIEs in terms of selecting invested industries. The most important change was permission to convert joint ventures into wholly owned FIEs. After the FIE joint ventures petitioned the government for formal recognition of this conversion, it was officially recognized in an amendment to

[18] BCC is an agreement between a foreign investor and a domestic enterprise in Vietnam in which the foreign partner runs the specific business venture on a profit sharing basis while the domestic one holds the ownership of the venture. BCCs were only restricted to the field of oil exploration and communication.

the Law in 2000 (Athukorala & Tran 2012). Finally, the united Investment Law in 2006 provided foreign investors with full discretion to select their form of investment entry.

These concomitant revisions reflected a notable government shift away from an import-substitution strategy toward an export-oriented one. Departing from an import substitution industrialization dominated by SOEs over the whole economy, foreign investment inducement in the early stages of the reform was mainly involved with capital-intensive, import-substituting industries. The EOI strategy was not formalized until 1992 when a policy for export processing zones (EPZs) was incorporated in an amended law. This policy was implemented to attract foreign investment projects for export. However, as noted, the most important business entry for foreign investment into Vietnam until about 1995 was through joint ventures between SOEs with foreign partners (Truong & Gates 1996). In contrast to other Southeast Asian economies, this type of joint venture in Vietnam prevented multinational companies from entering export-oriented sectors (Athukorala & Menon 1995). The EOI strategy became clearer following the 1996 revision in which export production and the high technology sector, along with labour-intensive industry and infrastructure were all considered key priorities in foreign investment inducement. An amended law on foreign investment in 2000 indicated a strong impetus on pursuing EOI by streamlining the procedures for the approval and the monitoring of export-oriented foreign investment projects. Since then, labour-intensive manufacturing has been the preferred sector of foreign direct investment for potential employment generation.

The regulations relating to licensing and monitoring foreign investment projects were first significantly relaxed and streamlined in 1996. The regulatory authority was decentralized. Under the 2006 Investment Law, there is now a three-tier system for approval of investment projects that operates on a one-stop-shop policy. Now, the provincial authorities have the right to issue an investment licence for projects less than US$ 20 million, and only projects valued at above this require approval at the ministry level, while small projects of less than one million needs only business registration. Secondly, procedures for business registration and investment licensing have been relaxed. Prior to 2000, foreign investors needed 20 various documents and had to liaise with about ten government authorities in order to obtain an investment license and a business registration certificate; this entailed long delays (CIEM 1998; Mallon 2004). These bureaucratic matters were probably considered the biggest obstacle to attracting

overseas investors (Riedel & Comer 1997). Under the 2000 Law, the time for evaluating an investment license and the paperwork has been significantly reduced. Procedures also became simpler: foreign businesses no longer need visit as many administrative agencies in order to obtain investment approval.

In addition, investment incentives and tax laws have also been revised and streamlined. First, since 1992 the duration of foreign ownership for investment projects has been extended from 20 to 50 years and 70 years for the special investment projects. Second, FIEs are exempted from corporate income tax for a two-year period from the first profit-making year. Then, a preferential corporate tax rate lower than a standard rate of 32 per cent is applied in following years; the rates for priority sectors are 15 per cent and 25 per cent. Along with these incentives, for priority sectors the duration for tax holidays was extended up to eight years with a withholding tax rate of 10 per cent.

The enactment of the Investment Law in 2006 was a landmark for the reform process. This investment legislation enabled the country to build up an appropriate investment climate for all investors in order to meet the WTO requirements such as the principles of Most-Favoured Nations (MFNs) and national treatment, as well as publicity and transparency. The 2006 Investment Law expedites the approval of export-oriented investment projects by lifting many restrictions governing FIEs. These restrictions included local content and export performance requirements, and conditions on technology transfer. Additionally, various kinds of investment incentives, support, and guarantees were also introduced in order to forge export-oriented labour-intensive manufacturing. This investment promotion policy diverged from conventional incentives such as tax holidays, depreciation of fixed assets, land use and land rents; it addressed high-level incentives, typically in industrial, export processing, high-tech, and special economic zones.

These notable policy initiatives notwithstanding, the policy regime relating to foreign investment still contained several restrictions that largely conflicted with the thrust to attract foreign capital. First, as earlier noted, there was a policy reversal in the reform process in 1996 as a result of growing resentment of foreign investors in policy-making circles in the Vietnamese government. The foreign investment approval procedures were marked by considerable selectivity and restrictive measures. These included increasing commercial and residential rents for foreign enterprises and partners, limiting the duration of work permits to three years for foreign staff, and imposing local-content

and export-performance requirements (Athukorala & Tran 2012). Next, following the official WTO accession in 2007, there was growing demand for a massive economic plan from the Vietnamese government. This appealing glamour plan recommended greater state intervention in the economy to foster capital-intensive and high-tech industries, the targeting of value-added production and a strong expansion of inefficient and loss-making SOEs. Consequently, the foreign capital inflows turned out to be heavily concentrated in the banking, financial, hotel and real estate, and capital-intensive industries (Viet 2009). The excessive emphasis on cutting edge technology and neglect of the labour-intensive industries in Vietnam from 2007 are clearly at variance with the experience of other labour-abundant economies in East Asia.

3.4 Trade reform

Starting in the late 1980s, Vietnam has dramatically reformed its trade policy.[19] This trade reform aimed to move from a central state monopoly on trade to a trade liberalization regime. This objective became more demanding as the country increasingly integrated into the world trade system by participating into bilateral as well as multilateral trade agreements. A chronology and features of trade reform are given in Table 3.2.

Quantitative import restrictions were pervasive before a system of simple duties was adopted in 1988 (Riedel & Comer 1997). The new import tariff schedule introduced under the Law on Import and Export Duties covered 130 commodity categories with tariff rates ranging from zero to 60 per cent. To facilitate trade liberalization, a detailed consolidated tariff nomenclature based on the Harmonized System (HS) was approved in 1992 to replace the original tariff schedule. Since 1999 the tariff schedule has been constantly reformed with the aim of forming a three-rate tariff structure. Based on this tariff structure, the present tariff system has three categories of tariff rates. First, the preferential rate is applicable to imports from WTO members (or nations with which Vietnam enjoys MFN status). Second, the special preferential rate is applied to imports from nations with which Vietnam has preferential trade regime such as AFTA, and thirdly there is the General tariff rates applicable on trade with non-WTO members.

[19] For more details on the trade liberalization process see Auffret (2003), Athukorala (2006); Thanh (2005); Tran (2008).

Table 3.2: Major changes in trade policy, 1987-2010

Year	Policy change	Remarks
1988	Law on Import and Export Duties	A first policy switch in export-import management from nontariff barriers (NTBs) to tariff barriers; issuing the first tariff schedules.
1991	Issuance of regulations on an establishment of export processing zones (EPZ) First revision of the Law on Import and Import Duties	Private companies were permitted to make a direct export-import transaction. Amount of imported inputs for export production free from import duty.
1992	Introduction of Harmonized System (HS) of tariff nomenclature for the original tariff schedule	A first attempt to adopt the standardized tariff schedules of the trading world.
1995	Vietnam became a member of ASEAN and preparation for ASEAN Free Trade Area (AFTA)	An initial removal of import-shipment licences for many consumer and producer goods. Lifting quota restrictions on export and import for most of goods; import quotas were only applied for seven kinds of goods whereas export quotas were only applicable to rice.
2000	A Bilateral Trade Agreement with the United State was signed in 2000 and came in force in 2001	Obtained MFN access for exporting goods to the US market. FIEs allowed to act as dealers for export-import services.
2002	Amendment of implementation degree of the Commercial Law	All business entities regardless of ownership allowed to make direct export transactions without a special licence.
2006-2007	Accession to the WTO on 7th November 2006 Full membership of the WTO since 11th January 2007	Foreign investors to have full rights for imports, exports and domestic distribution. Removal of remaining subsidies for domestic production. Tariffs to be reduced to a range of zero to 35 per cent over the period 2007-2014. Average tariff rates for agricultural products cut from 25 per cent upon the accession to 21 per cent as the final reduction. Those for industrial products reduced from 16.1 per cent in 2007 to 12.6 per cent over the phase-out period of 5-7 years. Tariff quotas are only applicable to some agricultural goods.

Sources: Van Arkadie & Mallon (2003), WTO (2006) and relevant legal documents issued by the Vietnamese government.

Since these reforms, Vietnam has reduced tariffs considerably and announced its intention to participate in several bilateral and multilateral trade agreements. Initially, between 1998 and 2006, the focus was on the fine-tuning of tariff rates in implementing the AFTA. There is evidence that over this period, trade protection was heavily focused on three sectors: light manufacturing, intermediate product, and consumer goods. This

tariff structure has a cascading structure with high dispersion, in which higher tariffs were generally applied to finished or consumer goods (Athukorala 2002a; Athukorala 2006). During the integration process into the world economy, the tariff structure has become more complicated as Vietnam becomes involved with various kinds of free trade agreements (Thanh & Duong 2011). In general, in accord with the WTO requirement, the tariff structure has been further eliminated and rationalized over recent years.

Table 3.3 summarizes the tariff structure of the Vietnamese economy during the first decade of this century. There are a number of developments that have supported the degree of trade liberalization. First, the simple MFN average tariff rate, which increased throughout the early the 2000s, has been decreased from 16.8 per cent in 2006 to the rate of 9.8 per cent in 2010. Second, within this structure, there has been a significant reduction in the variability of individual tariff rates. The average level of the tariff structure has been maintained within a range from zero to 35 per cent.

Table 3.3: Vietnam's tariff structure, 1999-2010

	1999	2002	2004	2006	2008	2010
Simple average tariff rates[a]						
Total trade	16.5	16.4	16.8	16.8	10.8	9.8
Agricultural products (HS 01-24)	23.1	23.1	24.5	24.2	18.9	17.0
Industrial products (HS 25-97)	15.5	15.4	15.7	15.7	9.6	8.7
Duty-free tariff rates (% of all tariff lines)	32.5	32.0	28.8	28.8	28.3	32.4
Non-ad valorem tariffs (% of all tariff lines)	0.7	0.1	0.2	0.0	0.7	0.6
Domestic tariff peaks (% of all tariff lines)[b]	10.6	10.4	3.1	3.1	6.8	4.6
International tariff peaks (% of all tariff lines)[c]	40.3	39.0	41.6	41.7	29.2	31.1
Total number of tariff lines	6,079	6,477	10,618	10,687	9,665	9,368
Coefficient of variation of tariff rates (%)	1.1	1.2	1.3	1.3	1.3	1.3

Notes: (a) Tariff rates used are Most Favoured Nations (MFN) applied rates

(b) Domestic tariff peaks are defined as those exceeding three times the overall simple average tariff rate.

(c) International tariff peaks are defined as those exceeding 15%.

Source: Compiled from the UNCTAD-TRAINS (Trade Analysis and Information System)

Together with the liberalization of imports, export promotion has become a pivotal component of the market-oriented policy reforms. Since 1989, the right of entry into international trading transactions has been relaxed, with the gradual participation of private sector firms and the weakening of the monopoly position of the SOEs. In addition, the most remarkable steps toward trade liberalization were the abolition of

shipment licenses in 1998 and further relaxation on the management of export-import goods schedules in 2001. Of particularly note, the improvement in export-import licensing in 2001 mainly stemmed from the BTA with the United States that came into effect in 2002. Under the BTA commitments, domestic private firms as well as US-invested companies in Vietnam have the same trading rights as those of SOEs. From 2002 onwards, FIEs have been allowed to export goods other than those they produce. Since then, all enterprises, whatever the ownership form, have been allowed to trade all types of commodities (except those which have been prohibited or are under specialized management), without having to acquire a special licence. Finally, since 2007 under the WTO commitments, the government has agreed to grant full trading rights in Vietnam to domestic and foreign enterprises. These trading rights include not only the right to export and import but also the right to distribute imported goods as well as the right to select local distributors in Vietnam's territory (WTO 2006).

Since the late 1980s, Vietnam's trade policy was announced annually, together with guidelines on various trade measures such as export-import shipment licences, quantitative controls, a prohibition list and a list of goods requiring specialized management. This annual guideline was a key element of trade policy during the 1990s. Until 2000, non-tariff barriers still applied for 12 commodities (petroleum, fertilizer, steel, cement, paper, sugar, liquors, motorbike, passenger cars, ceramic and granite tiles, and refined vegetable oil). Notably, the long-term trade policy guideline in 2001 marked a major step toward a more transparent and predictable environment for export-import business in Vietnam. This was the first time that the government offered trade measures as well as economic incentives applicable to all forms of international trading activities in a sustainable manner and for a long run period of 2001-05. Since then, this guideline has become a rule of thumb for export-import business transactions. Coupled with the guideline, non-tariff measures have been removed from both export and import goods. First, since 1996 all export quotas have been abolished except for those in textiles and garments. [20] Second, following bilateral and multilateral trading agreements, especially with WTO, all non-tariff measures supporting import-substituting industries were gradually removed, with some exceptions. Tariff quotas are still applicable to some agricultural products such as eggs, tobacco, sugar, and salt. Next, an import-licensing regime was introduced in 2008 but only applicable to some consumer products.

[20] Although export subsidy to agricultural goods is not allowed financial assistance without trade distortion can be acceptable (WTO 2006).

An important part of the export-oriented strategy was the setting up of export processing zones (EPZ) offering full export-oriented enterprises effective free-trade status. This special status gives firms operating in an EPZ duty exemptions as well as tax concessions. Compared to incentives for EPZs in other Southeast Asian economies, this regime is more attractive (Athukorala 2002b). Equally important is the introduction of export-promoted measures. These include zero export duty, tax concessions, export credit, and a duty rebate scheme. In particular, restrictions on export-oriented foreign investment projects were relaxed. Export enterprises (including FIEs) are free from import duties on imported inputs provided that they export all of their output. In reality, export enterprises still need to pay duty on the imported immediate inputs and are reimbursed for that part of imports used to make exported commodities, but this process has improved substantially over the years (World Bank 2002). In addition, export enterprises have also benefited from concessions on corporate income and turnover, as well as profit taxes. These concessions create a tax wedge in favor of export production over production for the domestic market.

The foreign exchange market was liberalized by the gradual removal of price distortions between the domestic market and the world market. The nominal exchange rate was adjusted several times, bringing it closer to the real market rate. After the onset of the Asian financial crisis in 1998, all exporters were required to surrender 80 per cent of export proceeds in a single foreign currency denominated account. This restriction was subsequently reduced to 50 per cent in 1999, 40 per cent in 2001 and finally eliminated in 2004. Moreover, the government officially removed the trade-balance requirement and foreign exchange controls in 2003, allowing FIEs to purchase or sell foreign exchange for business transactions. However, some restrictions on foreign exchange transactions, particularly access to available foreign exchange for payment of import transactions, are still in place for private sector firms. Compared to SOEs, private sector firms, in particular domestic private firms, have extremely limited access to foreign exchange from these state-owned commercial banks.

3.5 Labour market reform

The past three decades have seen a number of developments in Vietnam's labour market conditions which marked a remarkable departure from the state plan of labour recruitment and wage setting maintained over the pre-reform period. This section addresses improvements in labour market conditions stimulated by changing regulations on labour hiring and firing, and wage setting.

Before 1986, the labour market in Vietnam featured strict state regulations on employment recruitment and wage determination. In SOEs, all issues relating to labour recruitment and wage setting were directly determined by the government; their managers had no influence. However, labour regulation did not address the large proportion of informal workers in both rural and urban areas. Under direct job placement, the majority of state employees considered their jobs as permanent positions, which assured them social benefits. Hence, the jobs in SOEs were ranked as most favoured during that period. At that time, social and health insurance for employees was non-transferable among enterprises because of the lack of legal regulation. It became clear that labour mobility among firms was almost impossible during that period. In addition, the household registration system contributed to the impossibility of labour movement between geographic regions. Consequently, there were stagnant wages, low productivity and efficiency, labour redundancy, and segmented labour markets.

As noted earlier, the labour market has gradually moved into market-based disciplines since enterprise reform recognized the legal operation of private sector firms. Since 1990, the Vietnamese government has removed its control over job recruitment and wage setting. Impediments to labour mobility among sectors and geographic regions were also gradually removed. This led to a large shift of labour from the state enterprises toward private sector firms including both domestic and foreign firms. There has been also a large movement of unskilled workers between regions in order to search for better job opportunities, in particular a shift of labour into regions which are centers for FIEs and domestic private firms operating in export-oriented sectors. It is evident that the labour market conditions have become much more flexible.

Concerning the public sector, the state intervention on labour allocation has been progressively relaxed since the late 1980s. In the first half of the 1990s, the state plan on labour recruitment was removed, permitting SOE managers to formulate their own

recruitment policy. As a result, life-time employment of SOE workers was replaced by fixed-term labour contracts.

The Labour Law in Vietnam was enacted in 1994, then was amended and revised in 2002, 2004, and 2007. This law regulates not only contract employees in the public sector (including SOEs and public administration agencies) but also all those working in all business entities, whatever ownership forms they take. This labour legislation established the grounds for forming and developing a labour market. In contrast to the pre-reform period, employees became a key factor in economic activities; they have been given a strong impetus to search for jobs instead of being dependent on the state for job placements. The labour regulations provide measures for very high labour mobility in the labour market, even though workers prefer the high job security of the SOE sector. For example, it has become legal for either an employee or employer to make a unilateral termination of a labour contract regardless of the contract duration. In addition, employees are all entitled to enjoy the benefits of social and health insurance schemes. Lastly, workers are free to participate in and organize trade unions, arrangements for settling disputes, non-discrimination rules, the introduction of minimum wages, and the promotion of social insurance.

As regard wage determination, the fixed wage schedule assigned by the government has been replaced by a market-based wage setting. This reformed wage system provides a basis for firms to decide wage rates that are mainly reliant on enterprise efficiency and workers' productivity. With respect to employment in the SOE sector, government wage schedules – mainly based on employee characteristics such as educational level, skill, years of services, and position – have been revised in order to reflect changes in worker's welfare policies. These wage schedules were more rigid in the early years of the reform because of strict government regulations. Despite still being reliant on the regulated wage schedule, wage determination in SOEs has become more flexible as business efficiency and worker performance become an increasingly important criterion (Friedman 2004). In contrast, employers in private sector firms, both domestic and foreign, are now able to make decisions on setting wages that are closely related to the performance of their firms and individual workers in terms of profits, productivity, responsibility, and skills. Aside from these determinants of wages, by and large, the wage rate applied in all types of enterprises is generally based on the legally minimum wages.

Legally minimum wages have been applicable in all business enterprises since the wages reform initiated in 1993. As seen in Table 3.4, these wage levels have been regularly revised to capture workers' standards of living and adjust current inflation. The minimum wage varies between domestic and foreign enterprises across every region, and is particularly lower in the former and higher in the latter. It is applied as a basic scale from which a real wage schedule is formulated for each SOE. FIEs and domestic private firms are required to pay the legal minimum wage, but employees of these firms are able to negotiate their wages.

Table 3.4: Nominal minimum wage per month in Vietnam, 2000-2010 (000 VND)

Year	**2000-01**	**2002**	**2003-04**	**2005**	**2006-07**	**2008**	**2009**	**2010**
(a) Domestic firms[1]	180	210	290	350	450			
Region 1	--	--	--	--	--	620	800	980
Region 2	--	--	--	--	--	580	740	880
Region 3	--	--	--	--	--	540	690	810
Region 4	--	--	--	--	--	540	650	730
(b) FIEs[2]	**2000-2005**				**2006-07**	**2008**	**2009**	**2010**
Region 1	626				870	1000	1200	1,340
Region 2	556				790	900	1080	1,190
Region 3	487				710	800	950	1,040
Region 4	487				710	800	920	1,000

Notes:

(1) The single minimum wage rates were set for all domestic firms regardless of firm location over the period 2000-07, though this minimum wage was often adjusted.

(2) The unique regional minimum wages were set for all foreign invested enterprises (FIEs) over the period 2000-05.

(3) Definitions of region are as follows.

Region 1: Hanoi and Ho Chi Minh City.

Region 2: Hai Phong, Dong Nai, Binh Duong, Ba Ria Vung Tau, Quang Ninh, Da Nang, and Can Tho. Note that Quang Ninh has joined this region since 2006, Da Nang and CanTho since 2009.

Region 3: Other provinces.

Region 4: Bac Kan, Binh Phuoc, Dak Nong, Lai Chau, and Tay Ninh.

Sources: Relevant Decrees issued by the Vietnamese government.

The minimum wage set for domestic private enterprises does not seem to have affected the wage rates firms offered (McCarty 1999). This is because the market wage is closer to the minimum wage set for domestic private firms (3 USD per day) and is normally higher than that set for FIEs (6 USD per day) (Belser 2000). The minimum wage and real average wages for Vietnamese workers have typically been lower than the neighbouring ASEAN-4 economies (JETRO 2008). This gap has, however, considerably narrowed over the period 2005-2010. The Vietnamese government has

targeted to the establishment of a single minimum wage for all enterprises working in an economy (CIEM 2009).

Furthermore, wage setting and wage increase determinations are notably different across firm ownership groups. As briefly discussed, wage rates for employees in SOEs were mainly dependent on the rigid state wage schedule, even though their managers have increasingly paid attention to business efficiency and worker performance as crucial criteria over the period 2000-10. This is explained by the relaxation of the degree of government control on wage setting. On the other hand, wage rates in private sector firms are primarily influenced by the legal minimum wage (Friedman 2004). Aside from workers' characteristics regulating wages such as skills, experience and position, a firm's business performance, coupled with ongoing market wage rates is undoubtedly significant in establishing applicable wage rates. Additionally, government regulations required FIEs to pay higher wages than those in domestic firms, even though this regulation was relaxed between 2005 and 2010. On the whole, it is evident that any firm, regardless of ownership type, has the right to formulate a wage policy that offers good incentives and rewards to its employees. Therefore, wage rates for each firm have gradually become determined by supply-market forces.

Non-wage payments

Along with wages, non-wage welfare payment has been an important focus of labour market reform (Norlund 1993). Prior to the reform, social welfare was a financial burden for enterprises. Together with the Labour Law and its amendments, the welfare system has been formalized and revised several times with the aim of providing the same regulation for non-wage welfare for both domestic and foreign enterprises. Since 2003, in particular, whatever the form of ownership, firms that employ more than 10 workers are required to contribute social and health insurance for their employees with a contract duration of at least three months. Legally, both employers and employees are required to contribute to these insurance funds.[21] Given the low labour costs in Vietnam, the actual total cost of insurance contribution by employers (17 per cent of a monthly wage for a worker) is not necessarily high enough to increase production costs, or

[21] The employers contribute 15% of total wages fund to social insurance and 2% for health insurance while the employees are required to pay 5% of their actual wage for social insurance and 1% for health insurance.

reduce competitiveness for manufacturing exports. Practically, many small firms, in particular those in the domestic private ownership group in labour-intensive manufacturing, seldom engage in labour contracts with unskilled workers in order to avoid welfare insurance payments.

Apart from these regulatory factors that have positively impacted on labour market outcomes, there have been some frictional costs in the labour market. Typically, a system of residence registration in Vietnam was a strong barrier to movement in labour away from low-productivity agriculture to high-productivity manufacturing. Before 2000, workers needed to have their own house as well as a stable job prior to applying for a permanent residence in an urban city. This requirement hindered rural-urban migration, and partly imposed an obstacle to labour mobility in the Vietnamese economy. However, the residence registration system in Vietnam has been gradually relaxed over the period 2000-10. A first amendment on the Law on Residence was made in 2001, and again in 2006. Under these changes, workers from rural areas can utilize public services such as education and health in urban areas, and even own a property if they can afford it. Abolishing the barrier of residence registration effectively increases the availability of labour supply to the manufacturing sector. This in turn stimulates a shift in unskilled-worker distribution from low-wage agriculture to high-wage manufacturing.

Of these factors affecting labour market, labour market segmentation in Vietnam has been attributed to several regulatory matters. The Labour Law only applies to organized firms with at least ten workers, but not unorganized, informal firms which form a significant component of the Vietnamese economy. Also, there is evidence that workers employed in SOEs have enjoyed more favourable benefits and social welfare under the Labour Law than those working in the non-state enterprises (Mekong 2002). In addition, over the period 2000-10, there has seen a significant difference between minimum wages for domestic firms and foreign-invested enterprises, and this has also contributed to the segmentation of the labour market in terms of wage rates.

3.6 Conclusions

This chapter has examined the market-oriented policy reforms and the related regulatory changes in Vietnam as a backdrop for an examination of structural changes and manufacturing employment and wages. Policy relating to the regulation of enterprises in the Vietnamese economy has significantly improved and now Vietnam provides a consistent business environment for all enterprises whatever the form of ownership. The changes have seen the removal of investment restrictions, and simplified registration procedures as well as provided uniform investment incentives. Trade policy has also shifted toward more liberalization and transparency. The WTO admission has provided powerful incentives for further improvement relating to policy and regulations in order to achieve an improved investment environment for both domestic and foreign investors. Consequently, labour market outcomes as a result of the economic policy reforms in Vietnam's labour abundant economy have greatly improved since the reform was embarked in 1986. However, there are still considerable government interventions that lead to frictional costs in the labour market. From about 2006 there has been some policy backsliding from the liberalization commitments and the macroeconomic policy slippage that has resulted in a significant appreciation of the real exchange rate, which need to take into account a systematic analysis of the outcome of policy reforms.

Appendix 3.1: Measurement of the real exchange rate (RER)

The real exchange rate (*RER)* is the relative price of traded to non-traded goods. It is normally proxied by available domestic and world price indices and nominal exchange rate in the following formula:

$$\boldsymbol{RER = NER * P^W / P^D} \quad ,$$

where *NER* denotes the index of the nominal exchange rate, P^W is an index of foreign prices, and P^D is an index of domestic prices. *NER* is weighted averages computed across trading partner countries. The country weights can be export shares, import shares or trade (the sum of exports and imports) share. In intuitive terms, *RER* is the ratio of trade-weighted price index of trading partner countries in domestic currency relative to the domestic price index. There is no single way of computing a proxy measure of *RER*, which is reliant on the ready availability of price indices.[22] Previous studies typically use either GDP deflators or the consumer price index (*CPI*) as proxy measures of the two price index indicators (P^W and P^D).

In this study, we follow the most widely used proxy measure in the publications of the IMF and the World Bank. First, we use foreign consumer prices for P^W and domestic CPI for P^W. The theoretical reason behind this choice of the proxy measurement is that producer prices and consumer prices are likely to move together in those developed countries that constantly experience low inflation conditions (Edwards 1989). Second, we make use of export shares for country weights in the calculation of NER series given the accuracy of this measurement rather than the commonly-used trade weights (Warr 1986).

Data for constructing the proxy measure of *RER* are derived from various reliable data sources. Nominal exchange rates are derived from World Bank Indicators. CPI for each trading partner comes from the World Bank World Tables. Exports from Vietnam to its 20 main trading partners are taken from the Direction of Trade Statistics, IMF. The trading partners include Cambodia, Indonesia, Malaysia, The Philippines, Singapore, Thailand, South Korea, Hong Kong, Japan, China, Russia, United Kingdom, Italy, Belgium, German, Netherlands, France, Switzerland, United States, and Australia.

[22] For a discussion on the particular measurement choice of RER, see Athukorala and Warr (2002).

Chapter 4

Structural changes and employment patterns in Vietnam

4.1 Introduction

As noted in Chapter 2, there is a dearth of studies on labour market transition in Vietnam under these market-oriented policy reforms. This chapter aims to fill this gap by examining growth and structural changes in the Vietnamese economy and the employment implications of these changes, with an emphasis on the role of the manufacturing sector over the decades up to 2011. The chapter specifically focuses on how economic structure and employment patterns have changed during the two decades of reforms. The analytical framework used for this purpose is the Lewis-Fei-Ranis model of labour dynamics in a labour surplus economy, as discussed in the Chapter 2. A comparative analysis is undertaken using the backdrop of employment transformation in East Asian labour-abundant economies.

The rest of the chapter is organized as follows. The first section provides an overview of output growth and structural change in the Vietnamese economy. The second section examines employment growth and its transformation, with a focus on the shift in labour from agriculture into manufacturing. The third section investigates the ownership structure of manufacturing and its performance. The following section examines employment transition in Vietnam by comparing it with typical labour-abundant economies in East Asia. The fifth section explores the slowdown in manufacturing employment in recent years. The final section draws some conclusions and offers policy recommendations on employment transformation following the EOI.

4.2 Vietnamese economy: growth and structural changes

Over the period 1986-2011, the Vietnamese economy has grown at an average annual rate of seven per cent, while GDP per capita (at the current value) increased from US$100 in the early 1990s to over US$1,200 in 2011.[23] The degree of export orientation of the economy increased continuously from the mid-1990s with an increasing role of

[23] These figures are based on the World Bank database.

manufacturing exports. The manufacturing sector, in particular export-oriented manufacturing, has emerged as a major source of employment generation.

Table 4.1: The Vietnamese economy: growth and structural change, 1986-2011

	1986-1994	***1995-1999***	***2000-20011***	***1986-2011***
(a) Annual growth (%)				
Agriculture, Forestry & Fishery	3.2	4.4	3.6	3.7
Industry	7.3	10.7	8.9	8.9
Manufacturing	4.3	11.1	10.3	8.6
Services	8.1	5.8	7.2	7.3
Gross Domestic Product	**6.3**	**7.0**	**7.1**	**6.9**
(b) Contribution to output increment (%)				
Agriculture, Forestry & Fishery	15.9	15.8	9.8	11.9
Industry	32.1	48.6	48.3	45.8
Manufacturing	11.0	26.1	32.0	27.7
Services	52.0	35.6	41.8	42.3
Gross Domestic Product	**100.0**	**100.0**	**100.0**	**100.0**
(c) Composition (%)	***1986***	***1995***	***2000***	***2011***
Agriculture, Forestry & Fishery	34.7	26.2	23.3	16.1
Industry	26.8	29.9	35.4	42.3
Manufacturing	17.4	15.5	18.8	25.8
Services	38.4	43.8	41.3	41.6
Gross Domestic Product	100.0	100.0	100.0	100.0
GDP (Billion VND at 1994 prices)	**109,189**	**195,567**	**273,666**	**584,073**

Notes: - These data refer to value-added growth rates and its shares in constant prices (1994 prices).

- Growth rates are shown as annual averages between the reported years.

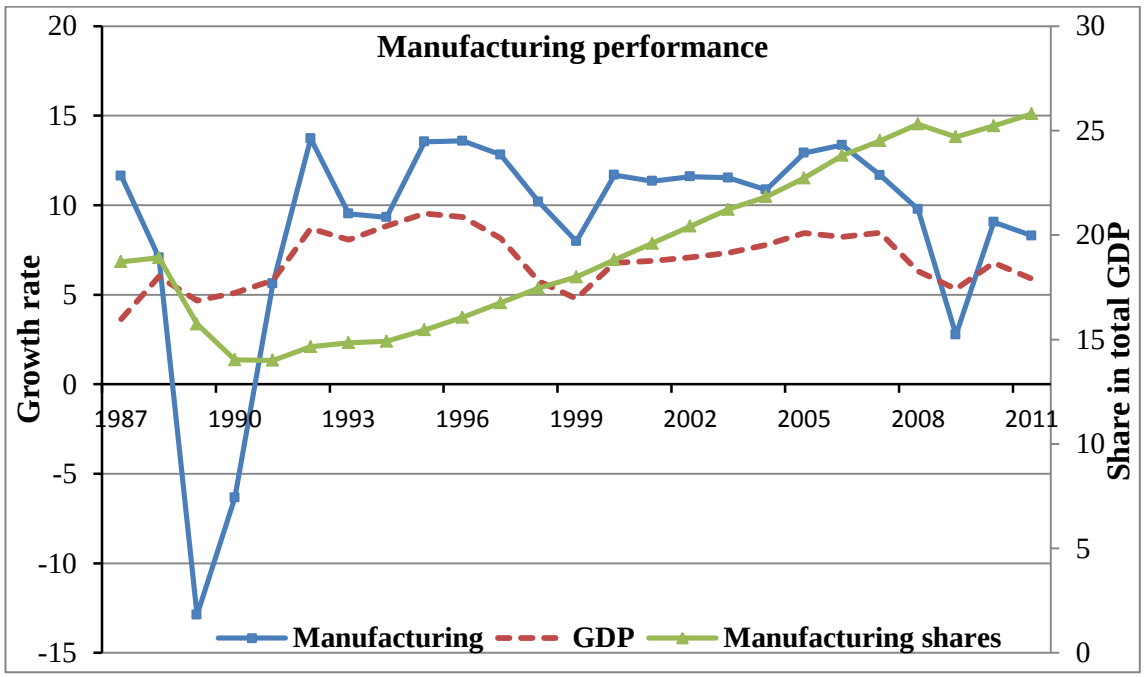
Sources: Based on data compiled from C.E.I.C. Asian database, 2012, and GSO, *Statistical Yearbook* (various issues).

The data on the growth and structure of the Vietnamese economy over the period 1986-2011 are summarized in Table 4.1. With an average annual growth rate of about 7 per cent during that period, Vietnam is one of the fastest-growing countries in the developing world. It is evident that growth has been broad-based, but the industrial and services sectors have grown much faster than the primary (agriculture, forestry, and fishery) sector. During this period, the industrial sector grew at an average annual growth rate of about nine per cent. Its share in the total GDP increased from about 27 per cent in 1986 to 42 per cent in 2011. Within industry, the share of manufacturing in GDP increased from 17 per cent to about 25 per cent over the examined period. Meanwhile, the services sector has expanded at around seven per cent per annum while the primary sector has fallen behind with an average annual growth rate of about four

per cent. The share of primary sector in GDP declined from above 34 per cent in 1986 to only 16 per cent in 2011.

Growth in the manufacturing sector has been particularly rapid since the early 2000s when significant trade liberalization and enterprise reforms were implemented (Figure 4.1). The data reflect the close association between output growth acceleration and manufacturing expansion. Over the period 1995-2011 the manufacturing sector grew from a minuscule average annual rate in the late 1980s (even declining in 1989) to above ten per cent per annum over the period 2000-11. Of particular note is that over the period 1995-2011, this sector contributed to 30 per cent of the total GDP growth during this period, compared to a mere 11 per cent during the period 1986-1994.

Figure 4.1: GDP and manufacturing growth and its share in GDP (in %)



Source: Based on data compiled from GSO, *Statistical Yearbook* (various issues).

Within this broader context of growth and structural change, the next section examines employment growth, with a focus on the shift in employment into non-agricultural sectors, and in particular the manufacturing sector, in order to probe whether an employment transformation in Vietnam is consistent with the expectations of the Lewis-Fei-Ranis model.

4.3 Employment trends and patterns

During the period 2000-11 total employment grew at an average annual rate of about three per cent, compared to 2.3 per cent during the previous decade (Table 4.2). This growth has generally surpassed that of the labour force except in the period 1995-99.[24] The agricultural sector had the smallest average annual growth rate, only 0.6 per cent over that period. On the other hand, the manufacturing sector had a striking employment growth rate, around 5.4 per cent per annum over the period 1990-2011. Of particular interest is the rapid annual growth from the early 2000s that was above seven per cent despite smaller, more modest growth in the previous period. This growth contributed to an expansion in job opportunities which induced a large shift in labour away from the declining agricultural sector.

Table 4.2: Employment growth in Vietnam 1990-2011 (in %)

	1990-94	1995-99	2000-11	1990-2011
(a) Annual growth rate in labour force[a]	2.0	2.7	2.1	2.2
(b) Average annual employment growth				
Agriculture	1.9	1.3	-0.3	0.6
Industry[b]	2.5	3.4	8.3	5.8
Manufacturing	2.8	4.0	7.3	5.4
Services	4.4	4.6	7.0	5.8
All sectors	**2.4**	**2.2**	**2.9**	**2.6**
(c) Contribution to employment increment				
Agriculture	58.1	42.7	-5.0	13.9
Industry	12.1	18.5	46.3	35.6
Manufacturing	9.3	15.1	27.8	22.5
Services	29.8	38.8	58.7	50.6
All sectors	**100**	**100**	**100**	**100**

Notes: (a) Labour force is the working age population that refers to people aged 15 and over who are employed or unemployed.

(b) The industry sector consists of mining and quarrying, manufacturing, construction and public utilities.

Source: Based on data compiled from GSO, *Statistical Yearbook* (various issues).

The shift in employment from the agricultural sector into non-agricultural sectors is illustrated in Figure 4.2. In most years, the growth rate of non-agricultural employment often exceeds that of the labour force. This is consistent with the prediction of the

[24] This implies that either participation rates increased or unemployment fell.

Lewis-Fei-Ranis model. But since 2000 the growth rate of non-agricultural employment has far exceeded that of the labour force.

Figure 4.2: Labour absorption in non-agricultural sectors, Vietnam 1990-2011

Note: The non-agricultural sector comprises the industrial and services sectors.

Source: Based on data compiled from GSO, *Statistical Yearbook* (various issues).

The data on employment composition in Table 4.3 depicts several features of labour transition from agriculture into non-agricultural sectors. First, the share of agricultural employment declined sharply from above 70 per cent to around 50 per cent between 1990 and 2011. By 2011 the agricultural employment share in Vietnam was quite large compared to similar shares seen in NIEs-2. For example, the agricultural sector in Taiwan (which followed an export-led industrialization model in the 1960s), only accounted for 30 per cent of the total in 1975; similarly in South Korea agricultural employment accounted for about 45 per cent in the same year (Athukorala & Manning 1999).

Second, the employment share of industry increased from 11 per cent in 1990 to 21 per cent in 2011. The proportional increase in employment in this sector was much faster compared to that of the services sector. In particular, manufacturing had the largest share of employment within industry. Its share in total employment increased from approximately eight per cent in the early 1990s to about 14 per cent in the late 2000s.

Table 4.3: Employment composition, Vietnam 1990-2011 (in %)

Sector	1990	1995	2000	2011
Agriculture	73.0	71.3	68.2	48.5
Industry	11.2	11.4	12.1	21.3
Manufacturing	7.8	8.0	8.7	13.9
Services	15.7	17.4	19.6	30.2
All sectors	100	100	100	100
Total employment ('000)	**29,412**	**33,031**	**36,702**	**50,252**

Note: The industry sector consists of mining and quarrying, manufacturing, construction and public utilities.

Source: Based on data compiled from GSO, *Statistical Yearbook* (various issues).

The data on the employment elasticity – the percentage growth of employment in relation to unit growth in output (value-added) – also represent a shift in employment from agriculture to manufacturing (Table 4.4). First, the speed of job creation in relation to output in the non-agriculture sectors is higher than that of the agricultural sector. In particular, employment elasticities in the industrial sector experienced a sharp increase over the period 2000-2011. Next, within industry the manufacturing sector, which displayed a higher annual growth in the labour productivity, stood out in terms of labour absorption. It is clear that there has been a significant shift in labour from a low-productivity agricultural sector to a high-productivity manufacturing sector over the period 2000-2011. It is likely that this shift in employment into the manufacturing sector was stimulated by the expansion of exports from labour-intensive manufacturing (Fu & Balasubramanyam 2005). In general, in relation to output growth, the speed of aggregate job creation in Vietnamese manufacturing seems to have been moderate by the standard of East Asian countries at the early stages of the export-led growth process (Galenson 1979, 1992).

All in all, the direct contribution of the manufacturing sector to the overall increment in employment was above 23 per cent between 1990 and 2011. During the period 2000-11, over a third of all new jobs were generated in this sector (Table 4.2). Thus, the overall picture for manufacturing employment was a clear 'bounce' in the wake of liberalization reforms since the early 2000s, followed by a growth trend that was substantially lower in the period 2006-09 than in the period 2000-05 (Figure 4.2). There was a slowdown in growth of manufacturing employment from about 2006. Causes of this slowdown will be discussed later in this chapter (Section 4.6)

Table 4.4: Employment elasticity[a] and labour productivity index[b], Vietnam 1990-2011

4.1 Employment elasticity (%)					
	1990-94	**1995-1999**	**2000-11**	**1990-2011**	
Agriculture	0.5	0.3	-0.1	0.2	
Industry	0.2	0.3	0.9	0.6	
Manufacturing	0.3	0.4	0.7	0.5	
Services	0.5	0.8	1.0	0.8	
All sectors	**0.3**	**0.3**	**0.4**	**0.4**	
4.2 Labour productivity index (1994 prices, 1994=100)					**Annual growth (%)**
	1990	**1995**	**2000**	**2011**	**1990-2011**
Agriculture	92.5	103.1	120.3	182.9	3.3
Industry	95.2	147.6	206.4	218.1	4.0
Manufacturing	77.7	110.1	154.6	208.1	4.8
Services	86.3	105.1	110.4	112.7	1.3
All sectors	**81.2**	**107.1**	**134.9**	**210.3**	**4.6**

Notes: (a) Percentage change in employment resulting from a one percent change in output.

(b) Labour productivity measured by value-added per employed worker.

Source: Based on data compiled from GSO, *Statistical Yearbook* (various issues).

4.4 Ownership structure and manufacturing performance

The discussion so far has placed emphasis on the role of manufacturing expansion in structural change and employment transformation. We now turn to investigate the implications of ownership structure of the manufacturing sector since this issue is central to a transitional economy such as that of Vietnam. The analysis reveals that the important role of the newly established private enterprises rather than the SOEs. The development of the private sector firms is crucial for the success of EOI in a low-wage, labour-abundant, and open economy (Ranis 1979; Riedel 1993, 1997; Song 1990).

The growth in manufacturing has been underpinned by a notable shift in the ownership structure (Table 4.5). First, the position of SOEs has significantly eroded in the face of the rapid output growth in private sector firms.[25] The share of SOEs in manufacturing output declined from above 40 per cent in 2000 to less than 13 per cent in 2010. Second, the private sector firms have become more and more important for the industrial development of the Vietnamese economy. The share of FIE output in whole manufacturing was above 40 per cent throughout the examined period. In particular, the

[25] Defined as domestic private firms as well as foreign-invested enterprises.

wholly owned FIEs have been the most dynamic with its output share increasing from only a fifth in 2000 to a third in 2010. This reflects the crucial role of foreign direct investment in the process of economic transition.

Table 4.5: Ownership structure of manufacturing output in Vietnam, 2000-10 (in %)

Firm ownership category	Composition			Annual growth
	2000	2005	2010	2000-2010
State-owned enterprises	40.2	25.2	12.4	3.9
Private sector firms	59.7	74.8	87.4	21.4
Domestic private enterprises	18.4	32.6	42.4	27.0
Foreign-invested enterprises (FIEs)	41.3	42.2	45.0	17.8
Joint ventures with state enterprises	17.3	13.3	9.8	10.4
Joint ventures with domestic private firms	2.0	2.1	1.8	15.9
Wholly owned FIEs (100% foreign capital)	22.0	26.8	33.4	21.8
Whole manufacturing	**100.0**	**100.0**	**100.0**	**16.8**

Notes:(a) State-owned enterprises include companies with 100% state capital and under control of central or local governmental administrations.

(b) Domestic private enterprises consist of business entities with 100% domestic capital and run by collectives, private enterprises or households.

(c) Foreign-invested enterprises (FIEs) refer to all firms with foreign capital participation, regardless of the size of the foreign equity-capital share and operated under the Laws of Foreign Direct Investment.

(d) Private sector firms include domestic private firms and foreign-invested enterprises.

Source: Based on data compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2010*.

There has been a noticeable development of domestic private firms over the period 2000-10. The number of these firms increased by four-fold in the period 2000-05 compared to the 1990s (CIEM 2008; Ngo 2006). To some extent, this development was attributed to the removal of many of the formal restrictions on the domestic private firms (Van Arkadie & Mallon 2003). More importantly, these firms have grown strongly since 2006 in the wake of liberalization reforms. All of these factors contributed to the average annual output growth rate of 27 per cent for the whole period.

In short, the private sector firms have been the driving force of manufacturing expansion in Vietnam, as has been the case in most East Asian newly industrialized economies (NIEs). The expansion in private enterprises has induced a shift in unskilled labour away from a low-productivity agricultural sector to a high-productivity manufacturing sector. However, the contribution of the Vietnamese private firms in

manufacturing has been modest, compared to the early experience of NIEs (Hill 1990a; Koo 1985; Kuznets 1988; Ranis 1979).

As the distribution of output by ownership in Vietnamese manufacturing changes remarkably over the period 2000-10, one would expect a major change in this distribution of factor intensity. Using a standard measure of capital intensity that is the ratio of capital per worker measured in millions of dong of fixed capital assets (at the constant value) per worker, Table 4.6 shows the factor intensity by ownership groups. Three noteworthy facts deserve comment.

Table 4.6: Capital intensity*of Vietnamese manufacturing by ownership group, 2000-10

Firm ownership category	2000	2005	2010
State owned enterprises	44.9	71.2	101.2
Private sector firms			
Domestic private enterprises	38.5	40.2	49.2
Foreign-invested enterprises			
Joint ventures with state enterprises	650.8	328.7	218.6
Joint ventures with private enterprises	190.2	98.2	170.8
Wholly owned FIEs (100% foreign capital)	287.3	117.1	148.0
Whole manufacturing	**73.2**	**53.3**	**60.3**

Notes: * Capital intensity is measured as fixed capital per worker – VND million per worker – compiled from the unpublished *GSO Enterprise Survey, 2000-2010*. The current values of fixed capital are deflated using the deflator of fixed-capital formation (2000=100) from national income accounts.

Source: Based on data compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2010*.

First, FIEs become more labour-intensive over time. The capital intensity of FIEs was highest in 2000 due to the promotion of domestic-oriented industries by import restrictions. This policy encouraged the FIEs to concentrate on those import-substituted industries which required a large amount of capital. Over time, this FIE group has been increasingly involved in export-oriented production, which naturally tends to be more labour-intensive industries in a labour-abundant economy.

Second, there was a shift toward high capital intensity in domestic private firms in just five years from 2005 to 2010. In 2005, these firms recorded a low capital intensity, compared to that of the whole of manufacturing, reflecting insecurity that domestic investors were facing in their business operation up to that time. A possible reason is that throughout the period 2000-05, government authorities in Vietnam still treated

private business as an ‘attack’ on the state sector. Then, since 2006 a policy switch toward the establishment of a consistent business environment for all investors witnessed the emergence of numerous domestic private businesses. This rapid growth is partly a result of the privatization as well as the equitization of SOEs. However, the proliferation of domestic private investors was mainly concentrated on small-and medium-sized projects; as a result, this capital intensity was lower than that for FIEs in 2010.

Finally, there has been a significant increase in the capital intensity of the SOEs over the period 2000-10. The high capital intensity is a result of the inefficient expansion of SOEs and their subsidiaries. The government continued to nurture these state enterprises by ensuring better access to loan capital, public loans, and preferential credit, especially following the WTO accession in 2007 (Leung 2009). SOEs were also given privileged access to public land as collateral for capital loans. Moreover, many large state conglomerates were able to obtain implicit guarantees from the government to obtain international loans (Leung 2010). These factors explain the high growth on the capital intensity of these enterprises.

Data on manufacturing employment by ownership groups depicts three features (Table 4.7). First, employment in FIEs has expanded very rapidly and has doubled its employment share in manufacturing between 2000 and 2010. In particular, wholly owned FIEs have been outstanding in terms of job creation, which has meant that the majority of new jobs (above a half) were generated by wholly owned FIEs – a group which also had the highest annual growth rate of 20 per cent. In addition, employment in joint ventures with domestic private firms also grew at a high rate. The robust and sustained performance of FIEs has underpinned the strong role which foreign investment has played in Vietnamese manufacturing employment.

Second, even though employment growth was slightly lower than in the FIE group, the domestic private firm group had the largest employment share (above 48 per cent in 2010). Its share has exceeded that of SOEs since 2005, both the domestic private firms and the FIE group contributed equally to the increase in employment growth. A plausible reason for this is that along with these remarkable reforms in about 2006, a possible expansion in employment of domestic private firms was also expected from the cumulative effects of the 2000 Enterprise Law and consequent reforms that gradually removed the disgrace of being a private business that existed through at least the 1990s.

Finally, the share of state employment dropped rapidly over the examined period due to government efforts to restructure state manufacturing enterprises. Employment in these enterprises fell by seven per cent over that period.

Table 4.7: Comparisons of manufacturing employment by ownership group, Vietnam 2000-10 (in %)

Firm ownership category	2000	2005	2010
1. Composition			
State owned enterprises	48.4	22.4	7.6
Private sector firms	46.5	73.0	88.7
Domestic private enterprises	29.6	42.5	48.2
Foreign-invested enterprises	22.0	30.5	40.5
Joint ventures with state enterprises	4.2	2.7	1.8
Joint ventures with private enterprises	0.9	1.9	1.9
Wholly owned FIEs (100% foreign capital)	16.9	30.5	40.5
2. Growth rate and employment elasticity, 2000-09			
	Growth rate	*Share of increase*[a]	*Elasticity*[b]
State owned enterprises	-7.9	-15.3	-2.0
Private sector firms	18.1	112.4	0.8
Domestic private enterprises	16.3	58.7	0.6
Foreign-invested enterprises	20.9	53.8	1.2
Joint ventures with state enterprises	1.4	0.4	0.1
Joint ventures with domestic private firms	19.8	2.5	1.2
Wholly owned FIEs (100% foreign capital)	20.9	53.8	1.0

Notes: (a) Contribution to employment increment.

(b) Percentage change in employment resulting from a per cent change in output.

Source: Based on data compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2010*.

With regard to employment elasticity with respect to output, FIE joint ventures with private firms and wholly owned FIEs have played a significant role in job creation over the period 2000-09. Domestic private firms exhibit a modest degree of elasticity. By contrast, output expansion was inversely associated with employment growth for SOEs. Moreover, the elasticity for FIE joint ventures with state enterprises is almost negligible. These joint ventures operated primarily by leveraging access to the SOEs, and as a result this relationship matters in employment creation. The employment elasticity in the manufacturing sector reaffirms the expected shift in labour into private sector firms.

The changing employment patterns by ownership have implications for enterprise and investment reforms. The new legislation on enterprises, which came into effect in

2006, has provided private sector firms with a consistent legal framework as well as a congenial investment climate. As a result, the attraction of foreign capital has played a powerful role in employment generation. Having advantages in export market expansion as well as technology transfer, the contribution of the FIEs to job creation has been outstanding, in particular in wholly owned FIEs. Combined with the domestic private firms, jobs growth in all private sector firms has not only compensated for the decline in job creation in the SOEs but has also induced a large-scale movement of labour into manufacturing. Private sector firms in Vietnam have the potential to be the most dynamic source of employment generation in developing labour-intensive manufacturing exports, as has happened in other East Asian economies.

4.5 Employment transition in a comparative perspective

Over the past two decades, employment in Vietnamese manufacturing has grown faster than it has in agriculture. This is consistent with the *a priori* expectation that manufacturing is pivotal to sustain a shift in labour out of a low-productivity agricultural sector. However, the Vietnamese economy is at an early stage of the East Asian industrialization model based on labour-intensive manufacturing for exports. It is useful to examine employment transformation in other East Asian labour-abundant economies during the early stage of labour-intensive growth in order to ascertain how the shift of unskilled workers was made from agriculture into manufacturing in Vietnam.

For the purpose of this analysis, five East Asian economies have been selected as comparators: Taiwan, South Korea, Malaysia, Thailand, and Indonesia. The key reason for this selection lies in the fact that the experience of labour transition in these countries is typically representative of the spirit of the Lewis-Fei-Ranis growth model (Manning & Posso 2010). Then, the comparative period mainly focuses on the first two decades of rapid growth following the economic reforms in each country. Two early industrialized economies, Taiwan and South Korea, are the most outstanding economies making a remarkable employment transformation during the 1960s and 1970s. To some degree, three other later industrializers in Southeast Asia are three successful followers over the later time period of the 1970s and 1980s. Table 4.8 presents the share of employment by sector in these comparators.

Table 4.8: Distribution of employment in comparator economies (in %)

Economy	Share of employment by sector					
	Period	*Agriculture*	*Industry*	***Manufacturing***	*Services*	*Total*
Earlier industrializers						
Taiwan	1965	46.5	22.3	16.3	31.2	100
	1975	30.4	34.9	27.5	34.7	100
South Korea	1965	58.6	13.3	9.4	28.1	100
	1975	45.9	23.4	18.6	30.7	100
Later industrializers						
Malaysia	1975	45.3	20.7	13.5	34	100
	1985	31.3	24.4	15.2	44.3	100
Thailand	1982	68.4	10.5	8.1	21.1	100
	1990	64	14.0	10.2	22	100
Indonesia	1971	66	10	7.8	24	100
	1990	50.5	16.8	11.5	32.7	100
Vietnam	1990	73	11.2	7.8	15.7	100
	2000	68.2	12.1	8.7	25.1	100
	2009	51.9	19.6	13.7	27.7	100

Sources: Athukorala and Manning (1999) for Taiwan, Malaysia; Song (1990) for South Korea; Manning (1999) and Pitayanon (1988) for Thailand; Manning (1995, 1998) for Indonesia; and GSO, Statistical Yearbook (various issues) for Vietnam.

Three comments are relevant in this comparative context. First, the dramatic transformation of labour from agriculture to manufacturing has been a key feature of employment patterns in Taiwan and South Korea. There was a less dramatic shift in Malaysia, Thailand and Indonesia, which show a slow and less intensive shift in employment into manufacturing. Secondly, at the outset of development, the pattern of the shift in employment in Vietnam was similar to that in all these economies with the same rapid employment transformation. However, Vietnam's distributional change in employment pattern lagged behind the NIEs-2 during comparable periods. Its employment share of manufacturing was slightly lower than that of Malaysia and almost exceeded that of Thailand over these corresponding periods. Vietnam resembled Thailand in terms of the proportion of labour employed in agriculture. Finally, Vietnam's experience of the shift in labour into manufacturing was comparable with that of Indonesia in terms of both intensity and speed. Thus, from this comparative perspective, labour transition into manufacturing in Vietnam was modest.

The process of shift in labour from agriculture into manufacturing has been much slower in Vietnam compared to that occurred at the early stage of economic transformation, not only in Taiwan and South Korea but also in Malaysia. However, to

some considerable extent the speed of this shift has been comparable with that in Thailand and Indonesia. While Taiwan's EOI began in the 1960s this was not the case until the 1990s for Vietnam. However, it is difficult to compare Taiwan and Vietnam when the external economic environment has changed so considerably since the 1960s. When import-substitution development strategies were in vogue and over the ensuing decades, tariff reduction became a worldwide phenomenon. Then relative resource endowments also matter. These changes all need to be taken into account when comparing two economies at the same stage of development. Therefore, the significance of employment growth in manufacturing in Vietnam needs to be examined over the period from the 1990s to the 2000s with the ASEAN-4. During this period, economic growth in ASEAN was adversely affected by the Asian financial crisis of 1997-1998 as well as the 2009 global financial crisis. Taking account of these points, the role of manufacturing in job creation for Vietnam and ASEAN-4 is presented in Table 4.9.

Table 4.9: Employment share of manufacturing in Vietnam and ASEAN-4 (in %)

Country	**A share in total employment**			
	1995	**2000**	**2005**	**2008**
Indonesia	12.6	13.0	12.7	12.2
Malaysia	23.3	23.5	19.8	18.2
Philippines	10.2	10	9.5	8.6
Thailand	15.0	14.9	15.8	14.7
Vietnam	8.0	8.7	12	13.1

Source: Compiled from ADB Statistical Database System (https://sdbs.adb.org/sdbs/index.jsp).

Two observations can be drawn from this examination. First, when comparing the relative size of manufacturing employment in the ASEAN-4 with Vietnam, it can be seen that the intensity of the shift in labour into manufacturing in Vietnam exceeds that of Indonesia and the Philippines until 2005. Vietnam's employment share in the total should be comparable with that of Thailand if its job growth continues to rise. However, one qualification should be noted: Malaysia and Thailand are not good comparators over that period because labour transition in these countries has moved beyond their turning points. And now, they are showing shortages of unskilled workers and have begun to accept immigrant workers into their countries.

Second, the employment growth pattern in Vietnam broadly resembles that of ASEAN-4. For the period 2000-05 employment generation in Vietnamese manufacturing was very rapid (almost ten per cent) as was the case in all other

Southeast Asian economies for similar though earlier time periods (around a decade or slightly more) in which they underwent economic reform. The exception is the Philippines. However, in all the ASEAN-4 countries, manufacturing employment has grown slowly since the early 2000s. Subsequently, all registered a sharp decline over the period 2006-08, as has been the case in Vietnam in the second half of the 2000s. In comparative ASEAN-4 terms, Vietnam does not appear a regional outlier in job growth. Thus, as regard to the manufacturing employment growth, it seems that there are common influences at work among ASEAN-4 economies and Vietnam, in addition to domestic policies in each country.

4.6 Slow growth in manufacturing employment in recent years

We have seen that a shift in labour out of agriculture into manufacturing in Vietnam closely followed a paradigm of labour transition among East Asian labour-abundant economies until the middle of the period 2000-11. But this shift seems to have lost momentum from about 2006. This raises the issues of whether or not the large pool of under-employed labour in the rural sector has been depleted or whether policy reversals have contributed to the expansion of employment in the manufacturing sector. This section examines the recent labour supply and deployment pattern in order to answer these issues.

First, Vietnamese manufacturing employment entered a stage of rapid growth based on the export-oriented strategy in the early 2000s when its population was about 77 million people (Table 4.10). But the average annual population growth rate during the period 2000-2011 has been modest as a result of the persistent implementation of family planning policy for over two decades. The labour force (people aged fifteen and over) has increased much faster than the total population. This growth rate has been marked by quite significant increases in male participation in the labour force.[26] This is because more young males are choosing to be in the workforce rather than to continue their schooling, this is related to the growth of employment and income opportunities in export-oriented industries. The growth of the labour force can thus be attributed to the combined effects of fertility decline and a proportion of youth labour force (aged between 15 and 24) growing more rapidly than the proportion of young and aged dependent population. As a result, these effects reflect a continued increase in the labour

[26] Report on Labour Force Survey Vietnam 1/9/2009, GSO.

force participation rate (from below one half to about 59 per cent). In particular, between 2000 and 2011, the share of labour force in the urban sector increased considerably from about 23 per cent to 30 per cent. However, there is still a large pool of labour remaining in the rural sector.

Table 4.10: Population and labour force statistics in Vietnam, 1990-2011

Year	Total population (million)	Labour force (million)	Labour force participation rate (%)	Composition of labour force	
				Urban	Rural
1990	66.0	32.7	49.6	n.a.	n.a.
1995	72.0	36.3	50.4	n.a.	n.a.
2000	77.6	38.5	49.7	23.1	76.9
2001	78.6	39.6	50.4	23.9	76.1
2002	79.5	40.7	51.2	24.2	75.8
2003	80.5	41.8	52.0	24.1	75.9
2004	81.4	43.0	52.8	24.9	75.1
2005	82.4	44.9	54.5	25.5	74.5
2006	83.3	46.2	55.5	26.5	73.5
2007	84.2	47.2	56.0	26.3	73.7
2008	85.1	48.2	56.6	27.3	72.7
2009	86.0	49.3	57.3	26.9	73.1
2010	86.9	50.4	58.0	28.0	72.0
2011	87.8	51.4	58.5	29.7	70.3
Average annual growth rate (%)					
1990-99	1.7	2.3			
2000-11	1.1	2.1			

Notes: (a) Labour force is the working age population that refers to people aged 15 and over who are employed or unemployed.

(b) Labour force participation rate is a percentage of working age population to the total population.

n.a.: data not available.

Source: Based on data compiled from C.E.I.C Asian database, 2012.

As observed above, by the year 2011 one half of the workforce was till engaged in agricultural activities (Table 4.3). The absolute number of agricultural workers reached a peak of 25 million in 2000, and since then has been in a long, persistent decline over the period 2000-11. Agricultural share in total employment has been consistently and significantly higher than its share in GDP over that period. This reveals that a considerable proportion of the workers in agriculture have essentially been under-

employed, *i.e.* people willing to work more hours than the usual, or working very few hours a week.

Table 4.11: Unemployment and under-employment rates in Vietnam, 2000-11 (in%)

Year	Unemployment rate			Under-employment rate		
	Whole economy	Urban	Rural	Whole economy	Urban	Rural
1996	1.9	5.88	1	10.2	9.2	10.4
1997	2.9	6.01	2.1	17.3	9.3	19.5
1998	2.3	6.85	1.1	13.1	9	14.2
1999	2.3	7.04	1.1	10.6	8.1	11.6
2000	2.3	6.3	1.1	8.6	6.6	9.1
2001	2.8	5.4	2.0	14.4	8.4	16.2
2002	2.1	5.8	0.9	13.7	8.6	15.2
2003	2.3	5.6	1.2	11.8	7.7	13.1
2004	2.1	5.4	1.1	9.2	5.7	10.3
2005*	2.1	5.1	1.1	8.1	4.5	9.3
2007	2.0	3.6	1.4	4.9	2.1	5.8
2008	2.4	4.7	1.5	5.10	2.34	6.10
2009	2.9	4.6	2.3	5.61	3.33	6.51
2010	2.9	4.3	2.3	3.57	1.82	4.26
2011	2.2	3.6	1.6	2.96	1.58	3.56

Notes: *Data for 2006 is not available from GSO.

(a) The unemployment rate is the percentage of unemployed persons in the total economically active population aged 15 years and over.

(b) The under-employment rate refers to the percentage of persons aged 15 years and over who are working less than 35 hours per week and who are willing to take on additional work as a percentage of the total employed persons aged 15 years and over.

Sources: Based on data compiled from MOLISA 2006 and GSO, *Statistical Yearbook* 2007-2011 (various issues).

In general, unemployment has not been a big problem in Vietnam (Table 4.11). The official annual unemployment rate for the whole country appears to have remained stable within the narrow margin of 2.1-2.8 per cent from 2000 until 2007 and then it went up to 2.9 per cent in 2010. Unemployment has mainly been an urban phenomenon as the urban rate has been higher than the rate for whole country. However, in countries with a large rural population as in the case of Vietnam, under-employment is more prevalent than unemployment, in particular in rural areas. Rural under-employment rates rose to over 15 per cent during the period up to 2002, then fell again through 2007 and has remained a little around five per cent in recent years. It should be noted that

most agricultural workers who have been under-employed try to seek more employment opportunities other than farm work in order to guarantee their livelihoods. This is explained by the fact that over a third of income in rural households was generated by non-agricultural activities during the period 2000-10 (Table 4.12).

Table 4.12: Rural household income composition by source in Vietnam in selected years, 2002-2010

Year	Monthly income per capita (000 dong)	Source of income (%)			
		Rural sector	***Industry***	***Services***	***Others***
2002	275	68.2	5.6	12.3	14.0
2004	387	66.3	5.7	11.6	14.1
2006	505	69.2	5.5	12.0	15.3
2008	762	67.8	5.7	12.1	14.4
2010	1,070	69.8	5.6	14.1	10.5

Source: Based on data compiled from the GSO, *Vietnam Household Living Standard Survey 2010*.

On the whole, according to the official estimates, the levels of unemployment in Vietnam are not high by international standards; however, the real number is likely to be higher than the official data from GSO for several convincing reasons. First, the data relating to unemployment and under-employment were taken from the Labour Force Survey (*LFS*) conducted by many official agencies in which the data from MOLISA has some limitations due to the exclusion of the informal sector (Pham 2009).[27] Second, the unemployment registration system has not been popular in many urban areas. As a result, many unemployed people do not have incentives to register at the local employment service offices because they normally do not meet the required conditions for social security payments, or do not qualify to apply for suitable jobs through such formal services. Finally, the unemployment insurance system that can provide incentives for unemployment registration has only operated in recent years. All show that the official data from GSO grossly underestimate the level of unemployment.

So far the analysis supports the hypothesis that surplus labour conditions have been persistent in the Vietnamese economy until 2011. Implicitly, there has been considerable room for moving unskilled workers from an agricultural sector into a

[27] LFS was conducted by Ministry of Labour – Invalids and Social Affairs (*MOLISA*) over the period 2000-2006, the Movement of Population, Employment, and Family Planning Survey (*MPEFPS*) in 2008 and GSO in 2007 and 2009 onwards.

manufacturing sector. Now we turn to examine whether the behaviour of real wage growth in the Vietnamese economy is well matched with the prognoses of the Lewis-Fei-Ranis model.

Table 4.13: Average real wages* in selected sectors in Vietnam, 2000-09

Sector	Real wage[a]		Growth rate[b] (%)
	Wage in 2000 (Mill dong)	Relative size to the whole economy (Whole =100)	2000-09
Agriculture	7.9	66	4.9
Manufacturing	11.4	95	6.0
Construction	9.6	80	5.9
Trade	10.9	91	7.9
Hotels and restaurants	14.4	120	0.3
Whole economy	**12.0**	**100**	**5.1**

Notes: (a) Average real wages have been deflated by producer price indexes at constant 2000 prices.

(b) Growth rates are shown as annual averages between the reported years.

Source: Based on data compiled from the GSO, *Enterprise Survey 2000-09*.

As in other East Asian economies, real wages in the Vietnamese economy have risen steadily during the reform era. It appears that real wages for both skilled and unskilled workers grew rapidly during the 1990s (Gallup 2004). There has also been an increase in real wages in most sectors during the period 2000-09 (Table 4.13). In particular, manufacturing wages rose extremely rapidly, at about six per cent per annum over this period. Rather more significant is that this rapid wage growth has gone hand-in-hand with a remarkable expansion of manufacturing employment in labour-intensive industries since the early 2000s.[28]

By and large, all manufacturing firms, regardless of ownership category, have increased real wages since 2000, with faster growth in domestic firms compared to FIEs over the period 2000-09 (Table 4.14). The wages in both SOEs and domestic private firms increased persistently throughout that period. By contrast, the wages for manufacturing FIEs recorded a slow growth over the same period. In short, this pattern of real wages in the manufacturing sector does not show any definitive sign of labour market tightening.

[28] *The Enterprise Survey 2000-09* by GSO reveals that an employment share of labour-intensive industries accounted for above one half of total manufacturing employment.

Table 4.14: Average real wages in Vietnamese manufacturing by ownership group, 2000-09

Firm ownership category	Real wages (Mill dong)			Growth rate (%)
	2000	2004/05	2009	2000-09
State owned enterprises	11.5	16.9	24.5	8.8
Domestic private firm	6.9	9.7	13.7	8.0
Foreign invested enterprises (FIEs)				
- Joint ventures with state enterprises	30.0	34.1	36.7	2.3
- Joint ventures with domestic private firms	18.2	17.8	22.5	2.4
- Wholly owned FIEs	20.4	20.1	22.9	1.3
Total	**9.2**	**11.5**	**15.0**	**5.5**

Notes:(a) Average real wages have been deflated by consumer price indexes (CPI) at constant 2000 prices.

(b) Growth rates are shown as annual averages between the reported years.

Source: Based on the unpublished *GSO Enterprise Survey 2000-2009*.

The growth of wages in Vietnamese manufacturing has been underpinned by significant wage differentials among firm ownership categories. On average, the wages in FIEs are about two-fold compared to those in domestic firms, both public and private. In 2009, the wages were highest for FIE joint ventures with state enterprises, followed by SOEs, joint ventures with domestic private firms, and wholly owned FIEs while the lowest rate was for domestic private firms.

Table 4.15: Average real wages in Vietnamese manufacturing by region, 2000-09

Region	Real wage (Mill dong)			Growth rate (%)
	2000	2004/05	2009	2000-09
Red River Delta	8.2	10.4	15.1	7.0
North Mountainous Area	5.8	7.4	11.2	7.5
Central Coast Area	7.0	8.7	11.0	5.2
Central Highland Area	7.4	9.8	12.3	5.7
South East Area	13.2	15.4	18.6	2.9
Mekong Delta	6.9	8.3	12.2	6.5
Whole economy	**9.4**	**11.5**	**15.0**	**5.4**

Notes: (a) Average real wages have been deflated by consumer price indexes (CPI) at constant 2000 prices.

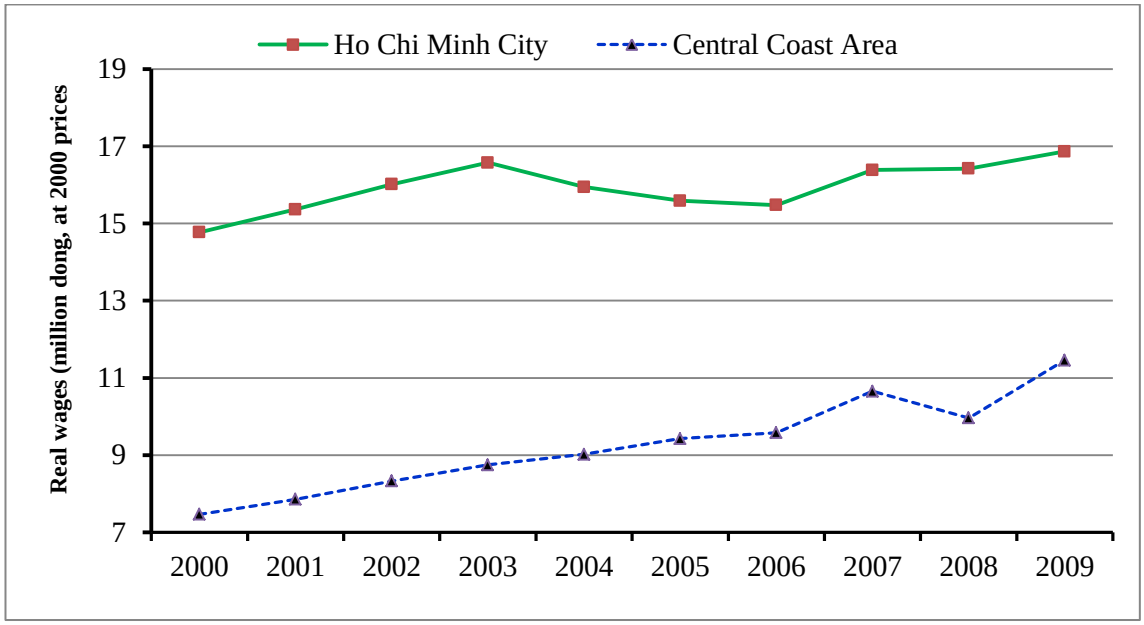
(b) Growth rates are shown as annual averages between the reported years.

Source: Based on the unpublished *GSO Enterprise Survey 2000-2009*.

Table 4.15 shows manufacturing wages varies significantly among regions. Wages in the most prosperous, urbanized regions of the South East Area (including Ho Chi Minh

City) and the Red River Delta (including Ha Noi) have been much higher than in less developing regions such as the North Mountainous Area, the Central Coast Area, the Central Highland Area and the Mekong Delta. As manufacturing wages are used as a proxy for urban wages, it is evident that there has been as a significant upward in wage growth across all urban regions over the period 2000-09. This nation-wide wage growth implies persistent transfers of labour from the agriculture to the manufacturing sector, although the labour surplus prevailed in most parts of the rural agricultural sector.

Figure 4.3:Manufacturing wages in Ho Chi Minh City and Central Coast Area, 2000-09



Note: Average real wages have been deflated by consumer price indexes (CPI) at constant 2000 prices.

Source: Based on data compiled from the unpublished *GSO Enterprise Survey* 2000-09.

There has been a clearer wage gap between a typical labour-absorbing area and a labour-sending one (Figure 4.3). Ho Chi Minh City represents the fastest growing and most labour-absorbing urban area; on the other hand the Central Coast Area is by far the largest migrant labour source. The wages in this most urbanized city were generally twice that of the Central Coast Area. Thus, there is no clear indicator that the wage gap between two concerned regions will soon converge within a very short period.

All in all, given the trends and patterns of wages and labour market conditions, there have been favourable opportunities for employment expansion in the manufacturing sector as a gainful way to withdraw unskilled workers from agriculture in Vietnam. But

how has the rate of capital formulation in Vietnamese manufacturing changed over recent years?

The evidence to suggest that slowdown in the expansion of labour-intensive manufacturing has stemmed mainly from the investment boom funded by increased capital inflow to the Vietnamese economy. This boom shifted greater emphasis on to non-tradable goods sectors from about 2006. Since the late 1990s there has been a major expansion of investment projects in labour-intensive exported-oriented manufacturing. This investment trend continued until late 2006 when Vietnam became an official WTO member. Since then, capital formation arose from not only foreign businesses but also domestic partners, in particular SOEs. All businesses increased investment spending into banking, financial, securities, construction, hotels, and real estate sectors. Therefore, there was a swing of the pendulum from labour-intensive, export-oriented manufacturing to these non-tradable sectors.

Two indicators can shed light on this issue. First, there was a significant change in the distribution of long-term investment (investment in fixed assets) during the period 2000-09 (Table 4.16). Overall, the distribution of capital formation has shifted away from traded-goods sectors, mostly in a manufacturing sector. The average annual share of capital formation in labour-intensive manufacturing declined sharply from 32 per cent in the period 2000-05 to 24 per cent in the period 2006-09. By contrast, these shares in the financial intermediation and real estate sectors increased very rapidly over the same period.

Table 4.16: Share* of long-term investment and fixed capital in Vietnam, 2000-09 (in %)

Sector	2000-05	2006-09
Agriculture	4.0	1.9
Mining	7.1	5.2
Manufacturing	32.2	24.0
Construction and public utilities	16.3	14.4
Financial intermediates and real estate	19.1	34.6
Other services	21.2	19.9
Whole economy	**100**	**100.0**

Note: *Average share over the examined period.

Source: Based on data compiled from the *GSO Enterprise Survey 2000-09*.

Second, there has been a clear change in the sectoral composition of FDI against the manufacturing sector. Up to about 2005, foreign investment projects were mainly involved in a manufacturing sector, targeting labour-intensive industries for exports such as garment, footwear, furniture, and other wood industries. About 70 per cent of FDI was concentrated in export-oriented manufacturing industries. By contrast, from 2006 the bulk of FDI inflows has been in the real estate sector and hotels. Of the total approved FDI during 2006-2009 only about 40 per cent was in manufacturing, and the share declined from 70 per cent in 2005 to a mere 17 per cent in 2009 (Table 4.17).

Table 4.17: Sectoral distribution of approved FDI, Vietnam 2003-09 (in %)

Composition (%)	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**
Manufacturing	73.8	73.7	70.4	68.9	51.0	45.2	17.1
Real estate and hotels	18.4	13.1	10.1	24.6	42.5	39.9	76.2
Other sectors	7.9	13.2	19.4	6.5	6.5	14.9	6.7
All sectors	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total (USD millions)	**1,899**	**4,222**	**6,839**	**12,003**	**21,347**	**64,011**	**23,107**

Source: Based on data compiled from C.E.I.C Asian database, 2012.

Having underlined the increased capital mobility from 2006, the problem that occurred in the Vietnamese economy is very much involved with the 'Dutch Disease' (Corden 2001; Corden & Neary 1982). As discussed in the Chapter 3, the appreciation of the real exchange rate has been accompanied by problems in macroeconomic management of massive capital inflow with domestic stability. Rapid increases in investment rates by both public and private sectors in 2007 contributed to a high deficit in the domestic savings-investment balance. At the same time, net capital inflow accounted for an extremely high proportion (24 per cent) of GDP (Riedel 2009). By the end of 2008, the government had managed to resolve the economic instability, but the lack of efficient instruments to stabilize the economy worsened the situation (Menon 2009). For this reason, many foreign investors in turn postponed investment projects of labour-intensive, export-oriented industries (World Bank 2008). The resulting macroeconomic instability further increased since the onset of the 2009 global financial crisis, and taken together, these have made it more difficult for the Vietnamese government to ride out this period of economic turbulence, and to continue the export-oriented industrialization like other labour-abundant economies in East Asia.

In sum, the appreciation of the real exchange rate since 2006 resulting from domestic macroeconomic mismanagement seems to have been an impediment for employment generation in the manufacturing sector. But was there any deep-seated factor which also required attention? First, in response to being granted WTO membership, the Vietnamese government adopted, with great confidence, a grandiose economic plan that, it hoped, would enable its economy to catch up with developed countries (Viet 2009). This plan, which placed strong emphasis on industrial policy aimed at the development of capital-intensive and high technology industries, could prove to be the catalyst for de-railing the EOI process. In addition, the government continued to support SOEs as a developmental priority to perform the great development plan. This priority is in marked contrast to the experience of other East Asian economies (for example, Taiwan and South Korea) at similar stages in their economic development. Since 2006, large state-owned corporations like South Korean *chaebols* have been established. For example, the Vinashin-the state owned-shipbuilding conglomerate expanded their business operation to over 100 affiliated companies in a wide range of businesses ranging from real estate, financial services to trading over a couple of years (Pincus 2009). As expected, during the period 2006-09, these state conglomerates have mostly been involved with capital and import-intensive industries (Dapice et al. 2008). Thus, the sluggish employment growth in manufacturing is also attributed to the expansion of the SOEs.

The analysis suggests that on the whole, the slowdown in manufacturing employment can mainly be attributed to the macroeconomic imbalance fuelled by the investment boom. Additionally, the government interventions in industrial policy and SOEs since 2006 are also considered as a backsliding policy during the EOI process. There appears to be an early, clear sign that the transformation of labour from agriculture into manufacturing has started to wane in Vietnam.

4.7 Conclusions

The objectives of this chapter were threefold. First, it examined the growth and structural changes in the Vietnamese economy following the period of economic reform. Secondly, the employment transition was investigated, with a special emphasis on the manufacturing sector. Lastly, the chapter explored the sluggish job growth in manufacturing in recent years against the backdrop of labour transition among East Asian labour-abundant economies.

The findings suggest that the market-oriented policy reforms in Vietnam over the previous two decades have led to far-reaching changes in the structure and performance of the Vietnamese economy. These changes in economic structure have been matched with comparable changes in employment pattern. The manufacturing sector has shown an improved performance in attracting massive amounts of unskilled workers from agriculture. Within manufacturing, the private sector firms, in particular the FIEs, have been increasingly responsible for job creation, contributing to the gradual erosion of the dominant SOEs. The shift in labour from agriculture into manufacturing over the two past decades is consistent with the predictions of the Lewis-Fei-Ranis growth model. The intensity and speed of employment transformation in Vietnam lagged behind two NIEs, but to some extent performed better than some economies within the ASEAN-4. However, there is an early warning that the process of labour-intensive industrialization has begun to falter in recent years. This unfavorable employment outcome was probably caused by the macroeconomic instability and policy reversals from about 2006.

Chapter 5

Export-oriented industrialization and employment growth in the Vietnamese economy

5.1 Introduction

This chapter examines the impact of export expansion on employment generation in Vietnam in the context of export-oriented industrialization (EOI) since the early 1990s. It does so by exploring the expansion of manufacturing exports, together with the resultant structural change in Vietnam's manufacturing sector for employment generation. Three issues are addressed: the overall pattern of employment stimulated by exports; the number of jobs created through manufacturing exports; and the role of export-oriented manufacturing in employment growth in Vietnam.

The empirical analysis in this chapter is based on the Leontief inter-industry accounting framework. The advantage of the inter-industry input-output framework in this type of analysis is that it takes into account both direct and indirect (inter-sectoral) consequences for the overall economy. This allows us to depict the interdependence between sectors, as well as between the economy and export expansion. In particular, an employment multiplier derived using the input-output coefficients helps us to examine the contribution of the expansion of manufacturing exports to employment generation.

This chapter is organized as follows. In the first section, the changing structure of manufacturing in Vietnam is discussed in terms of output and employment. The next section analyzes the relative importance and composition of manufacturing exports in total exports. The section following this examines the impact of manufacturing exports on employment growth using the Input-Output (I-O) tables for Vietnam for 2000 and 2007, with an emphasis on the relative importance of export-oriented industries. The final section summarizes the findings and discusses policy implications for an industrialization strategy.

5.2 Structural change in the manufacturing sector

The analysis in this chapter covers 21 manufacturing industries identified at the two-digit level of the Vietnam Standard Industrial Classification (VSIC). [29] Refined petroleum and gas (VSIC 23) is excluded because of possible distortions resulting from price fluctuation. Disaggregated data by two-digit industries shows a notable compositional change in this sector over the period 1995-2009 (Table 5.1). As a backdrop to the subsequent analysis, several interesting features of the structure and performance of Vietnamese manufacturing deserve comment.

The most striking feature of Vietnamese manufacturing is the dominance of the processed food industry (VSIC 15); this accounted for above a quarter of total manufacturing output over the period 1995-2009. The next largest share of output is held by industries in the labour-intensive sector,[30] which, since 2000 has accounted for over 20 per cent of the total. Of these labour-intensive industries, in terms of output the most important are furniture (VSIC 36), footwear (VSIC 19) and apparel (VSIC 18). The electronics share remained quite small, although this industry did rise very erratically from the early 2000s.

A second major feature relates to the diversification of manufacturing output. Between 1995 and 2009, the share of the resource-based industries, such as processed food (VSIC 15), chemical products (VSIC 24) and non-metallic mineral products (VSIC 26), in total manufacturing output declined sharply. Typically, the processed food industry share of total output fell steadily, from 1995 when it was 32 per cent to 28 per cent in 2000 and just 24 per cent in 2009. The decline in manufacturing output in these industries was replaced by a rising share of the capital-intensive industries in manufacturing output. A good example of this can be seen in the output share of basic metals (VSIC 27) which shifted from just above four per cent in 1995 to about nine per cent by 2009. Similarly, the machinery and equipment industry (VSIC 29) share of total manufacturing output increased from below two per cent in 1995 to six per cent in 2009.

[29] VSIC denotes the Vietnam Standard Industrial Classification, 1993 revision. This nomenclature is consistent with the International Standard Industrial Classification (ISIC).

[30] The labour-intensive sector includes traditional labour-intensive industries (VSIC 18,19, 20, & 36) and the electronics industry (VSIC 30-33).

Table 5.1:Structural change in manufacturing output in Vietnam, 1995-2009 (in%)

Manufacturing industries by two-digit VSIC	Composition[a]			Growth rates[b]		
	1995	2000	2009	95-99	2000-09	1995-2009
15: Food products and beverages	32.4	27.6	24.2	8.7	14.7	13.0
16: Manufacture and tobacco products	4.8	3.6	1.9	4.8	8.4	8.1
17: Manufacture of textiles	7.4	6.4	4.6	8.0	12.2	11.5
18: Manufacture of wearing apparel	3.5	3.8	4.6	15.3	18.8	17.6
19: Manufacture of leather products	4.3	5.6	4.9	21.3	14.7	16.5
20: Manufacture of wood and wood products	4.0	2.3	2.1	-1.1	15.5	10.4
21: Paper and paper products	2.3	2.5	2.7	15.5	17.4	16.6
22: Publishing and printing	1.8	1.4	1.1	7.4	12.7	11.2
24: Chemical and chemical products	6.1	7.0	0.1	17.5	14.8	15.5
25: Rubber and plastic products	2.7	4.1	6.2	24.3	20.9	21.7
26: Manufacture of non-metallic mineral products	11.0	11.5	5.7	12.6	13.5	13.9
27: Manufacture of basic metals	4.1	3.7	9.2	9.9	16.9	14.9
28: Fabricated metal products	2.8	3.6	3.9	21.2	23.0	21.8
29: Machinery and equipment	1.6	1.7	6.0	12.6	13.7	14.3
30: Office, accounting and computing machinery	0.0	0.8	1.4	179.5	24.2	51.2
31: Electrical machinery and apparatus	1.3	2.3	1.5	28.3	23.1	24.6
32: Radio, television and communication equipment	2.5	2.8	3.8	17.9	15.0	15.4
33: Medical, precision and optimal instruments	0.2	0.3	2.5	18.2	26.2	22.5
34: Motor vehicles, trailers and semi trailers	1.8	2.0	0.6	6.0	22.4	20.5
35: Manufacture of other transport means	2.3	4.1	3.2	24.7	20.2	22.8
36: Manufacture of furniture, n.e.c	2.4	2.5	5.4	14.6	23.1	20.1
Labour-intensive sector[c]	18.3	20.3	26.3			
Whole of manufacturing				**12.6**	**16.4**	**15.4**

Notes: (a) Ratios are calculated based on the 1994 constant price.

(b) Average annual growth rate over the period on the 1994 constant price.

(c) The labour-intensive sector includes traditional labour-intensive industries (VSIC 18,19, 20 & 36) and the electronics industry (VSIC 30-33).

n.e.c : not elsewhere classified.

Source: Based on data compiled from C.E.I.C. Asian database, 2012.

The changing composition of manufacturing output accords well with *a priori* expectations. Vietnam's comparative advantage in low labour costs explains the prominence of labour-intensive industries. The case of the processed food industry not only highlights Vietnam's relatively productive agricultural sector (Athukorala 2009a, 2009b) but also reflects the structure of domestic consumption in this low-income economy. An equally notable feature is the quite high share of capital-intensive industries such as those found in the heavy processing and metal goods industries (VSIC 27, 28). This may be due to import-substitution bias and the powerful position of state-owned enterprises (SOEs) in these sheltered industries.

Table 5.2: Manufacturing employment in Vietnam: composition and growth, 2000-09 (in %)

Manufacturing industries by two-digit VSIC	Composition			Growth rates[b]
	2000	2004/05[a]	2009	2000-09
15: Food products and beverages	16.8	14.1	12.9	7.9
16: Manufacture and tobacco products	0.8	0.5	0.3	1.3
17: Manufacture of textiles	7.7	5.6	4.8	5.5
18: Manufacture of wearing apparel	14.5	17.1	18.5	14.2
19: Manufacture of leather products	18.6	17.7	14.7	8.3
20: Manufacture of wood and wood products	4.0	3.8	3.1	8.1
21: Paper and paper products	2.3	2.2	2.1	10.0
22: Publishing and printing	1.4	1.4	1.5	11.9
24: Chemical and chemical products	4.1	2.6	2.9	7.1
25: Rubber and plastic products	3.2	3.7	4.3	14.7
26: Manufacture of non-metallic mineral products	8.0	7.4	6.9	9.3
27: Manufacture of basic metals	1.8	1.4	1.6	9.8
28: Fabricated metal products	3.2	4.2	5.1	17.1
29: Machinery and equipment	1.9	1.5	1.7	9.3
30: Office, accounting and computing machinery	0.2	0.3	0.8	31.0
31: Electrical machinery and apparatus	2.5	2.5	2.8	12.7
32: Radio, television and communication equipment	1.0	1.1	2.1	20.3
33: Medical, precision and optimal instruments	0.4	0.4	0.4	11.2
34: Motor vehicles, trailers and semi trailers	1.0	1.2	1.4	15.6
35: Manufacture of other transport means	2.5	2.9	3.3	14.6
36: Manufacture of furniture, n.e.c	4.1	8.1	8.6	20.6
Labour-intensive sector[c]	45.3	50.9	51.1	
Whole of manufacturing				**11.1**

Notes: (a) Two-year averages.

(b) Average annual growth rate over the period 2000-2009.

(c) The labour-intensive sector includes traditional labour-intensive industries (VSIC 18, 19, 20 & 36) and the electronics industry (VSIC 30-33).

n.e.c : not elsewhere classified.

Source: Based on data compiled the *GSO Enterprise Survey 2000-09.*

Structural change in Vietnamese manufacturing has been accompanied by a changing composition in employment. Data on the growth and industry composition of manufacturing employment are presented in Table 5.2. Employment generation is mainly concentrated in the traditional labour-intensive industries, the electronics industry[31], and the processed food industry. The traditional industries include apparel, footwear and furniture: all three are not only most labour-intensive but are also highly

[31] The electronics industry is mainly involved in labour-intensive assembly and packaging activities in Vietnam. Thus, it can be considered as a labour-intensive one.

export-oriented. As with electronics, some of the component production and assembly industries such as office, accounting and computing machinery (VSIC 30), and radio and television equipment (VSIC 32) grew at a noteworthy rate (at 30 per cent and 20 per cent per annum, respectively) over the period 2000-09 after starting from a very small base. The processed food industry (VSIC 15), unlike other resource-based industries, has had a high level of job creation over that period. The employment share of processed food declined slightly over the period 2000-09 but this was still comparable to that of the traditional labour-intensive industries. Another industry that has generated a considerable number of jobs is the non-metallic mineral industry (VSIC 26).

Two notable relationships between output, exports and employment emerge from this table. First, the labour-intensive industries only accounted for about 20 per cent of the total output, yet contributed to over half of the total manufacturing employment during the period 2000-09. Second, these labour-intensive industries (namely apparel, footwear, and furniture) figured prominently in export performance, with their combined shares accounting for 40 per cent of total non-oil exports in 2009 (We will return to this in the discussion of export patterns). This is similar to the situation in the 1950s and 1960s when the present-day industrialized economies in East Asia began their economic development following export-led growth strategies: when traditional labour-intensive manufacturing was the main growth area for jobs. From this relation, we can postulate that this export expansion could translate into higher employment in Vietnam.

What we have seen until now is that the labour-intensive industries, together with the processed food industry, have contributed over half of the total manufacturing employment for the period 2000-09.[32] This stimulated a shift in labour away from the low-wage agricultural sector into the higher-wage manufacturing sector, a pattern consistent with the East Asian experience surveyed in Chapter 2. Hence, it is important to examine how Vietnam's export patterns have evolved following the reforms. We deal with this subject in the following section.

[32] Based on data compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

5.3 Export patterns

Table 5.3 summarizes the data on export performance by each major merchandise group over the period 1990-2011. In compiling this table, manufacturing products have been identified based on the VSIC classification system to make the data comparable with the discussion on the changes in the output composition of manufacturing in the previous section. The major difference between VSIC and the Standard International Trade Classification (SITC) is that under the former, processed foods are identified as part of manufacturing (industrial) goods, whereas the latter combines processed foods with primary food products. In a country such as Vietnam that is well endowed with significant agricultural and marine resources, increase in the production of processed foods (such as fish products, coffee extracts, and processed fruits) can make a significant contribution to export expansion, in addition to the contribution of the standard labour intensive manufactured goods (Athukorala & Sen 1998). Therefore, the VSIC classification system which incorporates a processed food category[33]as a part of manufacturing goods is more appropriate for analyzing the performance of manufacturing exports from Vietnam.

Table 5.3: Vietnam's export growth, 1990-2011 (in %)

	1990-1994	1995-99	2000-11	1990-2011
(a) Growth rate (% p.a)				
Primary products	14.0	-16.9	19.8	9.8
Manufacturing exports[a]	14.6	36.9	21.1	23.6
Total non-oil exports[b]	14.0	14.2	21.0	18.7
(b) Contribution to export incremental (%)				
Primary products	61.6	-44.5	11.9	10.7
Manufacturing exports	39.5	144.0	87.5	88.7
Total non-oil exports	100	100	100	100

Notes: (a) The original export data based on the Standard International Trade Classification (SITC) are converted into VSIC. The value of VSIC-based manufacturing exports is approximately equal to SITC 5-8, less SITC 68 (non-ferrous metal) and plus processed foods.

(b) Non-oil exports: total exports less oil and gas exports (SITC 33, SITC 34)

Source: Based on data compiled from C.E.I.C. Asian database, 2012 and UN Comtrade database.

[33] Processed foods are separated from the SITC 0 (food and live animals), SITC 1 (beverages and tobacco) and SITC 4 (vegetable oils) using the classification system developed by Athukorala & Sen (1998).

Total non-oil exports from Vietnam grew at an average annual growth rate of about 19 per cent during the period 1990-2011. Of these exports, the average growth rate of manufacturing exports was nearly 24 per cent per annum; this growth contributed about 90 per cent of the overall export growth for the same period. Meanwhile, the growth rate of primary produce exports was 14 per cent in the first period, and this decreased sharply over the period 1995-1999 before recovering to an average annual rate of around 20 per cent in the period since 2000.

Table 5.4: Composition of non-oil exports, Vietnam, 1990-2011

	1990	1995	2000	2011
Export value (US$ million at current prices)				
Total non-oil exports	2,404	5,449	10,754	87,609
Primary products	1,481	3,257	1,453	10,617
Manufacturing exports	901	2,192	9,273	76,500
Processed foods	200	407	2,897	13,823
Chemicals	18	31	159	2,876
Resource-based manufactures	107	350	889	10,445
Machinery and transport equipment	1	89	1,276	18,835
Miscellaneous (labour intensive products)	575	1,315	4,052	30,521
Unclassified	22	0	6	63
Percentage of total non-oil exports (%)				
Primary products	61.6	59.8	13.5	12.1
Manufacturing exports	37.5	40.2	86.2	87.3
Processed foods	8.3	7.5	26.9	15.8
Chemicals	0.7	0.6	1.5	3.3
Resource-based manufactures	4.5	6.4	8.3	11.9
Machinery and transport equipment	0.0	1.6	11.9	21.5
Miscellaneous (labour intensive products)	23.9	24.1	37.7	34.8
Unclassified	0.9	0.0	0.1	0.1

Notes: Processed foods are separated from the SITC 0 (food and live animals), SITC 1 (beverages and tobacco) and SITC 4 (vegetable oils) using the classification system developed by Athukorala and Sen (1998). This system was defined using a commodity concordance linking Standard International Trade Classification (SITC) and International Standard Industrial Classification (ISIC). The comparable sections in the ISIC are industry groups 15-16.

Source: Based on data compiled and calculated from C.E.I.C. Asian database, 2012 and UN Comtrade database.

The data reported in Table 5.4 shed light on the structural shift in the commodity composition of Vietnam's exports. Since the early 1990s, there has been a marked shift in the composition of merchandise exports away from primary products and toward manufacturing commodities. The speed of this shift in Vietnam has been modest compared to Taiwan and South Korea during their early stages of development from the 1960s to 1970s (Balassa 1985; Kuo & Fei 1985). In the early years of the reform

process in Vietnam, the share of manufacturing exports in total non-oil exports was only below 40 per cent (about US$ 0.9 billion) in 1990, but rose to over 88 per cent (above US$ 33 billion) in 2011.[34] It is important to note that traditional labour-intensive products – especially apparel, furniture and footwear (all three classified as miscellaneous manufacturing) – have played a significant role in manufacturing exports, accounting for one third of non-oil exports. It is of interest that the processed foods recorded a significant share (above 15 per cent) of total non-oil exports from 2000.

The data in Table 5.5 reveal three noteworthy features of compositional shifts in manufacturing exports over the period 2000-11. First, the traditional labour-intensive manufacturing exports – especially apparel (VSIC 18), furniture (VSIC 36) and footwear (VSIC 19) – have had the most rapid growth over that period. This product category accounted for over 40 per cent of the total non-oil manufacturing exports during the period 2000-11, and contributed as much as a third of the non-oil manufacturing export increment. It should be noted that within this category, there has been a notable changing distribution. The share of furniture in total non-oil manufacturing exports increased almost two-fold between 2000 and 2011. In contrast, the proportion of footwear declined considerably, from 20 per cent in 2000 to 10 per cent in 2011.

Secondly, processed food products have contributed over 14 per cent of the total manufacturing export increment during the examined period, despite a steady decline in its share. Within this category, processed fish products figured prominently in terms of annual growth, and the share was almost above 80 percent over that period.

Finally, the share of the electronics products in total VSIC-based manufacturing exports began to increase rapidly in the early 2000s. This category accounted for 19 per cent in the overall growth of manufacturing exports over the period 2000-11. To some extent, this trend is an early sign of Vietnamese manufacturing becoming involved with the global production network. Typically, the growth of telecommunications and sound recording equipment (VSIC 32) has been rather erratic and in 2011 these products account for a high share of total manufacturing exports

[34] These export data are measured in current prices.

Table 5.5: Manufacturing exports: composition and growth in Vietnam, 2000-11 (in %)

Manufacturing exports by two-digit VSIC	Composition			Growth rate[a]	Contribution[b]
	2000	2006	2011	2000-2011	
15: Food products	27.7	20.2	16.1	16.0	14.7
16: Tobacco products	0.1	0.4	0.3	34.8	0.3
17: Manufacture of textiles	4.7	7.1	8.2	28.0	8.6
18: Wearing apparel	19.7	18.1	13.7	17.9	12.9
19: Leather products including footwear	19.1	15.6	10.7	15.5	9.6
20: Wood products	2.1	1.8	1.8	20.1	1.8
21: Paper products	0.4	0.6	0.4	21.9	0.4
22: Publishing and printing	0.3	0.1	0.2	19.1	0.2
24: Chemical products	1.5	3.0	3.2	30.4	3.4
25: Rubber and plastic products	1.5	2.4	3.2	30.9	3.4
26: Non-metallic mineral products	1.7	1.8	1.7	22.0	1.7
27: Basic metals	0.8	1.6	3.6	40.0	4.0
28: Fabricated metal products	0.7	2.1	1.8	33.5	2.0
29: Machinery and equipment n.e.c	1.2	1.7	4.3	37.3	4.7
30: Office, accounting and computing machinery	5.6	4.5	1.2	5.9	0.6
31:Electrical machinery and apparatus	2.9	5.4	5.3	28.4	5.6
32: Radio, television & communication equipment	3.7	2.5	11.5	35.1	12.5
33: Medical, precision and optimal instruments	0.5	0.7	1.7	36.2	1.8
34: Motor vehicles, trailers and semi trailers	0.1	1.2	0.9	56.7	1.1
35: Manufacture of other transport means	1.1	0.8	1.5	25.5	1.6
36: Manufacture of furniture, n.e.c	4.6	8.6	8.6	28.8	9.1
Labour-intensive sector[c]	58.3	57.2	54.4		
Non-oil manufacturing exports	**100**	**100**	**100**	**21.8**	**100**

Notes: (a) Average annual growth rate over the period 2000-2011.

(b) Contribution to manufacturing export growth over the period.

(c) Labour-intensive sector includes traditional labour-intensive industries (VSIC 18, 19, 20 & 36) and the electronics industry (VSIC 30-33).

n.e.c : not elsewhere classified.

Source: Compiled from UN Comtrade database, 2012.

Another important issue in the examination of export performance in developing countries is the estimation of the domestic value-added content of exports. The level of import content in the exports can overestimate the overall degree of an economy's export orientation when imported inputs are utilized in export production, as they are so often in developing countries. Therefore, it is important to determine to what extent the value of the domestic value-added exports contributes to the value of gross exports,

compared to those of imported inputs. Utilizing the Input-Output tables for 2000 and 2007, we compute the import content (direct and total) of exports.[35]

Table 5.6 shows the import intensity of total and manufacturing exports for 2000 and 2007. These results indicate that the total value of gross exports only represents about 50 per cent of domestic value added; this figure is even lower for the case of manufacturing exports. Exports from Vietnam have become increasingly dependent on imported intermediate inputs that are used directly and indirectly in production. In particular, for manufacturing exports, the processing and re-export of imported inputs represents over 50% of the total.

Table 5.6: The import content* of Vietnamese exports, 2000 and 2007 (in %)

Year	Direct import content of exports	Total import content of exports
	Total exports	
2000	18.4	35.1
2007	26.0	47.5
	Manufacturing exports	
2000	26.8	49.3
2007	31.3	55.6

* Percentage shares of import content in gross exports.

Source: Compiled from the I-O tables 2000 and 2007.

Manufacturing exports from Vietnam are characterized by a high degree of import intensity at the early stages of development. Some policy makers have interpreted the high level of imported intermediate inputs in export-oriented industries to be an obstructing factor for employment generation. However, in an open small developing economy, employing a large proportion of imported capital-intensive intermediate inputs for export production implies a substitution of labour for capital in production. This increases job growth through exports, even though domestic linkages are decreasing (Athukorala & Santosa 1997; Riedel 1975).

Regarding the employment potential of resource-based industrialization, the common argument is that capital expenses and raw materials occupy a high proportion of production costs in resource-intensive industries (Roemer 1979). But this is not the case for the processed food industry which, unlike other resource-based industries, involves

[35]The methodology used is explained in Section 5.4.

many labour-intensive tasks in its final processing stages (Athukorala & Sen 1998). Such export expansion enhances employment creation, together with greater linkages with the rural sector of the economy. These two views support the hypothesis of a strong association between export expansion and employment growth in the manufacturing sector. We test this hypothesis more explicitly in the next section.

It is evident that there is an association between export expansion and employment creation in Vietnamese manufacturing. But how much of this employment growth can be attributed to a surge in manufacturing exports? And has Vietnam followed in the footsteps of other labour-abundant East Asian economies where the rapid growth of labour-intensive manufacturing exports has triggered an employment transformation and driven growth in jobs?

5.4 Manufacturing exports and employment

In this section, we examine the contribution of manufacturing exports to employment expansion using the input-output technique, a methodology that has been widely used in the related literature.[36] This methodology is particularly suited to this purpose since it captures both direct employment (*i.e.* employment generated in exporting industries), and employment generated indirectly in other industries through inter-sectoral input-output linkages. Owing to the nature of data availability, this analysis focuses solely on the years 2000-07, a period when there was a pronounced shift of unskilled labour into manufacturing.

5.4.1 Method

In an input-output framework of the complementary import type, the import content of each transaction is separately identified and arranged into an import matrix. Thus, the following balance equation can be derived:[37]

$$X = A^d X + F^d + E \qquad \textbf{(5.1)}$$

[36] See Athukorala and Santosa (1997), Bulmer-Thomas (1982), Fujita and James (1997), and Kuo (1983) and the works cited therein.

[37] For a summary exposition see Thirlwall (2006: Chapter 13).

where X is the vector of total gross output, $A^d = [a_{ij}^d], a_{ij}^d = X_{ij}/X_j$ is the domestic input-output coefficient matrix, and F^d and E are vectors of the domestic and export demand on domestically produced goods. Then, the following solution can be derived:

$$X = (I - A^d)^{-1}(F^d + E) \quad \textbf{(5.2)}$$

where $(I - A^d)^{-1}$ is the Leontief domestic inverse matrix of the direct and indirect input requirements of good *i* in the production of one unit of the final demand for good *j*. The column-sums of the $(I - A^d)^{-1}$matrix are the direct and indirect, domestically produced intermediate input requirements per unit of final demand for good *j* which is defined as backward linkages (*BL*). In other words,

$$BL_j = \sum_j^n \tilde{a}_{ij}^d \quad \textbf{(5.3)}$$

where $\tilde{a}_{ij}^d$ is an element of the Leontief domestic inverse matrix. This index depicts the total demand for the intermediate input when domestic final demand or exports for the j^{th} commodity increases by one unit.

Next, to measure the employment implications of exports, we begin by defining a diagonal matrix of employment coefficients

$$G = [g_i], g_i = G_i/X_i \quad (\mathbf{5.4})$$

where G_i represents the number of workers employed in sector *i.* The empirical basis for the quantification of total employment in sectoral production can be obtained by

$$G(I - A^d)^{-1} = L \quad \textbf{(5.5)}$$

where L is the total employment requirement matrix of domestic production. An element of this matrix, l_{ij}, indicates the increase in employment in sector *i* resulting from a unit increase in final demand for sector *j*. Therefore, when there is a unit increase in domestic final demand or in exports for sector *j*, the corresponding increase in total employment (l_{Tj}) is shown by $l_{Tj} = \sum_{i=1}^n l_{ij}$ *(j=1,2…,n)*. This expresses a measure of the employment multiplier when domestic final demand or exports for the j^{th} commodity increases by one unit.

Let e_j refer to the value of total exports from sector j. Assuming that the level of employment required to produce a unit of output is identical[38] whether the product is sold domestically or exported from sector j, then the total employment induced by exports in sector j, which is denoted by l_{Tj}^{e}, can be estimated as:

$$l_{Tj}^{e} = l_{Tj}.e_j \quad \textbf{(5.6)}$$

The aggregate export-induced employment of the economy (L_T) is, hence,

$$L_T = \sum_j l_{Tj}^{e} \quad \textbf{(5.7)}$$

Furthermore, in evaluating the relative contribution of imports to gross exports, an import matrix (M matrix) is required to measure the import content of exports. This matrix shows the per unit requirements of imported intermediate inputs. The column-sums of the M matrix $\left(\bar{m} = \sum_j m_{ij}\right)$ are the direct imported intermediate input requirements per unit of output. An export-weighted average of these values indicates the direct import content of the export. Thus, the empirical basis for the calculation of total import content in sectoral production can be obtained as:

$$M(I - A^d)^{-1} = M^* \quad \textbf{(5.8)}$$

where M^* is a matrix of direct and indirect imported inputs per unit of final demand. The column-sums of the M^* matrix $\left(\bar{m}^* = \sum_j m_{ij}^*\right)$ are the direct and indirect imported input requirements per unit of final demand. An export-weighted average of these values provides a measure of direct and indirect import contents of exports.

5.4.2 Data

The estimates of export-induced employment in this chapter are based on the I-O tables for 2000 and 2007 and employment data taken from the Statistical Yearbooks and the Enterprise Survey (GSO). In order to examine the inter-sectoral repercussions of exports in employment growth, the I-O tables are aggregated into 25 sectors based on the multi-

[38] Normally, labour requirements in an industry's production for exports are of a higher skill level than in its production for the home market. This estimation procedure may lead to an underestimation of the value of labour employed in manufacturing exports.

sector classification of the original I-O tables by the GSO.[39] The results are reported under five major sectors: agriculture, mining and quarrying, manufacturing, construction and public utilities, and services.

Before proceeding with the analysis, two cautionary comments about the quality of data are in order. First, the I-O tables are of the complementary import type in which a corresponding import matrix with estimates of imported intermediate input transactions was provided by the GSO. Estimates of imported intermediate inputs by GSO are based on the implicit assumption that the distribution of imported inputs across all inputs was the same for every industry. Secondly, for the purpose of this analysis, employment data for manufacturing industries have been compiled from the Enterprise Survey on the assumption that the manufacturing sector has the same employment structure as that estimated from the Enterprise Survey. This procedure could lead to an underestimation of the employment effect because the survey data covers mostly large and medium-sized firms. With these caveats, we do not have any a priori reason to doubt these assumptions on which these calculations are based.

5.4.3 Results

Table 5.7 illustrates how the structure of employment has been affected by manufacturing exports. The composition of employment created by manufacturing exports was quite similar between the two years. In 2000, about 64 per cent of the total employment generated by manufacturing exports was in the agriculture sector. This confirms a powerful linkage between the processed food exports and the agricultural sector. This is because most of this industry's raw materials come from agriculture. As expected, manufacturing employment was also strongly affected by the exports from this sector. Within the industrial sector, the job-created effect of manufacturing exports on two other sub-industries (mining and construction) was almost negligible – the effect on the construction sector runs counter to the normal expectation that links with manufacturing would be stronger in this sector.[40] Furthermore, a modest proportion of jobs created by manufacturing exports was found in the services sector in 2000.

[39] GSO provided a 112-sector classification in the I-O table for in 2000 and 136-sector classification in 2007. This aggregation was needed because employment data are available only at the 25-sector level.

[40] The minor effect on the construction sector may be due to the poor data quality provided in the I-O table in 2000.

Although most of the employment created by manufacturing exports in 2007 was still concentrated in agriculture (reflecting the continuing importance of processed food in the export composition), its share in total export-induced employment fell to a half. This partly reflects the shrinking share of the processed food category in total manufacturing exports. However, manufacturing exports were far more significant in creating employment in non-agricultural sectors. A sharp increase in export-related jobs was apparent in other sectors, in particular in construction[41] and services, as well as in manufacturing. This demonstrates significant structural change in employment patterns which resulted from the expansion of manufacturing exports, especially those that involve more labour-intensive products.

Table 5.7: Sectoral composition of employment created by manufacturing exports, Vietnam 2000 and 2007

Sectors	**2000**		**2007**	
	Number ('000)	Percentage (%)	Number ('000)	Percentage (%)
Agriculture	3,764	*64.0*	6,488	*50.4*
Mining and quarrying	6	*0.1*	47	*0.4*
Manufacturing	1,595	*27.1*	3,861	*30.0*
Construction and public utilities	30	*0.5*	834	*6.5*
Services	488	*8.3*	1634	*12.7*
All sectors	5,884	*100*	12,863	*100*

Source: Calculated from the I-O tables, 2000 and 2007

The contribution of manufacturing exports to employment creation is shown in Table 5.8. Total employment generated by manufacturing exports shows a more than two-fold increase, from 5.8 million in 2000 to 12.9 million in 2007. Manufacturing exports contributed to almost 30 per cent of total employment in 2007, up from about 16 per cent in 2000. This share is comparable to that in Taiwan and South Korea during their early stages of industrialization (Kuo 1983). As might be expected, manufacturing exports were the most significant source of manufacturing employment in Vietnam. In particular, within manufacturing the number of jobs created through exports increased

[41] There appears to be a significant improvement in the quality of data in the 2007 I-O table, compared with the previous table. Hence, it reflects the expected effect of manufacturing exports on the construction sector.

from about 1.6 million in 2000 (about a half of total manufacturing employment) to 3.8 million (nearly 70 per cent of the total) in 2007.

Table 5.8: Contribution of manufacturing exports to employment creation, Vietnam 2000 and 2007

Sectors	2000			2007		
	Total	Export-related		Total	Export-related	
		Number ('000)	*% of all jobs (%)*		*Number ('000)*	*% of all jobs (%)*
	(1)	(2)	(2)/(1)	(1')	(2')	(2')/(1')
Agriculture	25,045	3,764	15.0	24,368	6,488	26.6
Mining and quarrying	219	6	2.7	299	47	15.7
Manufacturing	3,208	1,595	49.7	5,741	3,861	67.2
Construction and public utilities	1,018	30	3.0	2,534	834	32.9
Services	7,212	488	6.8	12,266	1,634	13.3
All sectors	**36,702**	**5,884**	**16.0**	**45,208**	**12,863**	**28.5**

Source: Calculated from the I-O tables, 2000 and 2007

As discussed in the previous section, there has been increasing export orientation of Vietnamese manufacturing. One of main advantage of export orientation in a labour-abundant economy is that export-oriented production tends to be more labour intensive compared to import-competing industries. Based on the investigation of export performance record, we selected these manufacturing industries as export-oriented industries: processed foods (VSIC 15) including seafood, apparels (VSIC 18), leather products including footwear (VSIC 19), wood products (VSIC 20), furniture (VSIC 36), and the electronics products (VSIC 30-33). The selection of these industries is relied on the basis of Vietnam's export composition and its growth over the period 1990-2011. These industries also have export-output ratios over 30 per cent in the I-O tables for 2000 and 2007.[42] Thus, the importance of manufacturing exports for employment justifies a closer examination of the change in employment generated by the expansion of manufacturing exports in the export-oriented (EO) industries and the import-competing (IC) industries.

Table 5.9 examines employment generation among these two industry category. On the one hand, these data suggest that the job-creation impact of manufacturing exports

[42] See Appendix 5.1 at the end of this chapter for further information on the export orientation of these industries.

in both the EO and the IC sectors has increased, though more so in the former. The role of the EO sector in employment generation has worked well, since the number of jobs created through manufacturing exports doubled between 2000 and 2007. EOI can be considered as a reasonable, even promising policy, when as much as 19 per cent of export-created jobs can be attributed to the EO sector in 2000, the early point of extensive liberalization reform. On the other hand, while the export pattern has changed dramatically in favor of manufacturing, the structure of export-induced employment in manufacturing has not. There was little change in the distribution with regard to the EO sector, as its share in the total export-created employment only increased slightly to 20 per cent in 2007. Bearing in mind that while manufacturing exports from Vietnam rose to a high rate of 20 per cent per annum over the period 2000-07, the employment share of the EO sector created through manufacturing exports only increased by a small amount – just one percentage point between these years. Thus, there was not much improvement in the impact of the EO sector on employment generation during this period despite the intensified reforms of trade, investment and enterprise since the early 2000s. To sum up, labour-intensive exports worked well over the first decade of the 2000s even though the contribution of the EO sector to export-job creation grew at a modest rate.

Table 5.9: Jobs creation in EO and IC sectors, Vietnam 2000 and 2007

Two-digit VSIC manufacturing industries	**Job created through manufacturing exports**			
	2000		**2007**	
Main export-oriented industries	*Number ('000)*	*Percentage %*	*Number ('000)*	*Percentage %*
15: Food products	161	2.7	417	3.2
18: Wearing apparel	392	6.7	739	5.7
19: Leather products	463	7.9	842	6.5
20: Wood products	66	1.1	163	1.3
36: Manufacture of furniture, n.e.c	12	0.2	349	2.7
30-33:The electronics industry	65	1.1	57	0.4
Sub-sum of above	*1,160*	*19.7*	*2,567*	*20.2*
Typical import-competing industries				
17: Textiles	160	2.7	155	1.2
24: Chemical products	29	0.5	90	0.7
26: Non-metallic mineral products	58	1.0	313	2.4
27, 28 Basic metals and fabricated metal products	51	0.9	294	2.3
Sub-sum of above	*298*	*5.1*	*852*	*6.6*
Total export-induced employment	**5,884**	**100**	**12,863**	**100**

Source: Calculated from the I-O tables, 2000 and 2007

5.5 Conclusions

This chapter has examined the impact of manufacturing exports on employment generation in the Vietnamese economy. It firstly focused on the structural change in manufacturing and the remarkable performance of manufacturing exports over the period 2000-07. This is followed by a core analysis using the inter-industry input-output framework to quantify the impact of export orientation on employment growth, utilizing the Input-Output tables for 2000 and 2007.

The results show the significance of manufacturing export expansion for employment generation in the Vietnamese economy. Export patterns have changed significantly, with a reduced position for primary products, a rise in proportion of manufacturing exports, and a structural shift toward labour-intensive commodities within manufacturing. These changes in export patterns have reflected in significant changes in employment pattern during the period under study.

Through the direct effect of export expansion, and the accompanying spillover effects within the economy, about 7 million of new jobs were created. In particular, above a half of the total jobs created by manufacturing exports was in the agriculture sector, reflecting the significant contribution of processed foods to export expansion in Vietnam. However, the share of export-related employment in agriculture has declined between 2000 and 2007 because of the change in the export composition in favour of labour-intensive manufacturing products.

The number of jobs created by manufacturing exports increased two-fold in the export-oriented industries between 2000 and 2007. Overall, export-oriented industrialization, which is based on labour-intensive manufacturing for exports has performed acceptably between 2000 and 2007.

Appendix 5.1: Export-output ratios of I-O industries

I-O codes	Industries	2000	2007
1	Agriculture	14.6	16.3
2	Mining	86.0	79.2
3	15: Food products	25.9	38.1
4	16: Tobacco products	1.7	16.7
5	17: Manufacture of textiles	18.2	16.9
6	18: Wearing apparel	79.0	64.6
7	19: Leather products	56.6	73.1
8	20: Wood products	44.4	21.1
9	21: Paper products	9.2	9.1
10	22: Publishing and printing	0.3	6.1
12	24: Chemical products	6.9	35.8
13	25: Rubber and plastic products	5.8	49.1
14	26: Non-metallic mineral products	3.5	43.0
15	27, 28: Basic metals and fabricated metal products	10.4	53.1
16	29: Machinery and equipment n.e.c	68.2	7.0
17	30, 31:Electrical machinery and apparatus	32.7	7.1
18	32: Radio, television and communication equipment	69.6	n.a.
19	33: Medical, precision and optimal instruments	34.9	85.4
20	34: Motor vehicles, trailers and semi trailers	0.5	70.7
21	35: Manufacture of other transport means	24.6	72.9
22	36: Manufacture of furniture, n.e.c	n.a.	63.1
23	Other manufacturing products	60.7	65.3
24	Construction and public utilities	0.0	0.0
25	Services	22.8	8.8

Note: n.a: data not available

Source: Compiled from the I-O tables of 2000 and 2007.

Chapter 6

Firm ownership and labour demand in the manufacturing sector in Vietnam

6.1 Introduction

The expansion of manufacturing employment is arguably one of the main policy concerns for a labour-abundant developing economy such as Vietnam. Creating jobs in the manufacturing sector provides a broad basis for shifting unskilled labour away from agriculture and reducing poverty. This chapter examines the determinants of labour demand in Vietnamese manufacturing, paying particular attention to the impact of ownership differences and export expansion in determining inter-firm differences in the degree of employment creation. The key hypothesis of this chapter is that export growth and changes in firm ownership categories following export-oriented industrialization (EOI) in the Vietnamese economy led to a significant variation in labour demand, with a special emphasis on the association of export intensity and firm ownership on job creation. The analytical core of this chapter is an econometric analysis of the determinants of labour demand which takes into account the differential impact of five ownership categories (state-owned enterprises, domestic private firms, FIE joint ventures with state enterprises, FIE joint ventures with private domestic firms, and wholly owned FIEs) on labour demand while controlling for the other firm-level characteristics. The analysis is based on a new firm-level panel dataset derived from the unpublished returns to the annual Enterprise Survey, undertaken by the General Statistical Office of Vietnam (GSO) in the period 2000-09.

There are a number of reasons for expecting the nature of firm ownership to have differing impacts on labour demand in the manufacturing sector in a developing economy. Private sector firms that normally exploit the comparative advantage of labour-intensive manufacturing for exports have been associated with a significant likelihood of contributing to a high level of employment generation. By contrast, in a typical transition economy, state-owned enterprises that were assigned a significant position for economic development are mainly involved in capital-intensive industries with a low level of job creation (Djankov & Murrell 2002; Megginson & Netter 2001). Among private sector firms, foreign-invested enterprises (FIEs) normally show more

efficiency in business performance than domestic firms due to their acquisition of firm-specific assets (Bellak 2004; Lipsey 2004; Ramstetter 1999; Ramstetter & Sjoholm 2006). The impact of this higher degree of efficiency could well result in labour saving, but production by export-oriented FIEs is generally characterized by greater labour intensity because relative wages are a key consideration in their location decisions.

Several studies of Vietnamese manufacturing investigate the issue of firm-ownership categories in association with the sector's labour productivity, export propensity, and wages (Athukorala & Tran 2012; Phan & Ramstetter 2004a, 2004b, 2009; Ramstetter & Ngoc 2007). In addition, the overall trends and patterns of manufacturing employment resulting from trade and investment liberalization have been examined in a few empirical studies (Fukase 2013; Jenkins 2004a, 2006; Kien & Heo 2009; McCaig 2011). To date little research has, however, been undertaken to examine determinants of manufacturing employment in Vietnam. In particular, the important issue of how firm ownership and export intensity affect labour demand for a manufacturing firm in the process of EOI in Vietnam is yet to be explored and we also need to examine how this could inform current debate about job creation following the EOI.

The structure of this chapter is as follows. Section 2 provides an overview of trends and patterns of manufacturing employment, with emphasis on the differences among the five ownership groups. Section 3 undertakes an econometric analysis of the impact of firm ownership and export expansion in determining inter-firm differences in labour demand. Section 4 examines whether the macroeconomic disturbance after 2006 has had a significant impact on the labour absorption pattern. Section 5 checks the robustness of results reported in Section 3 by estimating the dynamic version of labour demand. The final section provides some concluding remarks on labour demand in Vietnamese manufacturing during the export-oriented industrialization.

6.2 Firm ownership and manufacturing employment: An overview

The data on trends and patterns of manufacturing employment growth by firm ownership group are summarized in Tables 6.1 and 6.2. The data reveal several interesting features. First, in the early 2000s SOEs played an important role in job creation across most two-digit industries, except for the office, accounting and computing machinery industry (VSIC 30). However, over the period 2000-09, only capital-intensive industries (VSIC 34, 35), *e.g.* motor vehicles, achieved modest job growth (Table 6.1). By 2009, the contribution of SOEs to employment generation was almost negligible in export-oriented industries, particularly in those that supported the manufacture of apparel (VSIC 181) and footwear (VSIC 192). Apart from motor vehicles, there were only four other two-digit industries in which the SOE group accounted for more than a quarter of total employment in 2009. These were tobacco (VSIC 16), publishing and printing (VSIC 22), chemical products (VSIC 24), and basic metals (VSIC 27). A majority of enterprises operating in these industries were still government-owned, through state-monopoly power. This finding is consistent with the concentration of SOEs in the Vietnamese industrial structure (Phan & Ramstetter 2004a). In addition, the sluggish employment growth in this category is partly explained by the government's efforts to restructure as well as to downsize SOEs and even to equitize a number of inefficient ones in industries with the potential for job creation such as garments (VSIC 18) (Clarke 2004; Sjöholm 2006). Above all, this declining trend was also reflected in the SOE's affiliates, which meant that FIE joint ventures with state enterprises had only a minor job creation role in almost all two-digit industries.

Next, since 2000, employment in domestic private firms and wholly owned FIEs increased notably although at varying speeds (Table 6.1). The employment expansion in these two firm groups has compensated for the contraction in SOE employment in most industries. For instance, between 2000 and 2009 the number of workers employed in the apparel industry (VSIC 181) expanded at an impressive rate of 15 per cent per annum. This was driven primarily by the growing importance for labour absorption in both the groups of domestic private firms and wholly owned FIEs, despite a notable decline (minus nine per cent) in SOE employment over that period. Equally important is that the industries with the fastest employment growth over the examined period were those

with the greatest participation of domestic private firms or wholly owned FIEs. This feature is of relevance in manufacturing industries such as food products (VSIC 15), apparel (VSIC 181), footwear (VSIC 192) and furniture (VSIC 361), in which private firms have the most impressive job growth. This pronounced shift in employment pattern away from state toward private ownership is prominent among East Asian economies (Hill 1990a; Manning 1998; Ranis 1979; Song 1990).

Finally, the increasing importance of the private sector firms in job creation across manufacturing industries has been underpinned by the expansion of industries with a high export-orientation. The period 2000-09 witnessed a marked employment expansion by domestic private firms and wholly owned FIEs, possibly influenced by the rise in exports. As observed in Chapter 5, these export industries belong to the labour-intensive sector and the processed food industry. However, there have been contrasting trends among these two firm ownership groups. By 2009, the employment share of the domestic private firm group across export industries was particularly high in processed foods (VSIC 15), wood products (VSIC 20), and furniture industries (VSIC 361). These industries largely depend on the supply of domestic resources for production. At the same time, the group of wholly owned FIEs dominates traditional labour-intensive industries, such as garments (VSIC 181) and footwear (VSIC 192), and the newly emerging export-oriented of electronics industry (VSIC 30-33).

Table 6.1: Growth of manufacturing employment in Vietnam, 2000-09 (in %)

Manufacturing industries by two-digit VSIC	All firms	SOEs	Domestic private firms	FIE-JVs with state firms[a]	FIE-JVs with private firms[b]	Wholly owned FIEs
15: Food products	6.6	-12.6	17.8	-1.9	22.4	13.9
16: Tobacco products	1.6	1.3	-0.9	9.3	n.a.	n.a.
17: Manufacture of textiles	4.3	-10.5	15.1	-9.1	-7.9	14.6
18: Wearing apparel	14.7	-9.4	18.7	2.9	40.1	31.1
181:Manufacture of wearing apparel	14.9	-9.4	19.1	4.7	16.9	31.2
19: Leather products	8.7	-16.8	4.5	-20.3	46.8	17.3
192: Footwear	8.6	-16.6	4.7	-20.3	48.4	17.1
20: Wood products	7.4	-8.3	11.8	-6.3	34.2	8.9
21: Paper products	9.7	-7.0	15.5	-12.7	5.0	21.1
22: Publishing and printing	8.9	-1.8	38.7	-3.5	-4.7	57.3
24: Chemical products	6.4	-6.3	24.0	-4.9	7.3	20.1
25: Rubber and plastic products	14.4	-4.2	18.2	-5.7	17.0	23.1
26: Non-metallic mineral products	9.4	-3.3	21.1	7.4	15.5	16.8
27: Basic metals	8.7	-3.7	29.4	0.7	13.3	34.6
28: Fabricated metal products	15.7	-3.3	25.0	-0.1	35.2	27.5
29: Machinery and equipment n.e.c	7.5	-9.7	27.0	-8.7	26.3	15.9
30: Office, accounting and computing machinery	30.8	n.a.	44.9	n.a.	n.a.	30.7
31:Electrical machinery and apparatus	13.3	-5.5	20.9	3.5	20.3	19.8
32: Radio, television and communication equipment	18.1	-8.7	17.1	-4.4	51.5	34.5
33: Medical, precision and optical instruments	10.3	-30.2	2.1	2.1	n.a.	24.6
34: Motor vehicles, trailers and semi-trailers	15.1	7.3	18.3	6.8	n.a.	31.4
35: Manufacture of other transport means	13.9	4.6	22.8	21.9	16.8	24.4
36: Manufacture of furniture, n.e.c	20.7	0.7	18.6	-5.3	20.3	26.3
361:Furniture	23.3	0.2	21.1	-3.6	20.6	33.7
Whole manufacturing	**10.8**	**-7.0**	**16.5**	**1.6**	**21.9**	**22.1**

Notes: (a) FIE-JV with state firm is a joint venture foreign-invested enterprise with SOE.

(b) FIE-JV with private firm is a joint venture foreign- invested enterprise with domestic private firm.

n.a.: data not available n.e.c: not elsewhere classified

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

Table 6.2: Manufacturing employment by ownership in Vietnam, 2000 and 2009

Manufacturing industries by two-digit VSIC	Total employment ('000 people)		Percentage shares									
			SOEs		Domestic private firms		FIE-JVs with state firm[a]		FIE-JVs with private firm[b]		Wholly owned FIEs	
	2000	2009	2000	2009	2000	2009	2000	2009	2000	2009	2000	2009
15: Food products	244	435	56.9	9.5	29.3	71.8	5.8	2.7	0.9	3.0	7.2	12.9
16: Tobacco products	12	14	95.7	93.1	1.3	1.0	3.0	5.9	4.9	0.0	0.0	0.0
17: Manufacture of textiles	121	176	61.5	15.5	19.1	46.3	3.3	1.0	3.1	1.0	15.5	36.1
18: Wearing apparel	217	747	52.3	6.2	28.3	38.5	1.8	0.7	0.3	2.1	15.9	52.5
181:Manufacture of wearing apparel	214	746	52.9	6.2	27.8	38.4	1.6	0.7	1.8	2.1	15.9	52.6
19: Leather products	282	600	25.6	2.3	37.2	26.0	3.0	0.2	0.3	4.4	34.0	67.1
192: Footwear	259	543	26.3	2.5	36.9	26.6	3.3	0.2	0.3	4.8	33.3	66.0
20: Wood products	59	112	30.3	7.3	55.2	79.0	2.9	0.9	0.2	1.1	10.3	11.7
21: Paper products	35	80	46.9	10.6	42.4	67.3	1.6	0.2	0.5	0.4	8.9	21.6
22: Publishing and printing	22	48	93.0	36.5	5.6	48.9	0.1	0.0	2.3	0.7	0.5	13.9
24: Chemical products	63	111	73.3	23.3	13.2	52.0	5.6	2.0	1.4	1.5	7.1	21.2
25: Rubber and plastic products	47	158	35.9	7.2	34.3	46.0	5.0	0.9	1.3	1.5	22.9	44.4
26: Non-metallic mineral products	122	275	64.1	21.1	27.6	68.7	4.5	3.8	0.3	0.4	3.3	5.9
27: Basic metals	29	61	81.1	27.3	12.1	58.5	4.1	2.1	0.9	1.3	1.6	10.9
28: Fabricated metal products	47	177	51.3	10.2	27.2	54.6	7.5	2.0	0.3	1.2	13.4	32.0
29: Machinery and equipment n.e.c	30	57	71.4	14.9	12.8	57.2	2.1	0.5	0.3	1.3	13.2	26.1
30: Office, accounting & computing machinery	3	34	0.0	0.0	0.5	1.2	0.0	0.0	0.0	0.0	99.5	98.8
31:Electrical machinery and apparatus	36	112	38.5	7.5	10.4	18.6	8.8	3.9	0.5	0.8	42.0	69.2
32: Radio, television & communication equipment	16	70	44.7	4.4	8.3	7.7	20.5	3.1	0.3	2.4	25.4	82.4
33: Medical, precision and optical instruments	7	16	31.5	0.5	34.4	17.1	8.0	4.0	0.0	0.3	26.1	78.1
34: Motor vehicles, trailers and semi-trailers	15	52	51.9	27.6	16.7	21.4	18.6	9.5	0.0	0.1	12.5	41.4
35: Manufacture of other transport means	38	124	63.6	29.4	14.5	28.4	8.8	16.2	3.0	3.7	10.1	22.3
36: Manufacture of furniture, n.e.c	62	337	9.6	1.9	52.2	44.6	2.1	0.2	1.5	1.5	34.5	51.8
361:Furniture	39	254	12.1	1.9	61.9	52.6	2.7	0.3	2.4	2.0	20.9	43.3
Whole manufacturing	**1,506**	**3,797**	**48.9**	**10.1**	**28.9**	**45.2**	**4.3**	**1.9**	**0.9**	**2.1**	**17.1**	**40.7**

Notes: (a) FIE-JV with state firm is a joint venture foreign-invested enterprise with SOE.

(b) FIE-JV with private firm is a joint venture foreign invested enterprise with domestic private firm.

In each row, all figures expressed in yearly percentage for each year add up to 100.

n.e.c: not elsewhere classified

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

From another perspective, there have been structural shifts in the ownership structure of Vietnam's manufacturing employment in three distinct ways (Table 6.3). First, there was a growing concentration of the wholly owned FIE group in the labour-intensive sector over the period 2000-09. During this time, over three-quarters of workers employed in this group came from these traditional labour-intensive industries. The high export-orientation of the manufacture of apparel (VSIC 181) and footwear (VSIC 192) was the dominant factor behind this structural shift. In 2009, each of these two industries accounted for about a quarter of total employment created within this firm group. Within this wholly owned FIE group, the electronics industry contributed another ten per cent of total employment. This suggests that export-oriented FIEs have become a dynamic driver of employment generation in the manufacturing sector.

Regarding the domestic private firm group, the number of workers in this group is more equally distributed across all two-digit manufacturing industries. Of particular interest is that the employment share of this group decreased significantly in the traditional labour-intensive industries during 2000-09. In 2009, this group was less heavily concentrated in these industries (accounting for about 40 per cent of the total employment generated within the domestic private ownership group) compared to the wholly owned FIE group. However, the domestic private firms recorded a noticeable share of total employment for the processed food industry (VSIC 15). As noted earlier, a plausible reason for a significant position in private firm employment is the removal from the early 2000s of policy biases against domestic private investors (see Chapter 3).

In contrast, the employment share of SOEs in the traditional labour-intensive industries declined from 39 per cent to 29 per cent between 2000 and 2009. It appears that state enterprises relied heavily on resource-based or capital-intensive industries, which normally require advanced technology and large-scale capital investment.

Table 6.3: Industrial composition of manufacturing employment by ownership group in Vietnam, 2000 and 2009 (in %)

Manufacturing industries by two-digit VSIC	SOEs		Domestic private firms		FIE-JVs with state firms[a]		FIE-JVs with private firms[b]		Wholly owned FIEs	
	2000	**2009**	**2000**	**2009**	**2000**	**2009**	**2000**	**2009**	**2000**	**2009**
15: Food products	18.9	10.8	16.4	18.2	21.9	16.0	16.0	16.5	6.8	3.6
16: Tobacco products	1.5	3.3	0.0	0.0	0.6	1.1	4.3	0.0	0.0	0.0
17: Manufacture of textiles	10.1	7.1	5.3	4.8	6.3	2.3	28.2	2.3	7.3	4.1
18: Wearing apparel	15.4	12.1	14.1	16.8	6.1	6.9	5.6	19.4	13.4	25.4
181:Manufacture of wearing apparel	15.4	12.1	13.7	16.7	5.2	6.9	28.2	19.4	13.3	25.4
19: Leather products	9.8	3.6	24.1	9.1	13.3	1.5	6.2	32.8	37.3	26.1
192: Footwear	9.3	3.5	21.9	8.4	13.3	1.5	5.6	32.5	33.6	23.2
20: Wood products	2.4	2.1	7.4	5.1	2.6	1.3	0.7	1.6	2.3	0.8
21: Paper products	2.2	2.2	3.4	3.1	0.8	0.2	1.4	0.4	1.2	1.1
22: Publishing and printing	2.8	4.5	0.3	1.4	0.0	0.0	3.8	0.4	0.0	0.4
24: Chemical products	6.3	6.7	1.9	3.4	5.5	3.0	6.4	2.0	1.8	1.5
25: Rubber and plastic products	2.3	3.0	3.7	4.2	3.7	1.9	4.4	3.0	4.2	4.5
26: Non-metallic mineral products	10.7	15.1	7.8	11.0	8.5	14.0	2.4	1.4	1.6	1.1
27: Basic metals	3.2	4.3	0.8	2.1	1.8	1.7	1.9	1.0	0.2	0.4
28: Fabricated metal products	3.3	4.7	3.0	5.6	5.5	4.7	1.0	2.7	2.5	3.7
29: Machinery and equipment n.e.c	2.9	2.2	0.9	1.9	0.9	0.4	0.7	1.0	1.5	1.0
30: Office, accounting and computing machinery	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	2.1
31:Electrical machinery and apparatus	1.9	2.2	0.9	1.2	5.0	5.9	1.3	1.2	5.9	5.0
32: Radio, television and communication equipment	1.0	0.8	0.3	0.3	5.0	2.9	0.3	2.1	1.6	3.8
33: Medical, precision and optimal instruments	0.3	0.0	0.5	0.2	0.8	0.9	0.0	0.1	0.7	0.8
34: Motor vehicles, trailers and semi trailers	1.0	3.7	0.6	0.6	4.2	6.7	0.0	0.1	0.7	1.4
35: Manufacture of other transport means	3.3	9.5	1.3	2.1	5.3	27.2	8.5	5.7	1.5	1.8
36: Manufacture of furniture, n.e.c	0.8	1.7	7.5	8.8	2.1	1.1	7.1	6.3	8.3	11.3
361:Furniture	0.6	1.2	5.5	7.8	1.6	1.0	6.9	6.3	3.1	7.1
Labour-intensive sector[c]	31.6	22.5	54.7	41.5	35.0	20.5	21.1	63.4	70.7	75.3
Total employment ('000 people)	**736,005**	**384,110**	**435,328**	**1,714,420**	**64,282**	**74,030**	**13,365**	**79,516**	**256,833**	**1,544,899**

Notes: (a) FIE-JV with state firm is a joint venture foreign-invested enterprise with SOE.

(b) FIE-JV with private firm is a joint venture foreign invested enterprise with domestic private firm.

In each column, all figures expressing percentage of every two-digit industry in each firm ownership group add up to 100.

(c) The labour-intensive sector includes these traditional labour-intensive industries (VSIC 18,19, 20 & 36) and the electronics industry (VSIC 30-33).

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

It is also interesting to note that the changing size distribution of manufacturing enterprises reflects a shift from small firms to large firms. This issue is important for our analysis of employment expansion in manufacturing – we can now postulate that firm size may influence employment responses to exogenous shocks on labour demand (Brown & Medoff 1989; Levinsohn 1999). One reason for this possible relationship is that a large-sized firm, normally having higher capital-intensity, tends to have lower labour turnover because it normally pays higher wages to employees. Thus, a large firm is likely to have a slow adjustment of labour demand related to wage changes. Conversely, the labour demand of a smaller firm is associated with a higher response to exogenous shocks. Taking into account the requested data and significance of Vietnam's Enterprise Surveys,[43] we group manufacturing firms into four segments by the number of workers employed in each firm: small (10-49), small-medium (50-199), large-medium (200-499), and large (above 500). This grouping is quite consistent with the firm-size classification in Southeast Asian economies (Ariff & Hill 1985; Hill 1990b).

The distribution of manufacturing employment by firm size reveals two notable features (Table 6.4). First, labour absorption in all firms, whatever their size increased quite rapidly throughout the period 2000-09. The small-sized firms had the highest job growth, about 16% per cent per annum. However, there was a pronounced slowdown in the period 2006-09 in all firms of various scales. This trend is particularly consistent with the behaviour of aggregate manufacturing employment during the period 2000-09 (See Chapter 4).[44] For example, employment generation for large firms (500 or more employees) declined from just above 14 per cent in the period 2000-05, to just below seven per cent over the later period. As noted in our previous discussion in Chapter 4, the slowdown in job creation which occurred over the period 2006-09 can be attributed to the investment boom by both domestic and foreign investors and the macroeconomic disturbance in Vietnam since 2008. Aside from these factors, the 2009 global financial crisis that led to an export downturn, especially in electronics, may also have hindered job creation for large-sized manufacturing firms.

[43] See the data section for further discussion of manufacturing data from Vietnam's Enterprise Survey.

[44] The employment growth trend for the whole manufacturing sector was substantially lower in the period 2006-09 than in the period 2000-05.

Table 6.4: Manufacturing employment by firm size, Vietnam 2000-09

Total employment ('000 people)	**2000**	**2003**	**2006**	**2009**
Small (10-49 employees)	83	132	199	309
Small- medium (50-199 employees)	223	318	444	595
Large- medium (200-499 employees)	307	423	529	652
Large (500+ employees)	893	1,437	1,848	2,241
Total manufacturing employees	1,506	2,310	3,020	3,797
Total manufacturing composition (%)				
Small (10-49 employees)	5.5	5.7	6.6	8.1
Small-medium (50-199 employees)	14.8	13.8	14.7	15.7
Large-medium (200-499 employees)	20.4	18.3	17.5	17.2
Large (500+ employees)	59.3	62.2	61.2	59.0
Whole manufacturing	100	100	100	100
Growth rate (% per annum)	**2000-05**	**2006-09**	**2000-09**	
Small (10-49 employees)	16.8	9.2	15.7	
Small-medium (50-199 employees)	12.7	6.0	11.5	
Large-medium (200-499 employees)	10.7	4.3	8.7	
Large (500+ employees)	14.4	3.9	10.8	
Growth rate for whole manufacturing	13.6	4.7	10.8	

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

Secondly, there was no any palpable shift in manufacturing employment pattern by firm size. During the period 2000-09, the large-scale firms with a workforce over 500 workers became the major provider of jobs: they employed about 60 per cent of the total, compared with just below six per cent for the smallest group of firms. However, despite the dominance of these large firms, the employment share of small firms with a workforce of between 10 and 49 workers increased marginally over that period. A similar comment holds for the small-medium firms. Only large-medium firms had a considerable decline in their share of total manufacturing employment.

In terms of firm size, compositional shifts in the size distribution of manufacturing employment by ownership group capture quite accurately the evolution of enterprise reform (Table 6.5). First, among the various ownership categories, the domestic private firms have reaped the main benefits of the reforms: their employment share across every segment of firms with different sizes increased significantly between 2000 and 2009. This category of firm is by far the most numerous, and employed the largest workforce in the segment of small firms with 10-49 workers. The other two segments in which the domestic private firms have higher shares of employment (at least fifty per cent) in 2009 accord with expectations for small-medium and large-medium firms. Second, large-sized wholly owned FIEs were the major players in manufacturing employment

generation over the period 2000-09. Their employment share changed dramatically, rising to 53 per cent of total employment in the related firm-size segment in 2009. This outcome is consistent with the experience of foreign-invested manufacturing in the East Asian economies (Athukorala & Menon 1995; Koo 1985; Ranis & Schive 1985).

Improvement in the legal procedures of enterprise formation instigated in 2000, together with further reform of enterprise and investment legislation in 2006, explains much of the proliferation of these private sector firms in Vietnamese manufacturing. Conversely, there was a shrinking employment share of firms with state ownership over the period 2000-09; the decline was particularly large for these segments of large firms and large-medium ones. The erosion of public ownership in aggregate employment could be ascribed at least in part to the effects of overall enterprise reform, in particular the privatization and downsizing of SOEs. An even more plausible reason is that it is enterprise reform rather than the privatization of the SOEs which has freed up private sector firms to expand their position in an economy.

Table 6.5: Size distribution of manufacturing employment by ownership, Vietnam 2000 and 2009 (in %)

Size of firm (employees)	SOEs		Domestic private		FIE-JV with State		FIE-JV with Private		Wholly owned FIEs	
	2000	2009	2000	2009	2000	2009	2000	2009	2000	2009
Small (10-49 employees)	6.0	0.7	85.5	89.9	1.8	0.3	0.9	0.7	5.8	8.4
Small-medium (50-199 employees)	32.1	4.7	48.3	70.0	5.5	1.3	1.6	1.6	12.5	22.4
Large-medium (200-499 employees)	50.2	11.2	27.0	53.1	6.0	2.4	1.1	2.1	15.7	31.3
Large (500 + employees)	56.6	12.5	19.5	30.1	3.6	2.2	0.6	2.4	19.7	52.7
Whole manufacturing	48.9	10.1	28.9	45.2	4.3	1.9	0.9	2.1	17.1	40.7

Notes: Figures show the percentage of employment in each firm ownership group of enterprises with a workforce of 10-49,50-199, 200-499, and more than 500 employees.

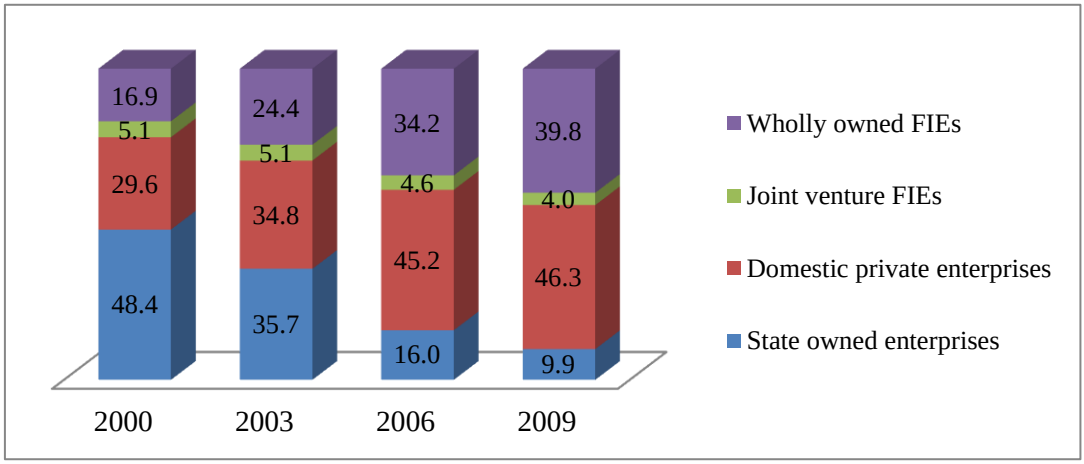
In each row, all figures for each year add up to 100.

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

In summary, this overview of the ownership structure of employment patterns in Vietnamese manufacturing shows that export-oriented foreign investment has played a key role in employment generation in Vietnamese manufacturing. A majority of employment opportunities can be attributed to the FIE group, particular the wholly owned FIEs, as the FIE share in total employment increased rapidly over the period 2000-09 (Figure 6.1). The growth in export-induced jobs was underpinned by a marked shift in employment pattern away from SOEs and toward FIEs (Figure 6.2).

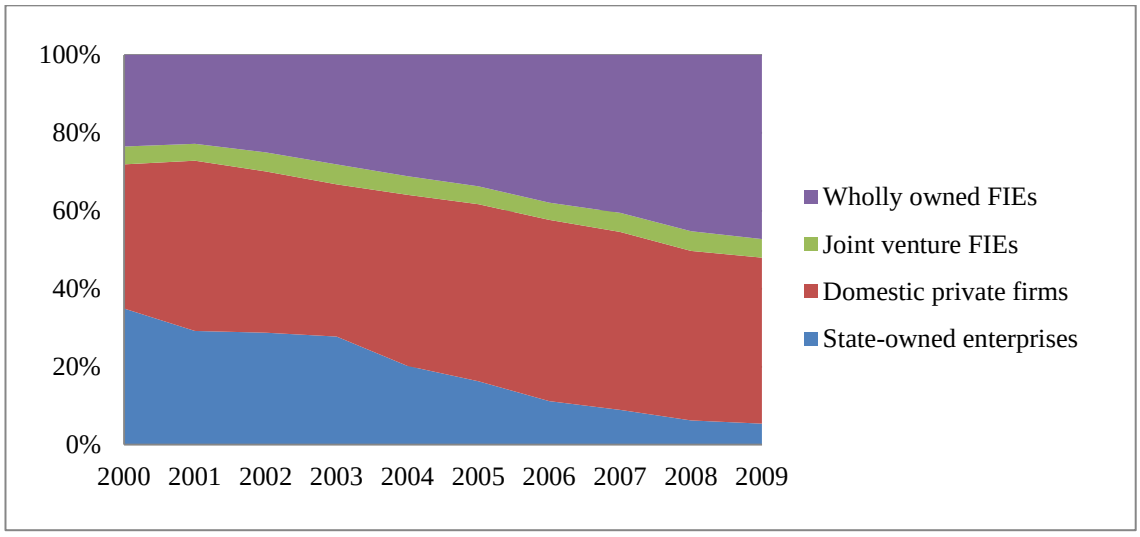
Employment share of domestic private firms showed a significant increase during this period. Against this backdrop, the following section undertakes an econometric analysis to delineate the role of firm ownership in determining inter-firm differences in the firm's labour demand, and the rate of labour absorption related to export expansion.

Figure 6.1: Employment pattern by ownership in Vietnamese manufacturing (in %), in selected years.



Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

Figure 6.2: Ownership pattern in export-oriented manufacturing (%), Vietnam, 2000-09.



Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

6.3 Firm ownership, export expansion and labour demand in manufacturing

This section first develops the model specification for the analysis of determinants of labour demand at a manufacturing firm level, paying attention to the implications of firm-ownership categories and export intensity. This is followed by a discussion on estimation methodology, data sources, and the method of data compilation. We next present estimation results for the effects of export expansion and ownership differences on labour demand in a manufacturing sector, taking account of firm features and industry characteristics.

6.3.1 The model

The empirical analysis of this chapter draws on the labour demand model developed by Hamermesh (1993), which is widely applied in the literature relating to this topic.[45] It starts with a Cobb-Douglas production function for the representative firm *i* in manufacturing in period *t:*

$$Y = A^{\gamma} L_{it}^{\alpha} K_{it}^{\beta} \qquad \textbf{(6.1)}$$

where *i*: firm, *t*: time, *Y* = real output; *A*= total factor productivity; *K* = capital stock; *L*= units of labour employed; α and β denote the factor share coefficients and γ captures the growth in efficiency in the production process. The marginal products of each factor are $\frac{\partial Y}{\partial L} = A^{\gamma}\alpha\frac{Y}{L}$ for labour and $\frac{\partial Y}{\partial K} = A^{\gamma}\beta\frac{Y}{K}$ for capital.

A profit-maximizing firm will utilize labour and capital at such levels that the marginal product of labour equals the wage (*w*) and the marginal product of capital equals its user cost (*r*):

$$A^{\gamma}\alpha\frac{Y}{L} = w \qquad \textbf{(6.2)}$$

$$A^{\gamma}\beta\frac{Y}{K} = r \qquad \textbf{(6.3)}$$

[45] See Fabbri et.al (2003), Görg et al. (2009); Greenaway, Hine & Wright (1999); Hamermesh (1993), Navaretti, Checchi & Turrini (2003); Mouelhi (2007) and the works cited therein.

Solving this system simultaneously gives:

$$Y_{it}=A^{\gamma}L_{it}^{\alpha}\left[\frac{\beta L}{\alpha}\frac{w_{it}}{r_{it}}\right]^{\beta} \quad \textbf{(6.4)}$$

Transforming the equation (6.4) by natural logarithm, with small notations denoting logarithmic values, gives the preliminary equation of the firm's derived labour demand as:

$$l_{it}=\lambda_0+\lambda_1 y_{it}+\lambda_2 w_{it}+\lambda_3 r_t \quad \textbf{(6.5)}$$

where:

$$\lambda_0 = {-(\gamma lnA + \beta ln\beta - \beta ln\alpha)}\Big/{(\alpha+\beta)};$$

$$\lambda_1 = {1}\Big/{(\alpha+\beta)};$$

$$\lambda_2 = {-\beta}\Big/{(\alpha+\beta)};$$

$$and\ \lambda_3 = {\beta}\Big/{(\alpha+\beta)}$$

By definition, λ_1, λ_2 are output elasticity of labour demand and wage elasticity of labour demand, respectively.[46]

In addition to the three standard variables (*y*, *w*, and *r*) specified in the basic model (Equation 6.5), labour absorption in a firm depends on firm-specific as well as industry-specific characteristics. These include export orientation (*EO*) and ownership category (*ONS*). An *EO* variable is incorporated to capture an export impact on a firm's labour demand as is standard in the literature (Hine & Wright 1998; Jenkins & Sen 2006).

The firm ownership category, as used here, is typical of a firm operating in a transition economy. A process of restructuring and downsizing a state-owned enterprise (SOE) can lead to massive lay-offs, while a foreign investment enterprise exploiting a country's comparative advantage, may generate higher employment. In addition, the incorporation of the type of ownership is motivated by the literature on the behaviour of FIE in the host country. Thus, firm ownership dummy is incorporated in the basic labour demand model. There are four ownership categories in this econometric analysis.

[46] See Appendix 6.1 for detailed explanations of the labour demand elasticity.

The first, *DP*, is a dummy for domestic private firms and takes a value of one if the firm is a domestic private one and zero otherwise; *JV* is a dummy for FIE joint ventures and *WFIE* is a dummy for wholly owned FIEs. All three are private sector firms. And *SOE* is treated as the base dummy.

Apart from the firm-specific variable, industry characteristics can affect labour absorption in each firm. This is because firms in different industries operate under various technologies that result in varied labour demands. We can assume that this is a source of industry-specific differences. For instance, employment generation may be higher in labour-intensive industries than in resource-intensive ones. Thus, industry dummies for every two-digit VSIC industry (*INS*) are included as an explanatory variable. It is worth noting that both these dummies representing firm and industry characteristics can be varied over the period of study. This variation can be explained by the ongoing revisions to legislation on enterprise formation and investment throughout the reform process, which allow firms to change ownership category as well as field of business.

Adding these variables to the basic model (Equation 6.5) results in an extended model for examining whether ownership has an impact on the level of labour demand for a manufacturing firm:

$$l = f(y, w, r, EO, ONS, INS) \quad \textbf{(6.6)}$$

To further investigate the effect of firm ownership differences, interaction terms between ownership dummies with output and wages are incorporated to measure the differential effect of firm ownership on labour demand. In addition, a majority of employment opportunities in the manufacturing sector are closely associated with the participation of private sector firms in export-oriented manufacturing. Thus this model also incorporates interactive terms between export expansion with ownership categories in order to examine the possible impact of firm ownership on a manufacturing firm's labour demand through exports.

Taking into account all these interactive impacts of firm ownership on the firm's labour demand results in a full empirical model for examining impact of export expansion and firm ownership on manufacturing employment growth:

$$l_{ijt} = \lambda_0 + \lambda_1 y_{ijt} + \lambda_2 w_{ijt} + \lambda_3 r_t + \lambda_4 EO_{ijt} + \sum_m \lambda_{5m} ONS_{ijt} + \sum_m \lambda_{6m} (y * ONS)_{ijt} + \sum_m \lambda_{7m} (w * ONS)_{ijt} + \sum_m \lambda_{8m} (EO * ONS)_{ijt} + \sum_j \delta_j INS_{it} + \gamma T_t + \mu_{ij} + \varepsilon_{ijt} \quad \textbf{(6.7)}$$

where i =1,2,… n is the firm, j=1,2,…k is the industry, t =1,2,… T is the time unit in years and m is the number of firm ownership categories. The variables are defined as :

l_{ijt}	Employment in log form.
y_{ijt}	Firm output in log form.
w_{ijt}	Real wage in log form.
EO_{ijt}	Export orientation.
ONS_{ijt}	A dummy for firm ownership category.
$(y*ONS)_{ijt}$	An interactive term between firm output with firm ownership dummy.
$(w*ONS)_{ijt}$	An interactive term between real wages with firm ownership dummy.
$(EO*ONS)_{ijt}$	An interactive term between export orientation variable with firm ownership dummy.
INS_{ijt}	A vector of 21 industry dummies.
T_t	A vector of time dummy variables.
μ_{ij}	"Unobserved effect" captures time-invariant firm features.
ε_{ijt}	A stochastic error term.

By definition, there are three firm ownership dummies in this model.

DP_{ijt}	A dummy for domestic private firms.
JV_{ijt}	A dummy for joint venture firms.
$WFIE_{ijt}$	A dummy for wholly owned FIEs.

The postulated effects of the explanatory variables on the dependent variable are as follows. The main control variable in this labour demand model is the real wage rate (w). The estimated coefficient of this variable is expected to be negative.[47] This is premised on a possible substitution between labour and other input factors when wages increase, given a high proportion of unskilled workers in the manufacturing sector. The coefficient of real output (y) is expected to be positive, since output growth of a firm exploring a comparative advantage of labour abundance would result in a higher level of labour absorption. Of particular concern is that exploring this factor abundance in

[47] A wage variable will carry a positive sign if the wage rate reflects higher skills.

domestic production for exports can increase job opportunities because export-oriented goods in a labour-abundant country such as Vietnam are labour intensive. In this case, a positive sign on a variable of export orientation (*EO*) would be justified.

Next, a set of intercept dummies representing three kinds of private sector firms, namely *DP, JV,* and *WFIE,* are expected to be positive. Because these private firms are assumed to have a higher level of job creation than public enterprises, as it is widely argued that the former have performed better in using capital and labour in labour-abundant economies (Kuo 1983; Song 1990). Regarding the interaction of the dummies with wages (*w*ONS*), the effect of these interactive terms on labour demand could be positive or negative. A simple reason is that it becomes easier to substitute away from labour, and toward other factors of production in response to an increase in wages due to the outward-oriented reforms. Consequently, firms are increasingly involved with global production networks following reforms (Fabbri, Haskel & Slaughter 2003; Görg & Strobl 2002; Navaretti, Checchi & Turrini 2003). In this case, a negative sign would be justified. In contrast, these firms could have a less elastic labour demand because of increasing proportions of skilled workers in the job structure or rigidity in the labour market (Feenstra & Hanson 1997). Thus, the expected sign of this coefficient is positive.

Similarly, the interactive variable with output (*y*ONS*) is postulated to be positive since the outward-oriented reforms are predicted to bring about an output expansion, mainly due to increasing access to international markets for exports. This expansion would result in a proportional increase in labour absorption in each firm. Of particular interest is the close association between firm ownership category and employment generation following an export-oriented strategy. Our proposition rests on the idea that the largest part of job creation in the manufacturing sector can be attributed to the increasing participation of private sector firms, in particular FIEs. Thus, the interaction term (*EO*ONS*) implying export-oriented private sector firms is postulated to be positive. One reason lies in the fact that these private sector firms in a labour-abundant economy tend to be more significantly involved in export-oriented production that is closely associated with a highly intensive usage of the comparative advantage offered by that abundant factor-unskilled labour.

This model specification assumes that the supply of labour to the manufacturing sector is elastic so that a shift in labour away from agriculture into manufacturing can be

made at a low marginal cost.[48] In this way, wages can be treated as exogenous. This allows us to explain the estimated coefficients of output and wages as labour demand elasticity with respect to output and wages, respectively. As shown in Chapter 4, surplus-labour conditions persisted in the Vietnamese economy until 2011. Thus, an assumption of elastic labour supply is still able to capture an accurate summary of labour market conditions in Vietnam. This assumption is also robust with relation to an analysis using the firm-level dataset to relax endogeneity, an issue that we discuss later.

6.3.2 Data

Data are compiled from unpublished returns to the Enterprise Survey conducted by the General Statistical Office (GSO), Vietnam. The survey covers all large- and medium-sized firms and a representative sample of small firms with fewer than ten employees. The survey provides firm-level information on output, employment, wages, capital stock, intermediate inputs, and firm-ownership categories. Data on each firm are coded and stored individually in a unique identification unit by tax code and the Vietnamese standard industry classification (VSIC) at the four-digit level.

At the time of data compilation, data were available for ten years from 2000 to 2009. For the purposes of this analysis, manufacturing is defined to cover all manufacturing industries under VSIC excluding petroleum and gas (VSIC 23). The petroleum and gas industry is excluded because of the susceptibility of its performance to fluctuations in world market prices. The raw data from the survey are extracted and cleaned to build firm-level panel data for estimating purposes. In the first stage, all firms with missing (or negative) values on employment, capital, and output are excluded. Any erroneous observations or outliers are also eliminated in the dataset. It should be noted that many small firms report implausible or unrealistic data due to their poor information and accounting systems. Thus, this study focuses on examining the labour demand among firms with a workforce of at least ten employees. This employment cut-off point for firm size is also consistent with the government's definition of a small firm.

For the purpose of examining significant differences in labour demand, firms are grouped under four specific ownership categories: state-owned enterprise (*SOE*),

[48] The Lewis development model (1954) presumes that the supply of unskilled labour in the modern sector is perfectly elastic. In fact, the labour supply is only required to be elastic so that a shift in labour away from the subsistence sector to the modern sector can be made at a low marginal wage.

domestic private firm (*DP*), FIE joint venture (*JV*)[49] and wholly owned FIE (*WFIE*). Finally, the presence of firm identification codes provides a convenient way to construct a panel and trace the firms over time. The final dataset is an unbalanced panel, covering more than ten thousand firms for each year in the period 2000-09.

Apart from labour, which is measured by the number of workers employed, all other variables are in nominal values, which are then converted into real value series using appropriate deflators. The deflators for the output series are taken from the current and constant price series of manufacturing outputs at the two-digit VSIC level from GSO. The capital deflators are computed from the current and constant values of fixed-capital formation from the national account category. The consumer price index (*CPI*) is used as the deflator to calculate real wage rates. In addition, the deflator for the intermediate input series for each manufacturing industry is computed as the weighted shares of the price indices of products used as inputs in that industry. The weights for the measurement of input shares are calculated using the 2000 Input-Output table (I-O table). To obtain these weights, the 112 sectors in the I-O table are firstly aggregated at the two-digit VSIC level, using the concordance table of GSO. Consequently, input price indices are derived after the input shares for every two-digit industry are calculated. As a result, the difference between output and intermediate inputs at constant prices indicates real value added.

Finally, data required for constructing the user cost of capital variable (*r*) is not available in our dataset. However, presumably excluding this variable is unlikely to result in an omitted variable bias in our estimates because the capital market is nation-wide and the user cost of capital will only vary over time (not across industries) (Görg et al. 2009; Greenaway, Hine & Wright 1999; Milner & Wright 1998), and therefore is captured by the time dummies.

[49] This category includes both FIE joint ventures with SOEs or domestic private firms. It was decided to treat all FIE joint ventures as one group since these firms account for less than 5% of total manufacturing employment (Table 6.2).

Summary indicators of the variables and their correlation matrix are given in Tables 6.6 and 6.7.

Table 6.6: Summary statistics of the variables

Variables	Mean	SD	Min	Max
l (labour)	4.15	1.38	2.30	9.21
y (output)	8.55	1.99	3.01	15.95
w (wage)	2.32	0.73	-0.99	5.56
EO	0.35	0.31	0	1.41
DP	0.75	0.44	0.00	1.00
JV	0.03	0.17	0.00	1.00
WFIE	0.13	0.34	0.00	1.00

Notes: Mean=single average, SD=standard deviation, Min=minimum, and Max=Maximum. Labour, output, and wage are the logarithmic transformation of their value while an export orientation (*EO*) is in a decimal term. *DP*, *JV*, and *WFIE* are firm ownership dummies.

Source: Compiled from data sources described in the text.

Table 6.7: Correlation matrix of the variables

Variables	*l*	*y*	*w*	*EO*	*DP*	*JV*	*WFIE*	*INS*
l (labour)	1							
y (output)	0.74	1						
w (wage)	0.25	0.57	1					
EO	0.13	-0.04	-0.14	1				
DP	-0.48	-0.45	-0.37	0.04	1			
JV	0.11	0.18	0.19	-0.03	-0.31	1		
WFIE	0.27	0.27	0.28	0.05	-0.66	-0.07	1	
INS	-0.02	-0.01	0.13	-0.09	-0.06	0.02	0.08	1

Source: Compiled from data sources described in the text.

Data series for all variables other than *EO* are constructed from the database compiled from the GSO Enterprise Survey. The GSO Enterprise Survey does not provide data on exports by firms. We therefore measure export orientation for four-digit VSIC industries by combining trade data deriving from the UN Comtrade database with output data from manufacturing survey data[50]and then use to estimate this *EO* ratio at a

[50] Manufacturing survey covers only about 90 per cent of total manufacturing output. The data were therefore adjusted to obtain the full coverage by using the methodology used in Phan and Ramstter (2004).

given four-digit industry for all firms belonging to that industry. The measurement error involved in this variable (arising from the implicit assumption that all firms belonging to a given industry exhibit the same degree of export orientation) is unlikely to bias the estimation results significantly because exporting firms in Vietnam are heavily concentrated in a few industries (garments, footwear, furniture, processed seafood and electronics).

6.3.3 Estimation method

The labour demand model is estimated by standard panel data estimation techniques, using the firm-level dataset. Pooled OLS, fixed effects (FE), and random effects (RE) estimations are the most widely used alternative techniques (Baltagi 2006; Wooldridge 2002). The FE estimator is not suitable for our purpose because one of the key variables in the model (firm ownership) is time invariant. We use the Breusch-Pagan Lagrange multiplier test (1980) to select between pooled OLS and RE. The RE estimator is based on the assumption of unobserved, random effects which are not captured by the variables in the model (Greene 2008). If this assumption holds, then the RE estimator is preferable to pooled OLS in generating efficient and unbiased linear estimates. Since there is strong evidence of heteroskedasticity in this estimation, the statistical significance of the regression coefficients are tested in terms of consistent variance-covariance standard errors, derived from the Huber-White 'sandwich' estimator.

The panel estimators can be biased and inconsistent in the presence of possible endogeneity in the labour demand equation. The wage variable can be endogenous since both labour demand and labour supply rely on wages that interact with both at the equilibrium. Consequently, exogenous shocks to labour demand will lead to shocks to wage rates. In other words, aggregate demand or technological shocks can lead to a simultaneous change in demand for labour and wages. When these shocks cannot be captured by the model, the simultaneity occurs due to a possible correlation between the error term and wages. However, the simultaneity should not be a major concern due to the labour supply assumption. This study assumes that the labour supply conditions facing each manufacturing firm are elastic. As noted earlier, this assumption is strongly relevant to an examination of labour demand at a manufacturing firm in a labour-abundant economy. Any shifts in the labour supply curve would then result in changes in wages, which would be reflected in the labour demand schedule. Conversely, any exogenous shocks to the demand for labour do not affect wages. Another important

point is that the inclusion of time dummies in the model that captures exogenous shocks to labour demand would also alleviate endogeneity. Additionally, this study uses a firm-level dataset at a highly disaggregated level, thus redressing the seriousness of the endogeneity effect. This caveat is founded on the view that demand or technological shocks to the labour demand at a firm level do not influence the wage rate simultaneously, as long as there is little possibility that one individual firm could acquire a monopolistic position in the related labour market (Hamermesh 1993). Therefore, this should not be a serious issue. Given these caveats, our panel data technique estimators in this analysis should be reliable.

6.3.4 Results

Table 6.8 reports the estimation results of the labour demand model in four specifications. The model consisting of three variables (*y*, *w* and *EO*) is in the first column whereas the extended model (Equation 6.6) is the second one. The full model (Equation 6.7) which controls for the impact of the interactive terms for the firm ownership category is shown in the third column, while the extended model ignores this impact. The last result is a check-up estimation on the possible changes in the estimated coefficients after omitting several insignificant variables in the third column. As the Breusch-Pagan LM test for selection between RE and pooled OLS estimators confirms the existence of random effect, the RE estimate will be discussed in this section. For comparison, the pooled OLS estimates are reported in the Appendix to this chapter.

The coefficients of the two basic variables of labour demand, output and wages, have the expected signs (positive and negative, respectively) at a high level of significance. First, the estimates of wage elasticity of labour demand are highly consistent with the plausible range of those generally identified in the literature (Görg et al. 2009; Hamermesh 1993; Mouelhi 2007). Second, across all cases, the magnitudes of the output coefficients are much larger than those of wages, suggesting that a firm's demand for labour is highly responsive to growth in manufacturing output. This provides strong statistical support for our proposition that the degree of employment with respect to output is much more important than that for wages in explaining the behaviours of labour demand for a manufacturing firm in a labour-abundant economy such as Vietnam.

Table 6.8: Determinants of labour demand in Vietnamese manufacturing: RE estimates, 2000-09

Dependent variable: logarithm of firms'employees

Explanatory variables	(1)	(2)	(3)	(4)
y (real output)	0.401***	0.387***	0.427***	0.424***
	(0.003)	(0.003)	(0.009)	(0.008)
w (wage)	-0.264***	-0.272***	-0.315***	-0.301***
	(0.005)	(0.005)	(0.016)	(0.010)
EO (export orientation)	0.021*	0.035***	-0.006	-0.000
	(0.012)	(0.011)	(0.030)	(0.012)
DP (domestic private firms)		-0.413***	-0.107	-0.101
		(0.012)	(0.068)	(0.069)
JV (joint ventures)		0.083***	0.249*	0.307**
		(0.032)	(0.147)	(0.147)
WFIE (wholly owned FIEs)		0.211***	0.348***	0.354***
		(0.021)	(0.101)	(0.103)
*y*DP*			-0.045***	-0.042***
			(0.009)	(0.008)
*y*JV*			-0.035**	-0.026*
			(0.016)	(0.014)
*y*WFIE*			-0.024**	-0.021**
			(0.012)	(0.010)
*w*DP*			0.050***	0.037***
			(0.016)	(0.011)
*w*JV*			0.050	
			(0.030)	
*w*WFIE*			0.015	
			(0.020)	
*EO*DP*			0.006	
			(0.031)	
*EO*JV*			0.138**	0.119**
			(0.065)	(0.058)
*EO*WFIE*			0.198***	0.192***
			(0.041)	(0.030)
Constant	0.834***	1.265***	1.000***	0.995***
	(0.025)	(0.028)	(0.069)	(0.070)
Observations	108,406	108,406	108,406	108,406
R^2	0.6777	0.6924	0.6955	0.6957
Number of firms	27,982	27,982	27,982	27,982
Breusch-Pagan LM test	$\chi^2(1)$=130,000	$\chi^2(1)$=120,000	$\chi^2(1)$=120,000	$\chi^2(1)$=120,000

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively. Standard errors adjusted for arbitrary heteroskedasticity are given in brackets.

(a) The Breusch-Pagan LM test is employed for selection between random effects and pooled OLS estimation. Null hypothesis is rejected at the 1% level. See Appendix 6.2 at the end of this chapter for pooled OLS estimates.

(b) All specifications include year dummies and industry dummies. For brevity, their coefficients are not reported here.

The coefficients on export intensity are positive and significant at standard levels in several cases (Columns 1 and 2). However, the estimate turns out to be insignificant in the full model. This infers that an increase in exports is associated with job growth in the manufacturing sector, given all other factors being held constant. This provides statistical evidence that labour demand for a firm involved in an export-oriented industry is relatively higher than it is for other firms. This finding is plausible given the extensive liberalization reforms focusing on EOI in Vietnam since the early years of the period 2000-09. Export expansion of labour-intensive manufacturing as a result of the liberalization can translate into higher demand for labour. This employment effect is likely to be associated with export-oriented, labour-intensive manufacturing industries.

The positive sign and significance of these ownership dummies for FIE joint ventures and wholly owned FIEs in the full model imply that a firm's labour demand is higher in these foreign enterprises compared to both SOEs and domestic private firms. This finding is consistent with the commonly held perception that in Vietnam most FIEs in the export-oriented industries are highly labour intensive, recruiting a large number of unskilled workers for export production. Since 2000, the practice of using labour-intensive technology in export-oriented investment projects has added impetus to generate more employment in the process of EOI.

The dummy for domestic private firm (*DP*) carries a negative and significant sign in the extended model but fails to yield a statistically significant coefficient in the full model. This suggests that private domestic firms have a lower demand for labour than SOEs, holding other factors constant. This finding runs counter to the *a priori* expectation that domestic private firms contribute to employment expansion, as has been the experience of East Asian labour-abundant economies. Despite this, the finding is not surprising for a transitional economy such as Vietnam's, where the domestic private firms still face unequal treatment in terms of market access, access to investment incentives, and capital. This discriminatory business environment to some extent hindered the business performance of these domestic private firms (Kokko 2004). For example, even though the import tariffs were lower for the final product sectors over the period 2000-05, tariffs on these input-supplying sectors still remained high. This tariff improvement only provided favourable conditions for SOEs and FIEs to access the upstream industries rather than domestic private firms (Athukorala 2006). Over that period, many domestic private firms also experienced difficult obstacles to obtaining bank credit because commercial bank lending practices in Vietnam relied heavily on

institutional procedures, personal connections and creditability and collateral, all of which favoured the SOEs and FIEs (Hakkala & Kokko 2007; Malesky & Taussig 2009).

As for public enterprises, the reasons for the lower employment outcome in these SOEs are quite straightforward since most state enterprises in Vietnamese manufacturing normally involve import-competing industries with highly capital-intensive technology. Many SOEs in these import-substitution industries are highly protected, receiving concessional treatment from the government and state-owned commercial banks, and most are biased towards capital intensity.

Ownership category is found to have a significant impact on the labour demand of a manufacturing firm through export expansion. The estimated coefficients of these interaction terms between export expansion and two corporate forms of foreign direct investment (*EO*JV* and *EO*WFIE*) carry positive signs and are significant. All other things being equal, the degree of employment creation in an export-oriented foreign investment firm is considerably larger compared to other firms. As noted earlier, given the insignificant coefficient of the *EO* variable, the presence of export-oriented foreign investment has dominated the impact of export expansion on job growth in Vietnamese manufacturing. This implies that the number of jobs generated through the export expansion is largely reliant on the operation of foreign investment projects on export-oriented manufacturing industries. Thus, there is strong empirical evidence suggesting that the involvement of FIEs in labour-intensive manufacturing since the early 2000s is very important in explaining the expansion of a firm's labour demand in Vietnamese manufacturing. In brief, these findings provide a powerful explanation as to why manufacturing exports, in particular exports from FIEs in labour-intensive manufacturing, play a driving force in order to withdraw unskilled workers from agriculture into manufacturing in a labour-abundant economy. By contrast, the coefficient of an *EO*DP* is positive but insignificant from zero. Thus, there is no statistical evidence showing the positive effect of domestic private firms on job creation through their involvement in export-oriented manufacturing industries.

Next, the coefficients of the interaction term between output and the ownership category are negative and significant at a five per cent level, or even better. This implies that within the same two-digit industries, in general the labour demand of private sector firms, both domestic and foreign, is less elastic to output growth than it is for SOEs.

However, these magnitudes of the estimated coefficients are rather small. This infers that on average, these private sector firms have marginal lower output elasticity of labour demand than SOEs.

The estimated results of the interactive variable between wages and the ownership dummy are rather mixed. With the exception of *w*DP*, these coefficients on the other interaction terms (*w*JV* and *w*WIE*) are insignificant from zero. The positive sign and significance of *w*DP* implies that compared to public enterprises, these domestic private firms have adjusted labour demand slowly in response to wage changes. For instance, *ceteris paribus*, a one per cent increase in labour costs reduces demand for labour by 0.315 per cent in SOEs, while a one per cent rise in the wage results in a 0.265 per cent decrease (*computed as -0.315 + 0.05*) in the number of workers demanded in domestic private firms. Notably, the wage elasticity of labour demand for domestic private firms is only marginally different from that of SOEs. A plausible reason for this relies on differences in recruitment policy between state enterprises and domestic private firms. SOEs have various hiring policies, which mostly rely on non-market considerations, whereas these private firms normally adopt a single recruitment method. Generally, given the insignificance of the interactive terms between wages and other ownership dummies, there is no strong statistical evidence for a significant difference in wage elasticity among firm ownership categories.

It is likely that the inclusion of the interactive variables between ownership dummies with wages and output, respectively, do not significantly affect a firm's labour demand. Explained briefly, the last column presents the result when an estimated specification omits all insignificant interactive variables in the full model. In the absence of these interaction terms, the signs of the estimated coefficients on all explanatory variables and their significance are quite consistent with those in the full model. Thus, the incorporation of these interaction terms does not affect the quality of the estimated results.

All estimators of the labour demand model pass the Breusch-Pagan LM test for efficiency of the RE estimation. The test decisively rejected the null hypothesis that random effects do not exist, favouring the use of the RE estimator in this analysis. In addition, given evidence of heteroskedasticity (see Appendix 6.2), the standard errors derived from the robust variance-covariance matrix estimator are employed to test for statistical significance of the estimated coefficients (Wooldridge 2002).

We have so far examined how export orientation and firm ownership impacted on labour demand elasticities in Vietnamese manufacturing during the entire period 2000-09. In the next section, we try to examine whether the macroeconomic instability during the period 2006-09 has had a significant impact on the labour absorption patterns in manufacturing compared to the previous six years.

6.4 Macroeconomic disturbance and manufacturing labour absorption

Employment growth in Vietnamese manufacturing over the period 2000-09 has been underpinned by the increasing participation of foreign investment in the exploitation of labour-intensive manufacturing exports. The rising role of FIEs is based on the significant improvements in trade and investment regimes coupled with the enterprise reform implemented in the lead-up to the WTO membership in 2007. However, the high inflation caused by the investment boom persisted for much of the period 2006-09, leading to macroeconomic disturbance in the Vietnamese economy. Additionally, manufacturing employment is likely to have been affected by the 2009 global financial crisis. Under these macroeconomic disturbances, the impact of export expansion and firm ownership on the labour demand of a manufacturing firm is equivocal. Thus, it is interesting to examine the determinants of labour demand in the sub-samples of firms over the period 2000-05 and those over the period 2006-09.

We perform the estimation of the labour demand models for these two sub-periods. The RE estimation results for the two sub-periods, amply supported by the Breusch-Pagan LM test, are shown in Tables 6.9 and 6.10 (these results are presented in the same format as in Table 6.8). The coefficients of explanatory variables in most cases are consistent in terms of sign and significance, as compared to the corresponding estimations for the whole period.

Table 6.9: Determinants of labour demand in Vietnamese manufacturing: RE estimates, 2000-05

Dependent variable: logarithm of firm's number of employees

Explanatory variables	**(1)**	**(2)**	**(3)**	**(4)**
y (real output)	0.388***	0.377***	0.443***	0.445***
	(0.004)	(0.004)	(0.010)	(0.010)
w (wage)	-0.264***	-0.272***	-0.319***	-0.328***
	(0.006)	(0.006)	(0.017)	(0.013)
EO (export orientation)	0.001	0.019	0.009	-0.006
	(0.015)	(0.014)	(0.035)	(0.015)
DP (domestic private firms)		-0.465***	0.079	0.072
		(0.015)	(0.082)	(0.083)
JV (joint ventures)		0.029	0.535***	0.591***
		(0.034)	(0.176)	(0.168)
WFIE (wholly owned FIEs)		0.127***	0.767***	0.755***
		(0.025)	(0.123)	(0.125)
*y*DP*			-0.073***	-0.075***
			(0.011)	(0.010)
*y*JV*			-0.073***	-0.076***
			(0.020)	(0.019)
*y*WFIE*			-0.067***	-0.071***
			(0.015)	(0.013)
*w*DP*			0.059***	0.068***
			(0.018)	(0.014)
*w*JV*			0.060*	0.064*
			(0.036)	(0.034)
*w*WFIE*			-0.016	
			(0.025)	
*EO*DP*			-0.023	
			(0.036)	
*EO*JV*			0.101	
			(0.068)	
*EO*WFIE*			0.148***	0.162***
			(0.050)	(0.038)
Constant	0.934***	1.393***	0.886***	0.890***
	(0.032)	(0.035)	(0.082)	(0.083)
Observations	59,247	59,247	59,247	59,247
R^2	0.6687	0.6943	0.6993	0.6990
Number of firms	17,537	17,537	17,537	17,537
Breusch-Pagan LM test	$\chi^2(1)$=56,207	$\chi^2(1)$=53,419	$\chi^2(1)$=52,772	$\chi^2(1)$=53,021

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively. Standard errors adjusted for arbitrary heteroskedasticity are given in brackets.

(a) The Breusch-Pagan LM test is employed for selection between random effects and pooled OLS estimation. Null hypothesis is rejected at the 1% level. See Appendix 6.3 at the end of this chapter for pooled OLS estimates.

(b) All specifications include year dummies and industry dummies. For brevity, their coefficients are not reported here.

Table 6.10: Determinants of labour demand in Vietnamese manufacturing: RE estimates, 2006-09

Dependent variable: logarithm of firm's number of employees

Explanatory variables	(1)	(2)	(3)	(4)
y (real output)	0.420***	0.400***	0.451***	0.430***
	(0.004)	(0.004)	(0.016)	(0.009)
w (wage)	-0.240***	-0.249***	-0.188***	-0.221***
	(0.006)	(0.006)	(0.029)	(0.014)
EO (export orientation)	0.051***	0.063***	-0.074	0.008
	(0.017)	(0.016)	(0.061)	(0.018)
DP (domestic private firms)		-0.521***	0.208	-0.073
		(0.026)	(0.152)	(0.099)
JV (joint ventures)		0.011	0.321	-0.089*
		(0.048)	(0.250)	(0.049)
WFIE (wholly owned FIEs)		0.109***	0.411**	0.019
		(0.032)	(0.189)	(0.035)
*y*DP*			-0.055***	-0.035***
			(0.016)	(0.010)
*y*JV*			-0.022	
			(0.025)	
*y*WFIE*			-0.028	
			(0.020)	
*w*DP*			-0.066**	-0.033**
			(0.030)	(0.016)
*w*JV*			-0.068	
			(0.053)	
*w*WFIE*			-0.043	
			(0.034)	
*EO*DP*			0.089	
			(0.063)	
*EO*JV*			0.373***	0.307***
			(0.110)	(0.094)
*EO*WFIE*			0.353***	0.273***
			(0.073)	(0.044)
Constant	0.720***	1.347***	0.685***	0.973***
	(0.034)	(0.046)	(0.150)	(0.095)
Observations	49,159	49,159	49,159	49,159
R^2	0.6915	0.7010	0.7037	0.7035
Number of firms	16,671	16,671	16,671	16,671
Breusch-Pagan LM test	$\chi^2(1)$=36,149	$\chi^2(1)$=35,944	$\chi^2(1)$=35,122	$\chi^2(1)$=35,140

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively. Standard errors adjusted for arbitrary heteroskedasticity are given in brackets.

(a) The Breusch-Pagan LM test is employed for selection between random effects and pooled OLS estimation. Null hypothesis is rejected at the 1% level. See Appendix 6.4 at the end of this chapter for pooled OLS estimates.

(b) All specifications include year dummies and industry dummies. For brevity, their coefficients are not reported here.

In addition, the Chow test (1960) is employed to examine whether the estimated coefficients derived from the first-period sample are significantly different from those from the second one. As with each individual coefficient, a t-test statistic is employed to examine whether there is a significant difference in the individual coefficient between two samples. In other words, we check to see if a coefficient's magnitude from the first period sample does not overlap with that from the second one within the standard error sub-band. The Chow test statistic provides evidence for the overall significant difference of the estimated coefficients on all explanatory variables between the two sub-period samples (Table 6.11). Consequently, there are several relevant differences relating to the impact of export expansion and firm ownership on labour demand before and after 2006.

First, the coefficient on the export expansion variable for the period 2006-09 is positive and significant in the extended model despite its positive and insignificant in all cases for the period 2000-05. This implies that over the latter period, there is statistical evidence for a positive impact of export intensity on job creation in the manufacturing sector. Overall, an expansion of labour-intensive manufacturing exports during the period 2006-09, in particular following the WTO admission in 2007, likely resulted in a higher demand for labour. However, this employment effect of the export expansion was lower than expected given that the coefficient on an *EO*t* is highly significant when it has a negative sign. This implies that the positive impact of export orientation on a firm's labour demand has decreased over the period 2006-09. A possible reason for this decline is the impact of the 2009 global export collapse on Vietnamese manufacturing employment. Less profitable opportunities in export markets in 2009 were possibly associated with a slowdown in manufacturing exports from Vietnam.

As for the employment impact of foreign investment, a wholly owned FIE dummy is found to have a positive influence on manufacturing employment by shifting up the firm's labour demand in the period 2006-09. This implies that the number of workers employed in wholly owned FIEs is generally higher in this period as compared to domestic firms. However, compared to the previous period, the level of employment generation contributed by these wholly owned FIEs is lower because of the significance and negative sign of *WFIE*t* in the full model. A possible reason lies on the investment boom in Vietnam after the WTO admission in 2007 as briefly explained in Chapter 3. The appreciation of real exchange rate caused by domestic macroeconomic

mismanagement seems to have hindered employment growth in the manufacturing sector.

Table 6.11: The Chow test and t-test for significant difference in the estimation results between the period 2000-05 and 2006-09.

Tests	**(1)**	**(2)**	**(3)**
*y*t*	0.015***	0.022***	-0.003
	(0.002)	(0.002)	(0.007)
*w*t*	0.031***	0.021***	0.058***
	(0.005)	(0.005)	(0.018)
*EO*t*	0.075***	0.045***	-0.100***
	(0.010)	(0.010)	(0.037)
*DP*t*		0.106***	-0.070
		(0.012)	(0.072)
*JV*t*		0.127***	-0.092
		(0.019)	(0.127)
*WFIE*t*		0.173***	-0.567***
		(0.014)	(0.093)
*y*DP*t*			0.028***
			(0.007)
*y*JV*t*			0.039***
			(0.012)
*y*WFIE*t*			0.055***
			(0.009)
*w*DP*t*			-0.051***
			(0.018)
*w*JV*t*			-0.080**
			(0.032)
*w*WFIE*t*			0.036
			(0.022)
*EO*DP*t*			0.141***
			(0.039)
*EO*JV*t*			0.209***
			(0.070)
*EO*WFIE*t*			0.265***
			(0.048)
Chow test	$\chi^2(11)=233.1$	$\chi^2(12)=412.5$	$\chi^2(1)=581.8$

Note: The Chow test procedure is an estimation of a pooled, interacted model to examine whether this is any structural break between two sub-periods. The estimating results for this procedure are presented in Appendix 6.5 at the end of this chapter.

Finally, the coefficient of the interactive variable (*EO*WFIE*) between export expansion and a wholly owned FIE dummy is still positive and highly significant in the period 2006-09. Additionally, a contribution of FIE joint ventures on job creation through export expansion is also robust over this period, given a positive and significant sign of an *EO*JV* variable. This situation stems from the advantages foreign entrepreneurs have in marketing and access to international markets, whereas domestic

firms do not seem to have much experience in world trade. Therefore, all foreign enterprises have reaped the expansionary effect of labour demand through export growth following the further liberalization after 2006. It is important to note that the impact of the export-oriented foreign investment on manufacturing employment increases over the years 2006-09. This is explained by the fact that the coefficients on both *EO*JV*t* and *EO*WFIE*t* are highly significant with positive signs. This finding reinforces the importance of the role of FIEs in employment generation through export intensity. This is also well in line with development policy in emphasizing the role of foreign investment in the export expansion of labour-intensive manufacturing experienced by the East Asian labour-abundant economies.

6.5 Dynamic labour demand estimation

So far we have examined the determinants of labour demand in manufacturing, with a special emphasis on firm ownership as well as export expansion during the EOI. However, the analysis has not taken into account dynamics involved in the model, *i.e.* how firms adjust their level of employment in a changing economic environment. In this section, we address this issue by estimate the model using the GMM estimator.

6.5.1 The model

It is widely known that the business environment in the Vietnamese economy has changed dramatically following the outward-oriented liberalization. In this situation, the number of workers employed may deviate from its steady state as labour adjustment to equilibrium takes place. Consequently, firms do not immediately adjust the number of workers required to adapt to the new business context because of adjustment costs, notably hiring and firing costs. Taking into account the adjustment process of firms requires the introduction of a lag in employment changes into the model. In other words, we refer to a dynamic adjustment of labour demand in which a linkage between labour demand at times *t* and *t-1*can be represented as:

$$L_{it}\text{-}L_{it\text{-}1}=\delta\left(L^{*}_{it}\text{-}L_{it\text{-}1}\right) \quad \textbf{(6.8)}$$

For a firm *i*, let L^{*}_{it} be the desired level of employment, while L_{it} is the observed level of employment. The speed of employment adjustment is captured by a factor δ $(0 \leq \delta \leq 1)$. Taking the logarithm of both sides and using small notations for the log form, Equation (6.8) can be expressed as:

$$l_{it}=\delta l_{it}^{*}+(1-\delta)l_{it-1} \quad \textbf{(6.9)}$$

Combining this equation with the full specification of the labour demand model in Equation (6.7), the dynamic model of labour demand has the form:

$$\boldsymbol{l_{ijt} = \lambda_0 + \lambda_1 y_{ijt} + \lambda_2 w_{ijt} + \lambda_3 r_t + \lambda_4 l_{ijt-1} + \lambda_5 EO_{ijt} + \sum_m \lambda_{6m} ONS_{ijt}}$$

$$\boldsymbol{+ \sum_m \lambda_{7m} (y * ONS)_{ijt} + \sum_m \lambda_{8m} (w * ONS)_{ijt} + \sum_m \lambda_{9m} (EO * ONS)_{ijt}}$$

$$\boldsymbol{+ \sum_j \delta_j INS_{it} + \gamma T_t + \mu_{ij} + \varepsilon_{ijt}} \quad \textbf{(6.10)}$$

where:

y_{ijt}	Real gross output of a given firm at time *t* in log form.
l_{ijt}	Employment in given firm at time *t* in log form.
w_{ijt}	Real wage rate of a given firm in log form.
EO_{ijt}	Export orientation.
ONS_{ijt}	A dummy for firm ownership.
$(y*ONS*)_{ijt}$	An interactive term between firm output with firm ownership dummy.
$(w*ONS)_{ijt}$	An interactive term between real wages with firm ownership dummy.
$(EO*ONS)_{ijt}$	An interactive term between export orientation with firm ownership dummy.
INS_{ijt}	A vector of 21 industry dummies.
T_t	A vector of time dummy variables.
μ_{ij}	"Unobserved effect" captures time-invariant firm features.
ε_{ijt}	A stochastic error term.

6.5.2 Methodology

In this model, the incorporation of a lag-dependent variable as one of the explanatory variables renders the conventional estimator biased and inconsistent (Baltagi 2005). This is caused by endogeneity of lagged variables in the model. To address the endogeneity problem, it is widely recommended to use an instrumental variable (IV) estimation or the generalized method of moment (GMM). Although the IV estimation is perhaps a more suitable approach, it is less feasible in this case. This is because, other than lagged endogenous variables, it seems that no variables in the dataset may be

exogenous. More importantly, we prefer to employ a GMM estimator in this analysis for two reasons. Firstly, the IV estimation leads to consistent, but not necessarily efficient estimators, since it does not take into account all available moment conditions for the variables (Baltagi 2005). In addition, the GMM estimator is more efficient than the simple IV estimator in the presence of heteroskedasticity (Baum, Schaffer & Stillman 2003).

In the GMM estimation, lagged levels of the endogenous variables are used as instruments for variables in the first-differenced equation (Arellano & Bond 1991). But using this first differenced GMM estimator may prove problematic. Specifically, lagged levels of variables may only be weak instruments for the variable in the first differenced equation. Also, this estimator does not take into account all moment conditions for the variables, implying that it is less efficient. To deal with this limitation, Blundell and Bond (1998) recommend a system GMM that explores an additional set of moment restrictions as more appropriate in our model. In this method, the estimator uses a stacked system of first differenced and levels of the estimating equation, in which the lagged values of the endogenous variables in the former, and their lagged differences in the latter, can be valid instruments. The validity of these instruments can be tested using the Hansen *J* test (Hansen 1982). The purpose of this test is to ensure that the instruments are exogenous (Arellano & Bond 1991). The null hypothesis is that the instrument variables are uncorrelated with residuals. In addition, the consistency of this estimator also relies on the assumption that there is no second order auto-correlation of the residuals of the first differenced equation. The standard test that should be used is an AR(2) test, based on the residuals built by Arellano and Bond (1991).

Under a system GMM, instrument proliferation could also be a problem. Thus, we limit the instruments to one lag and use a collapsed instrument matrix, as suggested by Roodman (2009a), in order to overcome this problem. In addition, we also adopt a two-step estimation, with a small sample robust correction to avoid downwardly biased standard errors (Windmeijer 2005). In short, for estimating the dynamic labour demand model, the system GMM estimator is appropriate. This estimator is widely used for estimating models employing persistent data over a fairly short period (Görg et al. 2009; Mouelhi 2007; Roodman 2009b).

All in all, the system GMM estimation is an appropriate estimation for the dynamic labour demand model using a firm-level data. However, the system GMM estimator

does not retain time-invariant variables such as firm ownership of our model. Thus, this estimation is undertaken in the absence of intercept ownership dummies and their respective interactive terms with output, wages, and export orientation. In this estimation, output and wages are treated as endogenous variables.

The dynamic labour model (Equation 6.10) is estimated for an overall sample with all observations, and then undertaken into a sub-sample of stabilizing firms. The latter sample only covers firms that were in operation in 2000 and remained in business until 2009. The overall sample is an unbalanced panel data whereas the sub-sample is a balanced panel data including 1,134 firms operating throughout the whole period.

6.5.3 Results

This section presents the estimation results of the dynamic labour model using the estimation technique-system GMM in Table 6.12. As a robust check, we compare the system GMM estimators with those of standard estimations: OLS and fixed effect estimators. Appendix 6.6 at the end of this chapter shows the results of the latter.

The coefficients of output and wage, are statistically significant with the hypothesized signs in all cases. The magnitudes of output and wage elasticities of labour demand for a typical manufacturing firm are well consistent with those of stabilizing firms. On average, the long-run output elasticity of labour demand is higher than the short-run one.[51] Similar remarks can be made regarding the wage elasticity of labour demand for a manufacturing firm.

Next, the coefficients on the lagged dependable variable are also strongly significant with a positive sign. This indicates there is a modest persistence in employment in a typical manufacturing firm since its coefficient on the lagged employment is 0.47. Thus, on average the speed of employment adjustment is 0.53, which implies that firms adjust about as much as a half of their deviation from the optimal equilibrium in one year. As for the sample of stabilizing firms, the result suggests that employment in the previous year is very important to the current number of workers employed by firms operating throughout the period 2000-09. A level of persistence in employment in these firms is high compared to a typical manufacturing firm, indicating a lower employment adjustment in the stabilizing firms.

[51] See Appendix 6.7 at the end of this chapter.

Table 6.12: Estimation results of dynamic labour demand, System GMM, Vietnam 2000-09

Dependent variable: logarithm of firms' employees

Explanatory variables	**All firms**	**Stabilizing firms**
	(1)	(2)
l (t-1) (lag of firms' employment level)	0.476***	0.651***
	(0.012)	(0.081)
y (real output)	0.266***	0.216***
	(0.008)	(0.027)
w (wage)	-0.308***	-0.296***
	(0.008)	(0.030)
EO (export orientation)	0.250***	0.032
	(0.013)	(0.066)
Year dummy	Yes	Yes
Constant	0.572***	0.374
	(0.102)	(0.525)
Hansen J test p-value	0.000	0.000
Difference-in-Hansen test	0.000	0.146
Arellano-Bond test: first-order autocorrelation	0.000	0.000
Arellano-Bond test: second-order autocorrelation	0.126	0.007
Instruments	17	16
Observations	77,991	9,434
Number of firms	25,449	1,134

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively.

(a) Standard errors adjusted for arbitrary heteroskedasticity are given in brackets.

(b) System GMM estimation is two-step and uses the Windmeijer (2005) correction. A collapsed matrix of first-lag instruments is used. The Arellano-Bond tests are for the difference equations.

As for the export impact on job growth, the estimated coefficient on an export orientation variable is positive with a high level of significance in the overall sample but turns out to be insignificant in a sample of stabilizing firms. Thus, there is empirical evidence to suggest that job growth in the manufacturing sector is positively associated with a rising growth of manufacturing exports.

These estimation results of the dynamic labour demand model should be taken with caution for the following reasons. First, the results of Hansen *J* test (Hansen 1982), are rather mixed. As regards the sample of stabilizing firms, the Hansen *J* test (p-value=0.146 in Column 2), provides statistical evidence of failure to reject the null hypothesis that over-identifying restrictions are valid. In contrast, the estimates derived from the overall sample reject the null hypothesis of the Hansen *J* test. Second, all

estimation results do not pass the difference-in-Hansen given the null hypothesis that the instrument set and the residuals are not correlated.

Next, the test for auto-correlation with the null hypothesis that the residuals are not serially correlated at the second-order is undertaken. Similarly, this test only works for the overall sample. In this sample, the Arellano and Bond (1991) test finds high first-order auto-correlation (AR(1)) but fails to reject the null hypothesis of no second-order auto-correlation (AR(2)) at the 5 per cent level (p value = 0.126). However, there is still statistical evidence suggesting an efficiency of the system GMM estimator in this analysis. Comparing the GMM result with those of the two standard estimations shows that the magnitude of the lagged variable lies within the estimated coefficients of the OLS and FE estimations (Roodman 2009b). This just suggests the suitability of the system GMM estimation in this model.

6.6 Conclusions

This chapter has explored various aspects of the determinants of a firm's labour demand in Vietnamese manufacturing under the export-oriented industrialization. Employment growth and its pattern across particular industries in a manufacturing sector were first examined as a prelude to the ensuing sections of econometric analysis. The central focus involved an examination of the impact of export expansion and firm ownership on employment generation by estimating the labour demand model. The estimation of determinants of labour demand was also undertaken in the two sub-periods – 2000-05 and 2006-09 – to explore a possible impact of the macroeconomic instability after 2006 on manufacturing employment absorption. Finally, this was followed by an investigation of dynamic labour demand using the GMM estimator. The analysis was based substantially on unpublished data from the annual Enterprise Survey for 2000-09.

The results suggest that the private sector firms have been a mainstay for employment expansion in the Vietnamese manufacturing sector. Participation of domestic private firms is observed across every two-digit VSIC manufacturing industry, but they are mostly involved in the processed food industry. At the same time, foreign invested enterprises, in particular wholly owned FIEs, have increasingly expanded their crucial position in the labour-intensive sector, including both traditional industries and the emerging export industry of electronics. Thus, an increasing involvement of the

private sector firms in the export-oriented sector has been a driving force for growth in manufacturing jobs.

Estimating the labour demand model gives several interesting results. First, output growth is significantly more crucial than wage changes in explaining the behaviour of labour demand at the manufacturing firm level. Second, export expansion has had a significant impact on employment growth for the manufacturing sector. Furthermore, on average, foreign investment enterprises – both joint ventures and wholly owned FIEs – have a higher level of job creation in Vietnamese manufacturing as compared to domestic enterprises whereas domestic private firms have a lower demand for labour than those of SOEs.

Our analysis provides significant support for the important role of foreign investment in employment generation in Vietnamese manufacturing. It was found that export expansion from FIEs is strongly associated with employment creation. More importantly, these FIEs were observed to have dominated the employment effect of export intensity in export-oriented manufacturing, as postulated for the case of a labour-abundant economy. This indicates the significance of export-oriented foreign investment on manufacturing employment in Vietnam. This result is very much in line with the experience of East Asian economies in which FIEs have played a key role on employment generation during the outset of the EOI.

Looking at the effects of the macroeconomic instability after 2006 on a firm's labour demand, our analysis reveals that the export expansion impact on job creation declined over the period 2006-09. This situation stems from the appreciation of the real exchange rate accompanied by the 2009 global export collapse. Also, the number of jobs created from wholly owned FIEs was lower in this period.

As a robustness check, the dynamic labour demand was estimated. The results suggest that the first lag in employment has a positive effect on the current labour demand in a manufacturing firm. Next, it was found that the long-run elasticities of labour demand with respect to output and wages are higher than corresponding ones in the short-run. Finally, the system GMM estimators also reveal that employment growth in manufacturing firms had a positive association with its export intensity, suggesting the important role of export expansion on job creation in the long-run.

Appendix 6.1: Labour demand elasticity

This section discusses the labour economics of labour demand elasticity developed by Hamermesh (1993). Assume the production function exhibits constant returns to scale in the following form:

$$\boldsymbol{Y = F(L, K) F_i > 0, F_{ii} < 0, F_{ij} > 0} \quad \textbf{(A.1)}$$

where *Y* is output, and *L* and *K* are homogenous labour and capital inputs, respectively. A firm that maximizes profits subject to a cost constraint will set the marginal value product of each factor equal to its price:

$$\boldsymbol{F_L - \lambda w = 0} \quad \textbf{(A.2)}$$

$$\boldsymbol{F_K - \lambda r = 0} \quad \textbf{(A.3)}$$

where *w* and *r* are the exogenous prices of labour and capital services, respectively; λ is a Lagrangean multiplier, showing how the extra profit will be generated by relaxing the cost constraint. The ratio of (A.2) to (A.3) shows that the marginal rate of technical substitution equals the factor-price ratio for a profit-maximizing firm. By assuming the price of output is unity, the firm will work under the cost constraint:

$$\boldsymbol{C^0 - wl - rK = 0} \quad \textbf{(A.4)}$$

The elasticity of own-price labour demand is given by

$$\boldsymbol{\eta_{LL_j} = -[1 - s]\sigma - s\eta_j} \quad \textbf{(A.5)}$$

where η_{LL_j} is an own-wage elasticity of labour demand in industry *j;* and *s* is labour's share of industry total revenue; σ is the constant-output elasticity of substitution between labour and other factors of production; and η_j is the product-demand elasticity for industry *j*'s output market.

The own-wage elasticity of labour demand consists of two components. The first component in Equation (A.5) is called the Hicks Allen elasticity of substitution or 'substitution effect'. It expresses how much industry *j* substitutes away from labour towards other factors when the wage rate increases. This component ($-[1 - s]\sigma$) is often defined as the constant-output labour demand elasticity. It measures the ease of substitution of one input for labour, when the firm can only respond to a change in

wages by changing the relative use of labour, while holding output constant. The second component $-s\eta_j$ is the scale or output effect. It relies on the absolute value of the elasticity of product demand η_j and on the share of labour in total costs. The scale effect postulates how much labour demand changes after the wage rate rises due to a reduction in industry output. A higher wage rate increases the marginal production cost, leading to an increase in the product price and a reduction in sales. This contracts job creation. It is especially important to note that in an individual firm that can expand or contract employment as the wage it must pay changes, the scale effects on labour demand are relevant.

Within this framework, there are two channels through which international trade will affect labour demand elasticity (Hasan, Mitra & Ramaswamy 2007; Krishna, Mitra & Chinoy 2001; Rodrik 1997). The first one works through the scale effect, reflecting one of the Hicks-Marshallian laws of factor demand: "The demand for anything is likely to be more elastic, the more elastic is the demand for any further thing which it contributes to produce" (Hicks 1963, p. 242). Trade reforms can make a country's products more competitive. As a result, when there is a higher output demand elasticity, a change in output prices will lead to a large proportional change in the output demand, which, in turn, requires a greater change in the number of workers employed. Secondly, the substitution effect works through the ease of substitution of imported intermediate and capital inputs for the services of domestic workers. This is because outward-oriented reforms increase the availability of cheaper inputs and capital, coupled with a wider variety of inputs. Trade reforms can bring about these effects without also creating product price changes and factor price changes (Slaughter 2001).

Appendix 6.2: Labour demand in Vietnamese manufacturing: pooled OLS estimates, Vietnam 2000-09

Dependent variable: logarithm of firms' employees

Explanatory variables	(1)	(2)	(3)	(4)
y (real output)	0.607***	0.556***	0.623***	0.647***
	(0.003)	(0.003)	(0.010)	(0.009)
w (wage)	-0.416***	-0.444***	-0.473***	-0.587***
	(0.007)	(0.007)	(0.022)	(0.015)
EO (export orientation)	-0.031	0.036*	-0.005	-0.026
	(0.021)	(0.019)	(0.046)	(0.019)
DP (domestic private firms)		-0.834***	-0.186**	-0.233***
		(0.017)	(0.086)	(0.086)
JV (joint ventures)		-0.592***	0.526***	0.407***
		(0.030)	(0.170)	(0.157)
WFIE (wholly owned FIEs)		-0.388***	0.224*	0.023
		(0.020)	(0.119)	(0.116)
*y*DP*			-0.085***	-0.109***
			(0.011)	(0.010)
*y*JV*			-0.066***	-0.098***
			(0.017)	(0.015)
*y*WFIE*			-0.021*	-0.053***
			(0.013)	(0.011)
*w*DP*			0.082***	0.194***
			(0.023)	(0.016)
*w*JV*			-0.160***	
			(0.047)	
*w*WFIE*			-0.189***	
			(0.030)	
*EO*DP*			-0.016	
			(0.047)	
*EO*JV*			0.228**	0.277***
			(0.097)	(0.083)
*EO*WFIE*			0.438***	0.493***
			(0.060)	(0.044)
Constant	-0.411***	0.681***	0.118	0.160*
	(0.025)	(0.033)	(0.084)	(0.083)
Observations	108,406	108,406	108,406	108,406
R^2	0.688	0.717	0.721	0.720
Breusch-Pagan test	$\chi^2(1)=4,656$	$\chi^2(1)=4,134$	$\chi^2(1)=3,765$	$\chi^2(1)=3,767$

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively. Standard errors adjusted for arbitrary heteroskedasticity are given in brackets.

(a) All equations use pooled OLS estimates controlled for heteroskedasticity

(a) The Breusch-Pagan test is used for testing heteroskedasticity. Null hypothesis is rejected at the 1% level.

(c) All specifications include annual time dummies and/or industry dummies. For brevity, their coefficients are not reported here.

Appendix 6.3: Labour demand in Vietnamese manufacturing: pooled OLS estimates, 2000-05

Dependent variable: logarithm of firms' employees

Explanatory variables	(1)	(2)	(3)	(4)
y (real output)	0.607***	0.545***	0.623***	0.647***
	(0.004)	(0.004)	(0.012)	(0.011)
w (wage)	-0.436***	-0.446***	-0.459***	-0.572***
	(0.009)	(0.009)	(0.026)	(0.019)
EO (export orientation)	-0.069***	0.027	-0.016	-0.017
	(0.026)	(0.023)	(0.048)	(0.024)
DP (domestic private firms)		-0.872***	-0.058	-0.097
		(0.019)	(0.097)	(0.097)
JV (joint ventures)		-0.612***	0.572***	0.673***
		(0.034)	(0.199)	(0.184)
WFIE (wholly owned FIEs)		-0.426***	0.559***	0.312**
		(0.024)	(0.140)	(0.140)
*y*DP*			-0.100***	-0.123***
			(0.013)	(0.012)
*y*JV*			-0.072***	-0.096***
			(0.020)	(0.020)
*y*WFIE*			-0.045***	-0.084***
			(0.016)	(0.014)
*w*DP*			0.068**	0.179***
			(0.028)	(0.021)
*w*JV*			-0.165***	-0.080*
			(0.053)	(0.046)
*w*WFIE*			-0.230***	
			(0.037)	
*EO*DP*			-0.000	
			(0.049)	
*EO*JV*			0.179	
			(0.113)	
*EO*WFIE*			0.327***	0.385***
			(0.068)	(0.054)
Constant	-0.376***	0.793***	0.077	0.110
	(0.030)	(0.040)	(0.093)	(0.094)
Observations	59,247	59,247	59,247	59,247
R^2	0.680	0.717	0.721	0.720
Breusch-Pagan test	$\chi^2(1)=2,436$	$\chi^2(1)=1,983$	$\chi^2(1)=1,813$	$\chi^2(1)=1,822$

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively. Standard errors adjusted for arbitrary heteroskedasticity are given in brackets.

(a) All equations use pooled OLS estimates controlled for heteroskedasticity

(a) The Breusch-Pagan test is used for testing heteroskedasticity. Null hypothesis is rejected at the 1% level.

(c) All specifications include annual time dummies and/or industry dummies. For brevity, their coefficients are not reported here.

Appendix 6.4: Labour demand in Vietnamese manufacturing: pooled OLS estimates, 2006-09

Dependent variable: logarithm of firms' employees

Explanatory variables	**(1)**	**(2)**	**(3)**	**(4)**
y (real output)	0.420***	0.400***	0.451***	0.430***
	(0.004)	(0.004)	(0.016)	(0.009)
w (wage)	-0.240***	-0.249***	-0.188***	-0.221***
	(0.006)	(0.006)	(0.029)	(0.014)
EO (export orientation)	0.051***	0.063***	-0.074	0.008
	(0.017)	(0.016)	(0.061)	(0.018)
DP (domestic private firms)		-0.521***	0.208	-0.073
		(0.026)	(0.152)	(0.099)
JV (joint ventures)		0.011	0.321	-0.089*
		(0.048)	(0.250)	(0.049)
WFIE (wholly owned FIEs)		0.109***	0.411**	0.019
		(0.032)	(0.189)	(0.035)
*y*DP*			-0.055***	-0.035***
			(0.016)	(0.010)
*y*JV*			-0.022	
			(0.025)	
*y*WFIE*			-0.028	
			(0.020)	
*w*DP*			-0.066**	-0.033**
			(0.030)	(0.016)
*w*JV*			-0.068	
			(0.053)	
*w*WFIE*			-0.043	
			(0.034)	
*EO*DP*			0.089	
			(0.063)	
*EO*JV*			0.373***	0.307***
			(0.110)	(0.094)
*EO*WFIE*			0.353***	0.273***
			(0.073)	(0.044)
Constant	0.720***	1.347***	0.685***	0.973***
	(0.034)	(0.046)	(0.150)	(0.095)
Observations	49,159	49,159	49,159	49,159
R^2	0.6915	0.7010	0.7037	0.7035
Number of firms	16,671	16,671	16,671	16,671
Breusch-Pagan LM test	$\chi^2(1)$=36,149	$\chi^2(1)$=35,944	$\chi^2(1)$=35,122	$\chi^2(1)$=35,140

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively. Standard errors adjusted for arbitrary heteroskedasticity are given in brackets.

(a) All equations use pooled OLS estimates controlled for heteroskedasticity

(a) The Breusch-Pagan test is used for testing heteroskedasticity. Null hypothesis is rejected at the 1% level.

(c) All specifications include annual time dummies and/or industry dummies. For brevity, their coefficients are not reported here.

Appendix 6.5: Estimation results of the Chow test procedure

Variables	(1)	(2)	(3)
y (real output)	0.395***	0.378***	0.431***
	(0.002)	(0.002)	(0.005)
*y*t*	0.015***	0.022***	-0.003
	(0.002)	(0.002)	(0.007)
w (wage)	-0.276***	-0.277***	-0.319***
	(0.003)	(0.003)	(0.011)
*w*t*	0.031***	0.021***	0.058***
	(0.005)	(0.005)	(0.018)
EO (export orientation)	-0.008	0.018*	0.021
	(0.010)	(0.010)	(0.024)
*EO*t*	0.075***	0.045***	-0.100***
	(0.010)	(0.010)	(0.037)
DP (domestic private firms)		-0.439***	0.012
		(0.009)	(0.045)
*DP*t*		0.106***	-0.070
		(0.012)	(0.072)
JV (joint ventures)		0.055**	0.414***
		(0.022)	(0.104)
*JV*t*		0.127***	-0.092
		(0.019)	(0.127)
WFIE (wholly owned FIEs)		0.139***	0.691***
		(0.016)	(0.065)
*WFIE*t*		0.173***	-0.567***
		(0.014)	(0.093)
*y*DP*			-0.060***
			(0.005)
*y*DP*t*			0.028***
			(0.007)
*y*JV*			-0.056***
			(0.010)
*y*JV*t*			0.039***
			(0.012)
*y*WFIE*			-0.055***
			(0.007)
*y*WFIE*t*			0.055***
			(0.009)
*w*DP*			0.054***
			(0.011)
*w*DP*t*			-0.051***
			(0.018)
*w*JV*			0.063***
			(0.022)
*w*JV*t*			-0.080**
			(0.032)
*w*WFIE*			-0.018
			(0.015)
*w*WFIE*t*			0.036
			(0.022)
*EO*DP*			-0.038
			(0.024)
*EO*DP*t*			0.141***
			(0.039)
*EO*JV*			0.058
			(0.053)
*EO*JV*t*			0.209***
			(0.070)
*EO*WFIE*			0.106***
			(0.033)
*EO*WFIE*t*			0.265***
			(0.048)
Chow test	$\chi 2(11)=233.1$	$\chi 2(12)=412.5$	$\chi 2(1)=581.8$

Appendix 6.6: Estimation results of dynamic labour demand, OLS and FE estimations, Vietnam 2000-09

Dependent variable: logarithm of firms' employees

Explanatory variables	All firms		Stabilizing firms	
	OLS	FE	OLS	FE
l (t-1) (lag of firms' employment level)	0.826***	0.244***	0.901***	0.467***
	(0.002)	(0.007)	(0.005)	(0.022)
y (real output)	0.118***	0.216***	0.076***	0.190***
	(0.002)	(0.006)	(0.004)	(0.017)
w (wage)	-0.106***	-0.209***	-0.084***	-0.203***
	(0.003)	(0.006)	(0.008)	(0.018)
EO (Export orientation)	0.112***	0.046***	0.060***	0.004
	(0.005)	(0.014)	(0.011)	(0.027)
Constant	0.024***	1.799***	0.058***	1.304***
	(0.009)	(0.050)	(0.022)	(0.145)
Observations	77,991	77,991	9,434	9,434
R^2	0.926	0.284	0.961	0.500
Number of firms		25,449		1,134

Appendix 6.7: Labour demand adjustment in the short- and long-run, Vietnam 2000-09

	All firms	Stabilizing firms
Short-run output elasticity	0.27	0.22
Short-run wage elasticity	-0.31	-0.30
Long-run output elasticity	0.52	0.52
Long-run wage elasticity	-0.61	-0.71
Speed of adjustment	0.51	0.42

Source: Compiled based on the estimation results in Table 6.12

Chapter 7

Determinants of wages and wage premium in the manufacturing sector in Vietnam

7.1 Introduction

The impact of an outward-oriented development strategy on wages remains a significant focus in the ongoing debate about workers' welfare in developing countries. Opening the market to international trade and investment will affect not only wage levels but also the wage premium between skilled and unskilled workers (which we call 'wage premium' in this chapter). However, as discussed in Chapter 2, there is no unanimity in the theoretical literature on the impact of industrialization on the wage premium in the manufacturing sector in developing countries. The Lewis-Fei-Ranis model does not make a distinction between skilled and unskilled labour, but it implies that the wage premium could continue to increase as long as surplus labour conditions prevail in the economy. The standard Heckscher-Ohlin-Stolper-Samuelson (HOSS) theory predicts that in a labour-abundant economy there will be a rise in manufacturing wages of unskilled workers associated with an expansion in manufacturing exports. By contrast, the Feenstra-Hanson extension to the HOSS theory postulates that the engagement of developing countries in global production sharing could result in increasing the skill premium in manufacturing wages in these countries.

As with the theoretical literature, the findings of empirical studies remain inconclusive. Some of studies have focused on the wage pattern and its growth in the manufacturing sector (Galenson 1979; Hill 1990a; Kim & Topel 1995; Lim 1988; Manning 1995). Within that sector, there is significant evidence to support a foreign wage premium, *i.e.* where there are higher wages in foreign-invested enterprises than in domestic firms (Lipsey & Sjöholm 2004a; Ramstetter 2004; Ramstetter & Sjöholm 2006; Sjöholm & Lipsey 2006). As with the foreign wage premium, the skill premium is significant in labour-abundant economies in East Asia following EOI (Galenson 1992; Kim & Topel 1995; Kuo 1989). In contrast, several middle-income developing

countries in the Latin American region have experienced a rise in the skill premium.[52] Moreover, there is evidence of a widening of the skill premium resulting from foreign investment and technical change in Mexico's *maquiladoras*[53] while the opposite has been observed in Indonesian manufacturing because of the positive impact of the greater demand for unskilled workers on wages (Suryahadi, Chen & Tyers 2001). These contradictory findings on manufacturing wages are puzzling as it is not clear what determines the wage rates and the wage premium in relation to trade and investment liberalization in a developing country.

Despite its importance for the debate on gains from global economic integration, the issue of wage levels and a wage premium has received little attention in the studies on Vietnam. Although considerable research has been devoted to analyzing average wages and wage inequality in Vietnam over the first decade of the reform in the 1990s, mainly using the Household Surveys (Brassard 2004; Gallup 2004; Liu 2001, 2004; McCarty 1999), rather less attention has been paid to the wage effect of international trade and investment. However, the little research that has been undertaken to explore the impact of liberalization reforms in explaining wage differentials in the early years of 2000s is incomplete (Fukase 2013; Ramstetter & Ngoc 2007). This has led to a gap in identifying how export orientation and firm ownership affect these differentials over the decade up to 2009. It would be thus of interest to know how wage rates and the wage premium have been determined within the context of these extensive reforms for this period in Vietnamese manufacturing. This chapter aims to explore these issues.

The chapter is structured in four sections. In the first section, the study compares wages and their growth amongst firm-ownership types in the Vietnamese manufacturing sector over the period 2000-09 in order to set the stage for the ensuing analysis. In the next section, we investigate determinants of manufacturing wages following outward-oriented liberalization, with a particular focus on a comparison of wages paid by FIEs and domestic firms, done by conducting firm-level panel estimations. This is followed by the third section where we employ a model that relates a wage premium to tariff variations and firm ownership in order to determine the wage premium using a cross-

[52] For empirical evidence of the impact of trade liberalization on wage premium in the Latin America economies see Attanasio (2004); Davis & Mishra (2007); Esquivel & Rodriguez-Lopez (2003); Feliciano (2001); Revenga (1997).

[53] For a useful review of this empirical literature, see Feenstra and Hanson (1997, 1999, 2001)

section of firm-level data. The final section provides concluding remarks on the significant effect that export-oriented foreign investment has on wages as well as on the wage premium.

7.2 Wage patterns in Vietnamese manufacturing

The manufacturing employment pattern and its growth observed in the previous chapter indicate that job growth in labour-intensive, export-oriented manufacturing in Vietnam was rapid, and FIEs have been a driving force in generating manufacturing employment. Coupled with this, a more interesting perspective on an export-oriented industrialization is one which emphasises wage growth and its pattern in Vietnamese manufacturing over the period 2000-09. The wage rate used in this analysis is an average total wage per employee. It includes regular salaries and other types of labour compensation such as bonuses, subsidies, social security, health and pension insurance, and any other costs employers pay on behalf of their employees. These current wages are transformed into real wages using the annual consumer price index (*CPI*).

Table 7.1 presents data on real wages in Vietnamese manufacturing at the two-digit VSIC industries. The data demonstrate substantial variations in average real wages and their growth across industries over the period 2000-09. In every particular industry, growth rates in the period 2006-09 were mostly higher than those in the period 2000-05, except in the office, accounting and computing machinery industry (VSIC 30) and the radio, television and communication equipment industry (VSIC 32).

Table 7.1: The growth in average real wages in Vietnamese manufacturing by industry, 2000-09 (in %)

Manufacturing industries by two-digit VSIC	Wage index[a]		Annual growth rate[b]		
	2000	2009	2000-09	2000-05	2006-09
15: Food products	91	92	5.0	2.1	9.7
16: Tobacco products	210	213	5.1	8.6	11.1
17: Manufacture of textiles	78	87	6.1	4.8	4.7
18: Wearing apparel	86	85	4.7	3.9	4.9
19: Leather products	88	86	4.7	4.4	6.1
20: Wood products	64	70	6.0	5.9	4.9
21: Paper products	90	93	5.3	3.5	6.6
22: Publishing and printing	146	116	2.3	2.2	2.6
24: Chemical products	172	148	3.2	3.4	4.6
25: Rubber and plastic products	119	105	3.5	1.8	6.4
26: Non-metallic mineral products	81	104	7.8	5.1	13.8
27: Basic metals	111	105	4.2	2.1	5.1
28: Fabricated metal products	112	106	4.3	2.6	5.7
29: Machinery and equipment n.e.c	121	121	4.9	3.5	6.9
30: Office, accounting and computing machinery	168	118	0.9	0.8	-14.5
31:Electrical machinery and apparatus	159	146	3.9	2.9	8.3
32: Radio, television and communication equipment	193	134	0.7	1.5	0.4
33: Medical, precision and optimal instruments	148	137	4.1	2.9	9.2
34: Motor vehicles, trailers and semi trailers	114	130	6.4	5.5	5.5
35: Manufacture of other transport means	117	113	4.5	3.8	7.2
36: Manufacture of furniture, n.e.c	87	85	4.7	3.9	4.4
Whole manufacturing	100	100	4.9	3.6	6.7
Million dong per worker	10.4	15.9			

Notes: (a) Data refer to average wages per employee in each industry, indicated as an index with the ratio for all manufacturing firms equal to 100.

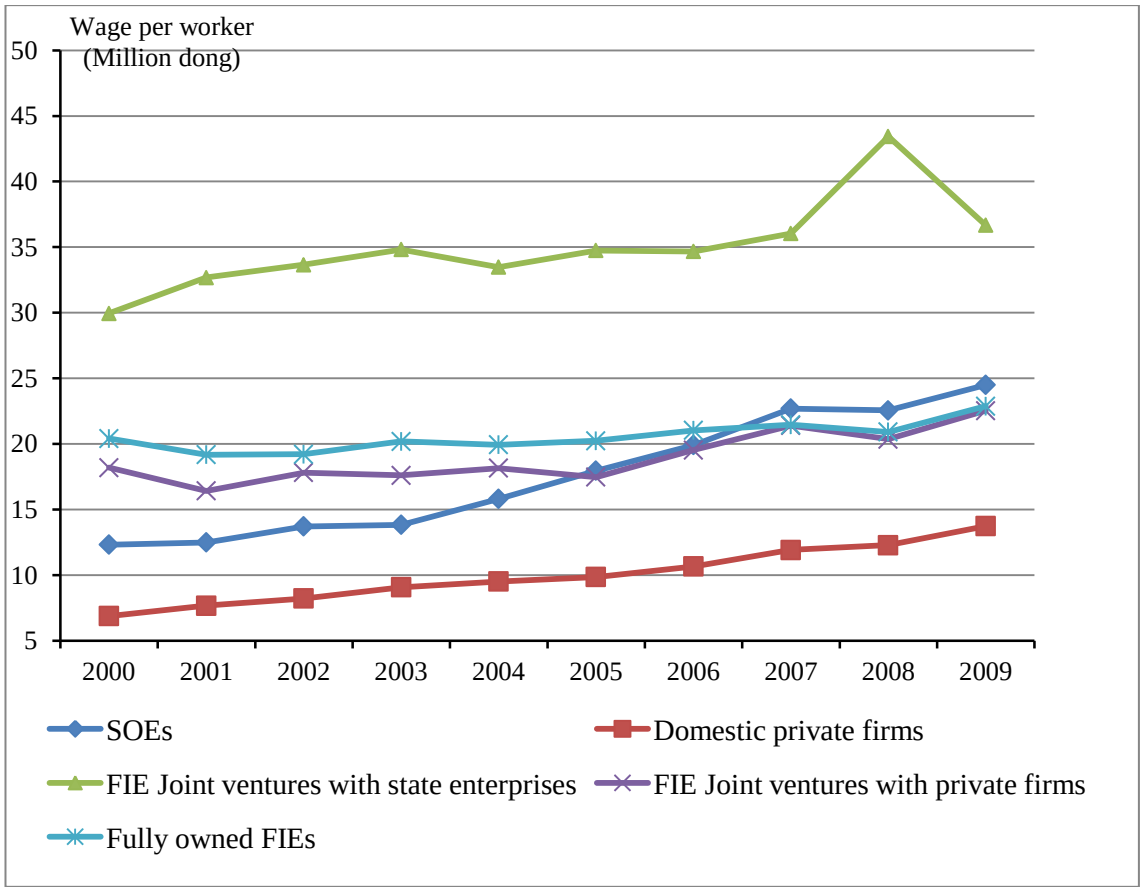
(b) Average annual growth rate for the examined period.

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

With regard to firm ownership groups, these have had contrasting trends of wage growth. The wages in domestic manufacturing firms increased dramatically, while those of FIEs recorded stagnant growth (Figure 7.1). Over the whole period 2000-09, both SOEs and domestic private firms had the highest annual growth rate of real wages, reaching around eight per cent per annum. By contrast, the wages in manufacturing FIE joint ventures (that is joint ventures with public firms and those with private enterprises), increased at a very modest rate, just above two per cent per annum. Among all firm-ownership categories, the wages in wholly owned manufacturing FIEs increased the least over that period. It becomes clear that these trends are quite consistent with the

pattern of wage growth by ownership group across the two-digit industries (Appendix 7.1).

Figure 7.1: Average real wage and its growth in Vietnamese manufacturing by ownership group, 2000-09



Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

Wage patterns vary among industries (Table 7.1). First, several labour-intensive industries such as apparel (VSIC 18), footwear (VSIC 19), wood products (VSIC 20), and furniture (VSIC 36) are low-wage industries in which wages were well below the manufacturing average wage index in both 2000 and 2009, indicating low-skill intensity and low productivity. Conversely, there are high-wage industries which are normally involved with resource-based industries or capital-intensive industries, for example, chemical products (VSIC 24), rubber products (VSIC 25), basic metals (VSIC 27), and motor vehicles (VSIC 34, 35) between 2000 and 2009. These industries are typical of high physical capital intensity and high skill intensity. Differing from these pronounced patterns, the electronics industry (VSIC 30-33) was an 'outlier'. The high above-average wage level for this industry in 2000 can be explained by high-skill operations at the early stage of its development, after FIEs established their business premises.

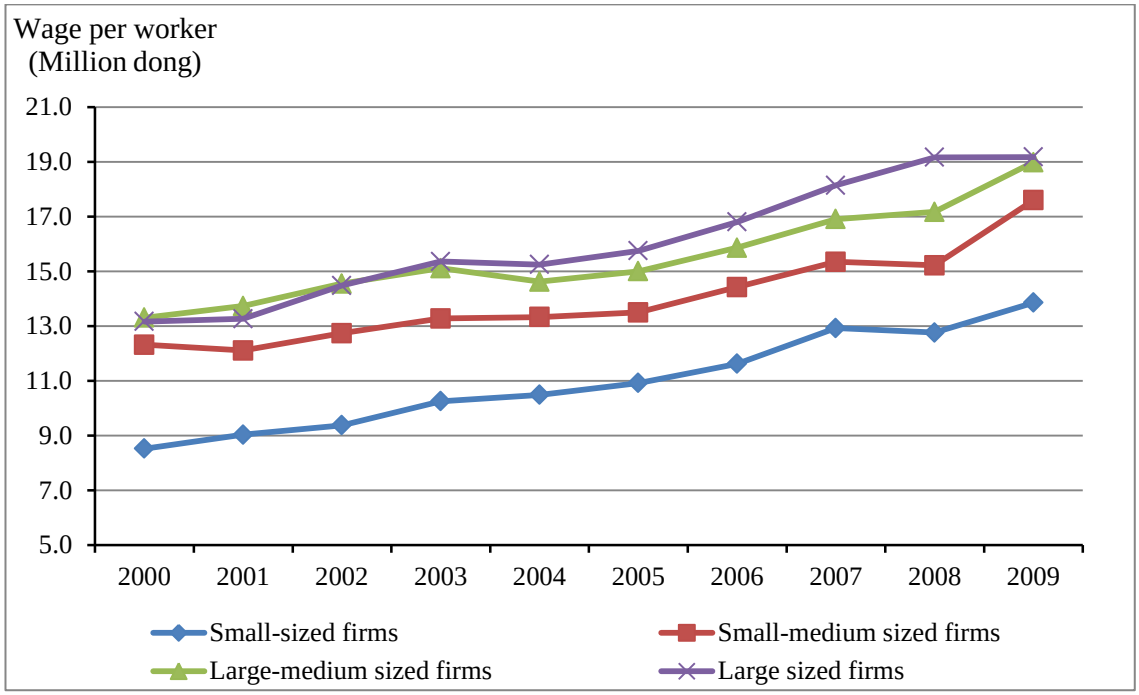
However, the simple labour-intensive tasks of assembling and processing parts and components in this industry probably kept wages down in 2009. Generally, the wage differentials between industries narrowed over the period 2000-09.

Firm ownership appears to be a significant factor explaining wage patterns across manufacturing industries (Figure 7.1). On the whole, wages in FIEs (both joint ventures and wholly owned FIEs) were much higher than those paid by domestic firms, including public and private firms. Within this FIE group, joint ventures with state enterprises typically paid the highest rates. In other words, across two-digit industries, wages in these joint ventures with SOEs are highest in 16 of the 21 two-digit industries (Appendix 7.1). A simple explanation for these higher wages in FIEs is that foreign firms are willing to pay a wage premium for an employee with a given quality in order to reduce labour turnover, particularly that relating to high-skilled staff, as well as to prevent technological leakage. Another possible reason comes from the intra-industry effect of foreign investment on the upgrading of average skill levels, as well as increasing a firm's economies of scale and thus moving towards a large-size, higher-wage operation, since foreign investors mostly require new or advanced technology. As with the FIE joint ventures with SOEs, one specific reason for their high wages is that the SOEs are likely to pay a premium for institutional reasons and this is compounded by their association with these foreign firms. Thus, by and large all these aspects contribute to wage rates by expanding labour demand in the FIE group. Additionally, as discussed in Chapter 3, a wage gap between foreign and domestically owned enterprises in Vietnam has also been a result of the regulations on legally minimum wages.

In contrast, domestic private firms paid the lowest wages across all two-digit industries in Vietnamese manufacturing, suggesting low-skill intensity and possible low capital intensity in this domestic private firm group as compared to other firm ownership groups. A plausible reason for this is that most domestic private firms are small scale businesses and normally have been in operation for only a short period. It is probable that improvements in the legal and business environment over the period 2000-09 have resulted in increasing opportunities for access to domestic private firms. However, they still encounter inequitable treatment in terms of accessing land, banking loans, and financial incentives (Canh et al. 2004; Carlier & Tran 2004; Perkins & Vu 2010). Additionally, as noted previously, these domestic private firms mostly require unskilled workers. Furthermore, these private firms simply pay competitive wages in the absence of institutional effects involved in SOEs. Taking the case of the Vietnamese

economy, wage differentials by firm ownership are also attributed to government regulations that stipulate higher minimum wages in FIEs than in domestic firms (See Chapter 3).

Figure 7.2: Average real wages and their growth in Vietnamese manufacturing by firm size, 2000-09



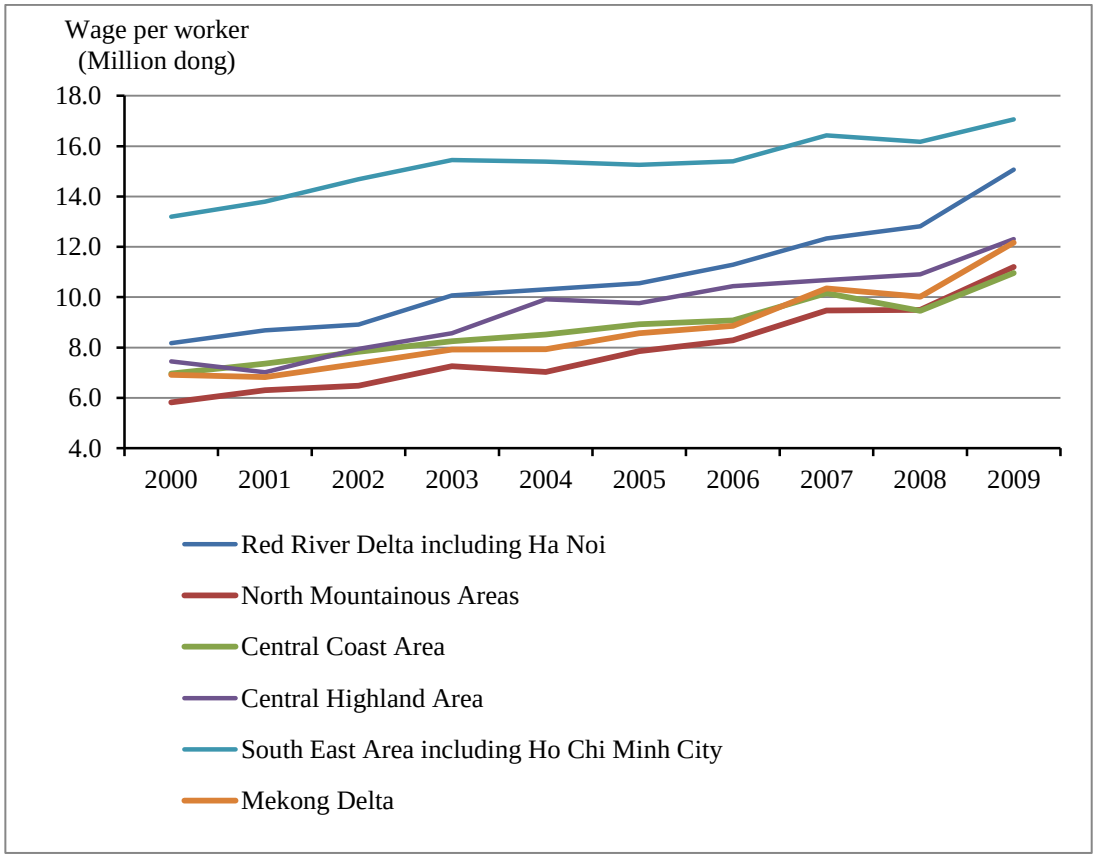
Notes: Small sized firms are those with a workforce of 10-49 employees, Small-medium sized firms are those having 50-199 employees, Large-medium-sized firms having 200-499 employees and Large sized firms having a workforce above 500 employees.

Source: Compiled from the unpublished returns to the *GSO Enterprise Survey* 2000-2009.

Due to the economies of scale, larger firms normally pay higher wages than small firms. The wage patterns by firm size segments were broadly consistent over the period 2000-09 (Figure 7.2). The average wages are positively associated with firm size in the sense that high-wage industries are normally observed in the firm segments with a sizable workforce. As expected, across the two-digit industries, manufacturing wages in Vietnam closely portray this linear trend, reflecting the fact that the average wages in the larger firm segment are typically higher than those in the next segment down (Appendix 7.2). However, there is still a reverse order of the size-specific wage in several industries. In the several industries (VSIC 32, 33), wages for large firms with a workforce of above 500 workers are no longer higher than those in the smaller firms. Similarly, this reverse order was also found in 2000 in the cases of chemical products (VSIC 24) and machinery and equipment (VSIC 29) among others.

Manufacturing wages also vary significantly among regions, depending on differences in the level of economic development (Figure 7.3). The average wages are higher in the South East Area (including Ho Chi Minh City) and the Red River Delta (including Ha Noi). One possible explanation is that this geographic factor can capture a degree of economic development. It means that these high-wage regions are home to many prosperous businesses, and are economically better off with key economic indicators above the national average. By contrast, much lower wages were observed in the other regions such as the North Mountainous Area, the Central Coast Area, the Central Highland Area, and the Mekong Delta, as is evident from the high incidence of poverty in these less developed areas.

Figure 7.3: Average real wages and their growth in Vietnamese manufacturing by region, 2000-09



Source: Compiled from the unpublished returns to the *GSO Enterprise Survey 2000-2009*.

It is particularly noteworthy that the geographical factor may capture a degree of industry concentration and market competition. For example, the South East Area which is close to Ho Chi Minh City has several advantages over other regions in terms of economic openness, investment climate, and business facilities. These differences in

industry composition are very important in explaining a geographic aspect of a firm's wages since many capital-intensive industries are often concentrated in highly developed centres such as Ho Chi Minh City. Thus, firms located in the highly developed regions are likely to have higher productivity since they are able to acquire readily available resources (skilled workers, natural resources, and land access) as well as have convenient access to overseas markets.

Table 7.2: Real average wages in Vietnamese manufacturing by region and ownership group, 2000 and 2009 (million dong per worker per annum)

Region	SOEs		Domestic private firms		FIE JV with state firms		FIE JV with private firms		Wholly owned FIEs	
	2000	2009	2000	2009	2000	2009	2000	2009	2000	2009
Red River Delta	9.8	23.5	5.8	14.1	32.3	34.8	23.0	23.1	22.4	20.8
North Mountainous Area	7.0	17.6	4.5	11.4	12.7	23.5	6.5	17.1	6.6	12.6
Central Coast Area	8.6	18.7	6.0	11.2	22.3	32.3	11.0	14.2	15.9	15.5
Central Highland Area	8.8	18.6	6.3	12.8	14.6	19.8	9.9	10.9	13.3	14.9
South East Area	18.8	31.4	9.1	16.1	32.9	42.6	17.7	24.4	20.9	24.1
Mekong Delta	12.4	26.8	6.7	12.2	19.6	31.4	18.5	20.4	19.5	21.7
All regions	11.5	24.5	7.2	14.1	29.9	36.8	18.0	22.5	20.1	22.7

Source: Compiled from the unpublished returns to the *GSO Enterprise Survey 2000-2009*.

Combining these regional wage trends with firm ownership categories, joint ventures with SOEs had the highest wages of all regions over the period 2000-09 (Table 7.2). Next, wages in domestic private firms across regions were the lowest of all the five ownership groups. In 2000, wages in these private firms were only half of those of SOEs and below about a quarter of those of FIEs. Typically, these wage trends across regions are consistent with the general trends of manufacturing wages in Vietnam. Additionally, in 2009 wholly owned FIEs had higher wages than those of SOEs in all regions, with the exception of two less developed regions, the North Mountainous Area and the Central Coast Area. This is because SOEs had higher wage growth in these less-developed regions compared to those in other regions. Furthermore, wages of joint ventures with domestic private firms ranked almost equal with wholly owned FIEs but their wages in some fairly poor regions were at rather low rates in 2009. As before, these wage differentials can be partly attributed to the government regulations that set regional minimum wages for FIEs over the entire period and for domestic enterprises in recent years (see Chapter 3).

Furthermore, factor proportion affects wage differentials between FIEs and domestically owned firms (Table 7.3). Wages in domestic manufacturing firms were highest in both 2000 and 2009 in the electronics industry, then followed by the resource-based sector and the capital-intensive sector, and finally by traditional labour-intensive industries. The most notable feature of this is that for each combination of factor-intensive sector and firm ownership category, wages of FIEs were higher than those of domestic firms in 2000. In that year, wage premiums of FIEs (measured in percentage terms) were larger for those firms operating in industries with a higher capital intensity as well as a heavy reliance on natural resources. The foreign premiums were smaller for labour-intensive industries compared with other factor-intensive industries. On the whole, the foreign wage premiums had narrowed by 2009.

Table 7.3: Factor proportions and foreign wage premium in Vietnamese manufacturing, 2000 and 2009

Industry classification[a]	2000			2009		
	Real wages[b]		Wage[c]	Real wages		Wage
	Domestic firms	FIEs	premium of FIEs	Domestic firms	FIEs	premium of FIEs
(1) Resource-based sector	8.7	26.2	202	15.5	27.4	76
(2) Capital-intensive sector	8.4	23.1	176	15.2	23.6	55
(3) Labour-intensive sector	7.7	17.8	131	12.6	19.0	51
Traditional labour- intensive industries	7.1	14.8	109	11.8	17.6	49
Electronics	12.7	26.5	109	20.9	24.6	18

Notes: (a) Defined as follows:

(1) Resource-based sector (VSIC 15,16,,21,22, 24,25,26 &27).

(2) Capital-intensive sector (VSIC 17, 28,29,34 & 35) .

(3) Labour-intensive sector: Traditional labour-intensive sector (VSIC 18,19, 20 & 36) and the electronics industry(VSIC 30-33).

(b) Real wage is measured in million dong per worker.

(c) Wage premium of foreign invested enterprises (FIEs) is calculated by the difference in real wage rates between domestic firms (public and private firms) and FIEs in percentages.

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

From another perspective, between 2000 and 2009 average wages were lowest for firms involved in the export-oriented sector, as compared with those firms operating in the import-competing sector (Table 7.4). It is particularly noteworthy that in each trade-oriented sector, average wages of FIEs were higher than for domestic firms. These foreign wage premiums were much larger for the import-competing sector than the export-oriented sector. As before, these premiums narrowed significantly over the period 2000-09.

Table 7.4: Output orientation and foreign wage premium in Vietnamese manufacturing, 2000 and 2009

Sector[a]	2000			2009		
	Real wages[b]		Wage premium of FIEs[c]	Real wages		Wage premium of FIEs
	Domestic firms	FIEs		Domestic firms	FIEs	
(1)Export-oriented sector	7.2	17.3	139	12.4	19.5	57
(2)Import-competing sector	9.2	25.9	183	15.9	25.7	61

Notes: (a) Defined as follows:

(1) Export-oriented sector: labour-intensive sector and processed food industry (VSIC 15).

(2) Import-competing sector: the other industries at the two-digit VSIC classification.

(b) Real wage is measured in million dong per worker.

(c) Wage premium of foreign invested enterprises (FIEs) is calculated by the difference in real wage rates between domestic firms (public and private firms) and FIEs in percentages.

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

In Vietnam, the foreign wage premium in manufacturing can be attributed to several elements. First, some FIEs that tend to be more capital intensive require from their employees, even unskilled staff, a certain level of technical knowledge and skills in order to work with particular machinery and to follow technical instructions. These skills and knowledge are industry or firm specific and cannot normally be supplied by workers in the labour-intensive sector. In addition, FIEs whatever industries they operate, also demand work habits and behaviours associated with the modern working environment. Aside from acquiring a foreign language, these workers need to adhere to a strict work discipline as well as foreign business practices such as punctuality, tidiness and prompt action. These modern sector skills and habits are generally not in good supply in the labour market, particularly in a country with such a large pool of unskilled workers. Therefore, these firms may incur higher recruiting, screening and training costs in order to obtain employees of the desired quality. These elements offer an explanation as to why FIEs pay higher wages in order to minimize their labour turnover.

The wage differentials amongst firm ownership categories can be further examined in terms of functional income distribution that is measured as the wage share of industrial output (value-added). The wage to value added ratio in the domestic private firms (40 per cent) is much higher compared to all other ownership categories. It is 28 per cent for FIE joint ventures with domestic private firms and wholly owned FIEs, 23 per cent for FIE joint ventures with SOEs and a mere ten per cent for SOEs (Table 7.5).

Table 7.5: Average wage share of value added (% using constant value), 2000-09

Manufacturing industries by two-digit VSIC	SOEs	Domestic private firms	FIE-JVs with state firms	FIE-JVs with private firms	Wholly owned FIEs
15: Food products	20.1	33.5	9.7	21.8	10.2
16: Tobacco products	21.8	23.7	17.0	n.a	n.a.
17: Manufacture of textiles	21.3	34.2	15.8	28.9	15.4
18: Wearing apparel	48.9	63.8	51.0	65.8	56.4
19: Leather products	42.2	63.2	40.2	48.5	46.3
20: Wood products	39.5	63.5	17.5	37.6	44.9
21: Paper products	15.6	38.6	24.8	39.1	21.1
22: Publishing and printing	20.7	41.4	19.2	53.3	50.6
24: Chemical products	28.0	36.3	17.7	22.4	21.3
25: Rubber and plastic products	26.4	29.3	10.9	27.0	22.8
26: Non-metallic mineral products	13.1	33.7	6.8	13.7	17.9
27: Basic metals	33.6	39.4	6.9	26.5	22.3
28: Fabricated metal products	40.1	52.5	10.5	20.1	30.9
29: Machinery and equipment n.e.c	44.1	53.9	19.4	28.3	19.6
30: Office, accounting and computing machinery	n.a.	60.1	n.a	n.a	22.8
31:Electrical machinery and apparatus	30.2	27.8	12.8	34.2	26.4
32: Radio, television and communication equipment	28.7	33.8	11.8	30.0	22.8
33: Medical, precision and optimal instruments	33.0	40.3	17.3	n.a	26.4
34: Motor vehicles, trailers and semi trailers	42.8	47.4	8.7	n.a	15.7
35: Manufacture of other transport means	32.9	38.1	10.8	16.8	15.7
36: Manufacture of furniture, n.e.c	41.2	66.3	45.7	53.7	49.3
Whole manufacturing	23.2	43.5	10.7	27.7	27.6

Note: n.a: data not available

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

These observations, when combined with the wage pattern by ownership group as previously discussed, lead to several interesting inferences. First, domestic private firms have the lowest wage but their wage bill accounts for the largest proportion of total value added as compared to other firm groups. This result suggests that, by and large, domestic private firms are concentrated in industries that require low capital intensity; nevertheless, they are likely to employ a large number of unskilled workers. Second, provided that wages in both wholly owned FIEs and joint ventures with private firms are relatively higher, workers' total compensation for these firms in fact occupied a significant share of the industry value added. As discussed in Chapter 6, although wholly owned FIEs have mainly been involved with labour-intensive manufacturing for exports, these firms tend to recruit the best local workers with high skill levels and possibly pay higher wages as compared to domestic firms. Apart from these favourable

outcomes in terms of employment generation, joint ventures with state firms have the smallest wage share in value added despite having the highest real wages. It is possible that joint ventures with SOEs are associated with higher capital intensity coupled with a considerable proportion of skilled staff and a limited demand for unskilled workers.

7.3 Determinants of manufacturing wages: panel data analysis

The previous discussion suggests that wage differentials in the manufacturing sector are associated with firm ownership categories. On the whole, foreign-invested firms pay relatively higher wages compared to domestic firms, while domestic private firms have the lowest wages. Moreover, it appears that the wage differentials could be reliant on a firm's characteristics such as its size and its capital intensity as well as industry-specific factors. Therefore, we continue with an econometric analysis to examine the effect of firm ownership on manufacturing wages by explicitly controlling for these factors.

7.3.1 Empirical model

The empirical model is specified as follows:

$$RW_{ijt}=\alpha_0+\alpha_1 FIE_{ijt}+\alpha_2 RQ_{ijt}+\alpha_3 KL_{ijt}+\alpha_4 GR_{ijt}+\alpha_5 HER_{ijt}+\alpha_6 EO_{ijt}$$
$$+\sum_j \delta_j INS_{ijt}+\sum_k \varphi_k REG_{ijt}+\gamma T_t+\mu_{ij}+\varepsilon_{ijt} \quad \textbf{(7.1)}$$

where *i*, *j*, and *t* index firms, industries and years respectively. The variables are listed below.

RW_{ijt}	Average real wage of a firm.
RQ_{ijt}	Firm's real output.
KL_{ijt}	A firm's capital intensity measured as the ratio of fixed capital stock over employment after deflating capital stock at a constant value.
GR_{ijt}	A gender ratio which is a ratio of female workers to male workers in each firm.
HER_{ijt}	Industrial concentration-Herfindahl index .
EO_{ijt}	Export orientation at the four-digit VSIC industry.
FIE_{ijt}	A dummy for foreign-invested enterprises, taking a value of one if a firm is foreign-invested and zero otherwise.
INS_{ijt}	A vector of industry dummy variables at a two-digit level of Vietnamese Standard Industrial Classification-VSIC (21 dummies)
REG_{ijt}	A vector of three region dummies
T_t	A vector of year dummies, T2000-20009
μ_{ij}	"Unobserved effect" captures time-invariant firm features
ε_{ijt}	A stochastic error term

This baseline model (Equation 7.1) examines a foreign wage premium, *i.e.* the wage differential between that paid by FIEs and that of domestic firms. In this model, *RW*, *KL*, and *RQ* are all measured in natural logarithms, whereas *GR*, *EO*, and *HER* are in decimal terms.

Next, in order to compare the wages of all private sector firms with state enterprises, Equation (7.2) decomposes firm ownership into five different categories with a base dummy presenting a state-owned enterprise (SOE). This full model has the following form:

$$RW_{ijt}=\alpha_0+\alpha_1 DP_{ijt}+\alpha_2 JVS_{ijt}+\alpha_3 JVP_{ijt}+\alpha_4 WFIE_{ijt}+\alpha_5 RQ_{ijt}+\alpha_6 KL_{ijt}$$
$$+\alpha_7 GR_{ijt}+\alpha_8 HER_{ijt}+\alpha_9 EO_{ijt}+\sum_j \delta_j INS_{ijt}+\sum_k \varphi_k REG_{ijt}+\gamma T_t+\mu_{ij}+\varepsilon_{ijt} \quad \textbf{(7.2)}$$

Apart from the same variables that are defined as above, the definitions of firm ownership dummies are given as follows:

DP_{ijt}	A dummy for domestic private firms
JVS_{ijt}	A dummy for FIE joint ventures with state enterprises
JVS_{ijt}	A dummy for FIE joint ventures with domestic private firms
$WFIE_{ijt}$	A dummy for wholly owned FIEs

Next, the postulated sign of the regression coefficients of all explanatory variables are discussed in order. The key explanatory variables of interest are firm ownership dummies. As guided by the theoretical rationale (Lipsey 2004) coupled with our findings in the preceding section based on statistical description, we postulate the coefficient of foreign ownership dummy (*FIE*) to be positive, implying a wage premium of foreign enterprises. Similarly, in the full model disaggregating the various forms of foreign direct investment, the coefficients of *JVS*, *JVP*, and *WFIE* are positive while that of the domestic private firms (*DP*) is expected to be negative. This is because these foreign firms can pay a foreign wage premium after controlling for firm and industry heterogeneity. A negative sign for the *DP* dummy implies that wages in domestic private firms are lower than those of SOEs.

Another relevant variable is export orientation (*EO*). On the one hand, the export promotion of labour-intensive manufacturing can be regarded as an impetus for rising

wages in export industries, since in the long term export expansion is likely to increase the returns to the most abundant factor – unskilled labour that is extensively used in that export production. By contrast, opening to export markets could depress manufacturing wages, especially those paid to unskilled workers, due to the pressure of maintaining competitiveness in export markets. Thus, it is very likely that the effect of export expansion on wages is ambiguous.

Capital intensity (*KL*) has an important effect on a firm's wages, as suggested by the efficiency wage literature (Krueger & Summers 1988; Murphy & Topel 1990). This is because a higher capital intensity firm is willing to pay efficient wages because this kind of firm would incur much high expenses in cases of high labour turnover or worker contraction. All other things being constant, it is less costly for firms in capital-intensive industries to agree on wage increases in order to reduce labour turnover since their total wages would normally occupy a small share of total production costs.

Among other explanatory variables, the choice of real output (*RQ*) is aimed to capture an output effect on wages through an expansion of labour demand. This view is highly relevant to this analysis using the analytical framework of the Lewis-Fei-Ranis growth model in an unskilled-labour-abundant economy. Provided that the labour supply facing each industry is almost elastic, manufacturing firms would be willing to pay higher than the average industry wage when they expand output. This variable also reflects firm size. It is reasonable to expect that larger firms could pay higher wages than smaller firms.

In addition, incorporating a gender ratio (*GR*) is important to account for the possibility that firms with a higher proportion of female workers (mostly unskilled labour) in total employment tend to have lower average wages. This is because female workers tend to be less skilled, partially because they are discriminated against in education and training. There is another potential effect is that skilled female workers are often discriminated against in the workplace, especially in male dominated societies such as Vietnam. The coefficient on this variable is expected to be negative.

Furthermore, it is possible that competition and industrial concentration have an impact on wages, given notable changes in industrial transformation in Vietnamese manufacturing. In this study, this factor is represented by the *Herfindahl* index (*HER*) which is computed by the sum of squared firm share of total industry employment. If a

high concentration reflected by a high-value index, occurs in each industry, the marginal value product of labour increases, thus representing a rise in wages. In this case, a coefficient of this variable can be positive. However, it is not clear what the possible trends and impacts of concentration and competition are among manufacturing industries following the economic reforms; hence this variable coefficient has an indeterminate sign as *a priori*. In addition, as guided by the wage pattern by regions, three regional dummies which indicate firm locations are incorporated to control for the wage differential between highly-developed and less-developed regions. The categorization of regional dummies also represents emerging industrial clusters that have taken place around the two largest business centers: Ho Chi Minh City and Ha Noi. These regional dummies are the Red River Delta (Ha Noi surrounding areas), the Southeast East Area (Ho Chi Minh City surrounding areas) and the rest of Vietnam (a reference area). Finally, the two-digit VSIC industry dummies and annual time dummies control for unobserved specific- industry and- time effects will be estimated in all preferred estimations.

7.3.2 Data and estimation method

As in the previous chapter, the data for this econometric analysis are based on the firm-level dataset compiled from the unpublished returns to the annual Enterprise Survey conducted by the GSO during the period 2000-2009. The data cover only firms with more than 10 employees in any of the years during this period. This is because the required data are missing most of the smaller firms. As discussed in Chapter 6, all variables are converted into real terms using appropriate deflators. Likewise, an export orientation is measured by an export-output ratio at the four-digit VSIC manufacturing industries, given the unavailability of firm's export data in the Enterprise Survey. A statistical summary as well as a correlation matrix of the variables are presented in Tables 7.6 and 7.7.

Table 7.6: Statistical summary of the variables

Variables	Mean	SD	Min	Max
RW (real wage)	2.33	0.73	-0.99	5.56
RQ (real output)	8.59	1.98	3.01	15.95
KL (capital intensity)	2.97	1.50	-4.46	9.95
GR (gender ratio)	1.72	4.94	0.00	349.00
HER (industrial concentration)	0.04	0.06	0.00	1.00
EO (export orientation)	0.35	0.31	0.00	1.41
DP	0.74	0.44	0.00	1.00
JVS	0.02	0.14	0.00	1.00
JVP	0.01	0.11	0.00	1.00
WFIE	0.13	0.34	0.00	1.00
Rrd (Red River Delta)	0.28	0.45	0.00	1.00
Ser (South East Area)	0.42	0.49	0.00	1.00

Notes: Mean = single average, SD = standard deviation, Min = minimum, and Max = Maximum. RW, RQ, and KL are the logarithmic transformation of their value.

Source: Compiled from data sources described in the text.

Table 7.7: Correlation matrix of the variables

	RW	*RQ*	*KL*	*GR*	*HER*	*EO*	*DP*	*JVS*	*JVP*	*WFIE*	*Rrd*	*Ser*	*INS*
RW	1												
RQ	0.56	1											
KL	0.3	0.32	1										
GR	-0.08	0.03	-0.15	1									
HER	0.09	0.07	0.09	-0.03	1								
EO	-0.14	-0.04	-0.22	0.15	-0.08	1							
DP	-0.37	-0.45	-0.3	-0.05	-0.1	0.04	1						
JVS	0.19	0.18	0.17	-0.02	0.07	-0.04	-0.24	1					
JVP	0.07	0.06	0.06	0	0	0	-0.19	-0.02	1				
WFIE	0.28	0.27	0.24	0.1	0.04	0.05	-0.66	-0.06	-0.04	1			
Rrd	-0.11	-0.08	-0.02	0.01	0.08	-0.1	0.08	0.02	-0.02	-0.14	1		
Ser	0.33	0.2	0.07	0.01	0	0.01	-0.17	0.02	0.04	0.3	-0.53	1	
INS	0.13	-0.02	0.01	-0.11	0.15	-0.09	-0.06	0.03	-0.01	0.08	0.11	0.07	1

Source: Compiled from data sources described in the text.

As previously explained in Chapter 6, there are basically three available panel data estimation methods – pooled OLS, FE and RE estimation – used to examine the determinants of manufacturing wages. However, the FE estimator is not an appropriate one for our purpose since this estimator cannot retain the firm ownership dummy

(which is mostly time-invariant). Thus, our next step is to employ the Breusch-Pagan likelihood test (1980) to choose between pooled OLS and RE estimation. The RE estimator assumes the presence of unobserved, random effects in the model. If this assumption holds, the estimated coefficients of the RE estimation are more efficient than those of the pooled OLS. Since there was evidence of heteroskedasticity, we derive consistent variance-covariance standard errors using from the Huber-White 'sandwich estimator in order to test the statistical significance of the estimated coefficients.

7.3.3 Results

This section presents coefficient estimations for the model investigating the determinants of wages under various specifications (Table 7.8). The baseline model examining the wage premium of FIEs is shown in the first column while the full specification model is presented in the second one. The specification without control of regional dummies is shown in the last column. As we will see below, the results of the Breusch-Pagan Lagrange multiplier test lend strong support to choosing the RE estimator over the pooled OLS estimator; this analysis focuses on the results from the former method. For a robustness check, pooled OLS estimates are presented in Appendix 7.3 at the end of this chapter.

The results show significant evidence of foreign wage premium in Vietnamese manufacturing. As shown in the first column, the estimated coefficient of a foreign ownership dummy is positive and highly significant, suggesting that foreign-invested establishments paid 20 per cent higher for an employee, compared to that paid by domestic enterprises, after industry, location, and a firm's characteristics are taken into account. The finding of the foreign wage premium in the host country agrees with the theoretical predictions for and previous studies of, other East Asian countries.[54]

Next, wages in all kinds of FIEs regardless of investment forms are also higher than those in domestic enterprises, as revealed by the estimated coefficients for the full model. The results are well in line with the *a priori* expectation. All other things being equal, the wage premium of FIE joint ventures with SOEs was highest at about 50 per cent while wages in joint ventures with domestic private firms and wholly owned FIEs were about 22 per cent and 16 per cent higher, respectively, than wages in SOEs.

[54] See, for example, studies of Indonesia (Hill 1990; Lipsey, R.E. & Sjöholm, F. 2004; Manning 1998; Sjöholm & Lipsey 2006) and Thailand (Ramstetter 2004).

Table 7.8: Determinants of manufacturing wages: RE estimates, 2000-09, Vietnam

Dependent variable: logarithm of firms' average wage rates (RW)

Explanatory variables	(1)	(2)	(3)
RQ (output)	0.177***	0.176***	0.186***
	(0.002)	(0.002)	(0.002)
KL (capital intensity)	0.045***	0.044***	0.044***
	(0.002)	(0.002)	(0.002)
GR (gender ratio)	-0.005***	-0.005***	-0.005***
	(0.001)	(0.001)	(0.001)
HER (industry concentration)	0.074*	0.070*	0.086**
	(0.039)	(0.038)	(0.039)
EO (export orientation)	-0.068***	-0.067***	-0.078***
	(0.010)	(0.010)	(0.010)
FIE (foreign invested enterprises)	0.178***		
	(0.009)		
DP (domestic private firms)		0.000	0.043***
		(0.009)	(0.009)
JVS (joint ventures with state enterprises)		0.400***	0.460***
		(0.023)	(0.023)
JVP (joint ventures with domestic private firms)		0.201***	0.289***
		(0.023)	(0.024)
WFIE (wholly owned FIEs)		0.150***	0.282***
		(0.012)	(0.012)
Rrd (Red River Delta - Ha Noi surrounding areas)	0.022***	0.020***	
	(0.007)	(0.007)	
Sea (South East Area - Ho Chi Minh city surrounding areas)	0.291***	0.294***	
	(0.007)	(0.007)	
Constant	0.182***	0.188***	0.143***
	(0.018)	(0.021)	(0.022)
R^2	0.466	0.469	0.437
No. of observations	105,733	105,733	105,733
Number of firms	25,608	25,608	25,608
Breusch-Pagan LM test	$\chi^2(1)=34,894$	$\chi^2(1)=33,112$	$\chi^2(1)=39,023$

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively.

(a) Standard errors adjusted for arbitrary heteroskedasticity and intra-firm correlation are given in brackets.

(b) All specifications include annual time dummies and industry dummies. For brevity, their coefficients are not reported here.

(c) For the Breusch-Pagan LM test, the null hypothesis is rejected at the 1% level. See Appendix 7.3 for pooled OLS estimation.

The presence of the foreign wage premium is plausible in the context of the Vietnamese economy despite its unskilled-labour abundance and skilled-labour shortage. Several influences may lead foreign investors to offer higher wages in Vietnamese manufacturing. FIEs in Vietnam tend to recruit better-educated, smarter workers. To some extent, FIEs are typically facing a scarcity of the best quality workers with good engineering skills and foreign language proficiency. As discussed earlier, foreign firms

also require certain work habits associated with modern business practices and behaviours. Thus, the FIEs need to place particular attention on recruiting and screening processes as well as run the internal training programs. These factors are likely to push wages higher in FIEs as they strive to stabilize their workforce. In addition, as reviewed in Chapter 3, FIEs in Vietnam are required to follow the legal minimum wages which are higher as compared to those of domestic enterprises. Since then, the government regulations has placed an added impetus on FIEs to pay higher labour compensation than is the case for domestic firms (Brassard 2004).

Of particular concern is the highest foreign wage premium, paid by those joint ventures with SOEs. As discussed earlier, the premium that SOEs are likely to pay for these institutional factors is compounded with the wage premium of FIEs in this kind of joint venture. Most SOEs have concentrated on import-substitution industries in which they have been given many favourable concessions. Foreign business partners were forced to have joint ventures with SOEs in these industries. Therefore, these FIE joint ventures with state enterprises were established in the industries formerly reserved exclusively for SOEs. This way the FIE joint ventures hope to get access to land and other privileged resources. Apart from regular wages, special benefit may be offered to those qualified workers who are working for the SOE in these joint ventures.

In all equations, the coefficient of *EO* is statistically significant with a negative sign. This result, although it runs counter to the prediction of the HOSS trade theory, is consistent with an elastic labour supply condition in the Vietnamese economy with its unskilled labour abundance. This implies that export growth of labour-intensive manufacturing goods from Vietnam tends to depress manufacturing wages, in particular those of unskilled workers, in order to gain export competitiveness in overseas markets.

As regards the geographic effect on wages, the result provides expected outcomes for the geographic factors as these are positive and significant in all cases. This study's finding suggests the wage differential between highly developed regions such as the Red River Delta and the South East Area, and the rest of Vietnam which features less urbanization and has a lower economic development.

The same conclusions emerge after allowing for labour mobility, as shown in the last column. Excluding two regional dummies implies that workers are mobile among two-digit industries within a nationwide labour market. The sign of estimated coefficients

and their significance level are quite consistent with the full model estimation. Interestingly, the wage differentials by firm ownership increase more rapidly as the magnitude of coefficients of the ownership dummies become larger. The foreign wage premium widened to above 30 per cent between wholly owned FIEs and SOEs. Holding other effects constant, wages were about 60 per cent higher in joint ventures with state enterprises than in SOEs. Therefore, the implication of this is that the wage behaviours of foreign firms are highly responsive in order to meet the increasing requirement of flexibility in the nationwide labour market. However, the estimated coefficient of domestic private firms turns out to be significant with a positive sign. This implies wages in domestic private firms were around four per cent higher than wages in SOEs when allowing for the regional mobility of workers across two-digit industries.

Other explanatory variables such as *KL*, *GR*, and *HER* as determinants of wages are highly significant with the expected signs in all equations. A coefficient of factor proportion (*KL*) has a positive sign but a small magnitude, showing a positive effect of capital-intensity on wages. This implies that higher wages in capital-intensive firms contribute to greater labour productivity. Next, the positive coefficient of firm size, which indicates economies of scale, suggests that large firms pay higher wages than small firms. Typically, large-sized firms with a high capital-labour ratio tend to pay relatively higher wages. As a workforce characteristic, gender ratio (*GR*) has a negative estimated coefficient. By and large, those firms that employ a great number of female workers relative to others in their industries and/or their region have, on average, wages lower than those with fewer female workers. Finally, the effect of industry concentration (a proxy by *HER*) on wages is positive because its coefficients are significant with a positive sign. All else being equal, this indicates increasing industry concentration resulting from economic reforms which leads to wage growth.

7.4 Determinants of wage premium

This section explores the effect of trade and investment liberalization on the wage premium by first establishing a model examining determinants of the wage premium. This is followed by a discussion of data compilation and econometric method used. The final part discusses the estimation results.

7.4.1 Empirical model

There has been an increased interest in addressing the impact of international trade and investment on the wage premium in firm heterogeneity models (Goldberg & Pavcnik 2007).The Melitz model of firm heterogeneity and international trade (Melitz 2003) proposes that the labour market outcomes of trade mainly rely on the degree to which a firm is involved with globalization.[55] Recently, a study by Amiti and Davis (2011) explores a Melitz-type model with an incorporation of a fair wage approach (Egger & Kreickemeier 2009) and establishes a link between firm heterogeneity and the wage premium. Their key proposition is that large productive firms that tend to be involved with exporting and importing are likely to pay higher wages than other firms. In order to test this proposition, their empirical work suggests the positive impact of trade liberalization on the wage premium in Indonesian manufacturing (Amiti & Cameron 2012).

Based on the previous studies, we specify the following model to examine how tariff variations and firm ownership are related to the wage premium and it has the following form:

$$(W_s/W_u)_{ij}=\beta_0+\beta_1 IT_{ij}+\beta_2 OT_{ij}+\beta_3 DP_{ij}+\beta_4 JVS_{ij}+\beta_4 JVP_{ij}+\beta_5 WFIE_{ij}$$
$$+\beta_6 EO_{ij}+\alpha Z_{ij}+\gamma INS_{ij}+\delta REG_{ij}+\varepsilon_{ij} \quad \textbf{(7.3)}$$

where *i* and *j* denote firm and industry, respectively.

W_s	Average real wage of skilled workers (non-production workers).
W_u	Average real wage of unskilled workers (production workers).
$(W_s/W_u)_{ij}$	Wage premium in natural logarithms.

[55] Recent theories have incorporated firm heterogeneity into models of trade and labour market. See, for example, Egger & Kreickemeier (2009); Helpman, Itskhoki & Redding (2010); Yeaple (2005).

OT_{ij}	Output tariff in decimal terms.
IT_{ij}	Input tariff in decimal terms.
DP_{ij}	A dummy for domestic private firms.
JVS_{ij}	A dummy for joint ventures with SOEs.
JVS_{ij}	A dummy for joint ventures with domestic private firms.
$WFIE_{ij}$	A dummy for wholly owned FIEs.
EO_{ij}	Export orientation at the four-digit VSIC industry.
Z_{ij}	A firm's characteristics, such as real output (*RQ*), capital intensity (*KL*), gender ratio (*GR*) and skill share (*SS*). *RQ* and *KL* are all measured in natural logarithms, whereas *GR* and *SS* are in decimal terms.
INS_{ij}	A vector of industry dummy variables at a two-digit level of Vietnamese Standard Industrial Classification-VSIC (21 dummies).
REG_{ij}	A vector of three region dummies.
ε_{ij}	A stochastic error term.

The dependent variable (W_s/W_u) is the wage premium which in turn is the ratio of an average wage of skilled workers to that of unskilled workers. As is standard in many previous studies (Hanson & Harrison 1999; Hasan & Chen 2004; Pavcnik et al. 2004), non-production workers are a proxy for skilled labour and similarly, production workers for unskilled labour. Then, the ratio of the average wage of non-production workers (white-collar) to production workers (blue-collar) is used as a measure of the wage premium. Although the white-collar/blue-collar classification does not capture perfectly skill levels measured by education attainment; the usage of either measure as a dependent variable on the wage premium model brings about comparable results in many empirical studies (Krueger 1997; Slaughter 2000).

In this analysis, the prime explanatory variables are tariffs, ownership dummies, and export orientation. Their relevance in explaining the wage premium is discussed as follows. First, tariff variables are used to examine the effect of trade liberalization on the wage premium. Both input (*IT*) and output tariffs (*OT*) are incorporated separately as proposed by recent theories on differences in wage adjustment following trade liberalization. The theoretical rationale is that a firm's wage outcome for a specific tariff reduction depends on whether the firm has been involved in exporting or importing (Bernard et al. 2007). The reduction in output tariffs in a developing country will increase wages in export firms that have a higher proportion of unskilled workers.

Meanwhile, it will reduce wages in import substitution firms, resulting in a decline in the wage premium. Put simply, these effects of output tariff reductions are in line with the Stopler-Samuelson theorem. In a similar manner, a lower input tariff will affect wages in firms that depend on intermediate inputs because of their lower prices relative to those of domestically produced inputs. Given the higher skill-intensive production of intermediate inputs relative to those of final product production in the developing world, reducing input tariffs is likely to increase the import of intermediate inputs. As a result, firms will reallocate resources to higher unskilled-intensive production that helps to narrow the wage premium. They will also lay off skilled workers, reducing the wage premium. Moreover, the inclusion of the input tariff is very much relevant to the labour-abundant developing economy in which an export expansion of labour-intensive manufacturing is strongly reliant on imported intermediate inputs (Riedel 1975).

Second, an export-oriented strategy will stimulate firms to reallocate resources toward unskilled-labour-intensive industries; this is particularly true for a small exporting economy. Higher export orientation would be associated with increasing demand for unskilled labour, resulting in narrowing the wage gap. So the export orientation (*EO*) variable is expected to have a negative sign.

Three dummy variables (*JVS*, *JVP*, and *WFIE*) are included to capture the effect of foreign ownership on the wage premium. As guided by our findings in the previous section, we can identify a significant difference in wages among three investment forms of FIEs in Vietnamese manufacturing. Thus, it is important to include these three dummies, rather than one foreign ownership dummy in this analysis of the wage premium in Vietnam. This is because FIEs generally have a tendency to employ more skilled workers (Lipsey 2004; Lipsey & Sjöholm 2004a; Ramstetter 2004; Ramstetter & Sjöholm 2006).

Aside from the firm ownership feature, the vector *Z* in Equation (7.3) controls for other firm characteristics. Based on the increasingly important role of firm-heterogeneity (Bernard et al. 2007; Egger & Kreickemeier 2009; Melitz 2003), several firm-specific factors are incorporated in the model. These include real output (*RQ*), capital intensity (*KL*), gender ratio (*GR*), and skill share (*SS*).

In addition to firm specific factors, two additional vectors are included. The first one is a variable (*REG*) representing regional feature. Generally, capital-intensive industries

are likely to be concentrated in a region with a high level of economic development, leading to the expansion of the relative demand for skilled workers in that region. Accordingly, the wage premium will increase. As suggested by the geographic pattern of wages, three regional dummies for the Red River Delta, the South East Area and the rest of Vietnam (a base dummy) are employed. In addition to the regional effects, a variable (*INS*) of 21 industry dummies at the two-digit VSIC level is incorporated to capture specific-industry effects. This controls for the possible differences of the relative supply of skilled labour across industries as well as other unobserved industry heteroskedasticity.

7.4.2 Data and variable construction

The main data we use to investigate the determinants of the wage premium is the same firm-level dataset as used in the previous section. Estimating this wage premium model using the panel dataset by pooling cross-firm and time-series data is ideal, especially when our key interest is the wage premium. Unfortunately, this preferred data is not available, given the nature of the Enterprise Surveys of Vietnam. To date, there is only one Enterprise Survey of 2009 that has comprehensive information on employment and wages by education and production – non-production workers. In that survey, workers are classified by educational attainment and non-production/production activities and wages are broken down by non-production and production workers.[56]

The Enterprise Survey of 2009 provides employment and wage data for four major occupational categories: (1) managerial workers, (2) professional, technical and supervisory workers, (3) production workers and operatives, and (4) service workers and servants.[57] As guided by the wage premium model, the managerial and professional workers are defined as skilled labour. Production workers are treated as unskilled labour. Unlike the previous section, owing to the data on wages classified by occupations, the wage bill used for examining the wage premium includes only regular salary and other cash payments made to employees. In other words, wages do not cover the employer's contribution to social and health insurance funds.

[56] The Enterprise Surveys in some other years such as 2007 contain only information on workers by educational attainment.

[57] This worker group is likely to be problematic when treating it as either skilled or unskilled labour. Thus, this group is excluded altogether.

With regard to demographic characteristics of workers, the data provide information on gender, educational attainment, and occupation. Using the educational information on the highest completed grade, skill share (*SS*) is measured as the proportion of the total workers who completed tertiary education (college/university degree) in each firm. It is important to note that this measurement of skill share may not totally match the ratio of non-production and production workers. This is because some skilled workers are hidden in the production worker category. (It would be preferable if wages could be broken down into categories by educational attainment but this kind of data is not available). Finally, a gender ratio (*GR*) is measured by the ratio of female to male workers.

As in other years, the data from the Enterprise Survey in 2009, which covers all registered formal firms, have been cleaned and observations with non-positive values eliminated, along with outliers. Note that many small firms report implausible or unrealistic data due to their poor information and accounting systems. Thus, this analysis focuses on examining the wage premium among firms that employ ten or more employees.

For each firm, the survey also provides information on gross output, and capital stock, and profits. All data in normal terms have been converted to real terms, using appropriate deflators. Additionally, the dataset has four-digit industry classification codes (VSIC) consisting of 110 manufacturing industries that allow us to match industries with the tariff data. Note that for any firm that operates across various industries, the survey uses the product with the largest output value to identify the main operating industry for that firm. The definition and measurement of variables used in the estimation analysis are summarized in Table 7.9.

Raw tariff data for the final product in 2008 is the four-digit VSIC code level derived from the UNCTAD-TRAINS (Trade Analysis and Information System).[58] Input tariff rates are constructed as the weighted average of published tariff rates as follows: $input\ tariff_i = \sum_{i=1}^{n} a_{ij} * tariff_i$, where *tariff* is output tariff on the final product the four-digit VSIC industry and *input tariff* is that on intermediate inputs/materials.

[58] TRAINS is a trade-related database developed by United Nations Conference on Trade and Development (UNCTAD).

Table 7.9: Definition and measurement of variables

Variable		Measurement
W_s	Average real wage of skilled workers (non-production workers)	Average annual earnings (wage/salary plus other fringe benefits, cash bonus) deflated by the consumer price index
W_u	Average real wage of unskilled workers (production workers)	
W_s/W_u	Wage premium	Ratio of average real wage of non-production workers to that of production workers
OT	Output tariff	Tariff on the final product at the four-digit VSIC industry.
IT	Input tariff	Tariff on intermediate inputs/materials which is derived by the process described in the text
RQ	Real output	Nominal output deflated by the producer price deflator available at the two-digit VSIC industry.
KL	Capital intensity	Real fixed capital over the number of workers
GR	Gender ratio	Ratio of female workers to male workers
SS	Skill share	Share of workers who completed tertiary education
EO	Export orientation	Share of exports in gross output at the four-digit VSIC industry
DP	Domestic private firm	1 for firms belonging to a domestic private group and zero otherwise.
WFIE	Wholly owned foreign invested enterprise (FIE)	1 for firms belonging to a wholly owned FIE group and zero otherwise.
JVS	Joint venture FIE with state enterprises	1 for firms belonging to joint ventures with State firms and zero otherwise.
JVP	Joint venture FIE with private enterprises	1 for firms belonging to joint ventures with private firms and zero otherwise.
Rrd	Red River Delta	1 for firms which operate in the Red River Delta and zero otherwise
Sea	South East Area	1 for firms which operate in the South East Area and zero otherwise

The weights a_{ij} are based on input coefficients from the Input-Output table (I-O table) of 2007, the latest IO table in which comprehensive information on specific intermediate inputs is available. Based on the concordance between I-O industry codes and industry classification (VSIC) provided by GSO, we obtain the input tariff for each industry. Then, both the tariffs on final products and intermediate inputs are constructed at the four-digit VSIC level in order to merge them with the firm-level data.

7.4.3 Results

This section presents the OLS estimation results to explore the determinants of the wage premium. In order to control for any heteroskedasticity in the error terms, the statistical significance of the estimated coefficients is tested using standard errors based on the robust variance-covariance matrix estimator (Wooldridge 2002). Summary statistics as well as a correlation matrix of the variables are shown in Tables 7.10 and 7.11.

Table 7.10: Statistical summary of the variables

Variables	Mean	SD	Min	Max
W_s/W_u (wage premium)	2.57	0.72	-1.75	7.66
IT (input tariff)	0.07	0.03	0.02	0.20
OT (output tariff)	0.19	0.13	0.00	0.81
RQ (real output)	8.70	1.99	1.05	17.21
KL (capital intensity)	3.25	1.38	0.00	8.29
GR (gender ratio)	1.62	4.25	-1.41	164.67
SS (skill share)	0.12	0.15	0.00	1.00
EO (export orientation)	0.32	0.30	0.00	1.41
DP	0.76	0.43	0.00	1.00
JVS	0.01	0.10	0.00	1.00
JVP	0.01	0.11	0.00	1.00
WFIE	0.18	0.39	0.00	1.00
Rrd (Red River Delta)	0.30	0.46	0.00	1.00
Sea (South East Area)	0.37	0.48	0.00	1.00

Notes: Mean = single average, SD = standard deviation, Min = minimum, and Max = Maximum. (W_s/W_u), RQ, and KL are the logarithmic transformation of their value.

Source: Compiled from the data sources described in the text.

Table 7.11: Correlation matrix of the variables

	W_s/W_u	*IT*	*OT*	*RQ*	*KL*	*GR*	*SS*	*EO*	*DP*	*JVS*	*JVP*	*WFIE*	*Rrd*	*Sea*	*INS*
W_s/W_u	1														
IT	0.01	1													
OT	0.03	0.41	1												
RQ	0.11	0.11	-0.04	1											
KL	0.08	0	-0.07	0.32	1										
GR	0.11	0.09	0.05	0.03	-0.15	1									
SS	-0.04	-0.05	-0.13	0.13	0.2	-0.11	1								
EO	0.07	0.16	0.04	-0.02	-0.2	0.22	-0.17	1							
DP	-0.25	0	0.02	-0.37	-0.28	-0.13	-0.1	-0.04	1						
JVS	0.04	0.01	0	0.13	0.07	-0.01	0.11	-0.03	-0.17	1					
JVP	0.04	0	0.01	0.06	0.05	0	0.04	0	-0.2	-0.01	1				
WFIE	0.27	-0.02	-0.02	0.27	0.25	0.16	0.02	0.09	-0.84	-0.05	-0.05	1			
Rrd	-0.03	-0.08	-0.04	-0.04	0.01	0.05	0.18	-0.09	0.09	0.02	0	-0.12	1		
Sea	0.14	-0.04	-0.02	0.22	0.05	-0.01	-0.04	0.06	-0.29	0.01	0.03	0.33	-0.5	1	
INS	0.01	-0.47	-0.03	0.01	0.03	-0.13	0.1	-0.09	-0.09	0.03	-0.01	0.1	0.09	0.07	1

Source: Compiled from the data sources described in the text.

The results for five alternative specifications are shown in Table 7.12. These specifications are different from each other in the following features. The full model (Equation 7.3) is shown in the first column, whereas the second column reports the

specification excluding a skill share variable. The third specification includes only a Red River Delta dummy, and the fourth replaces that with the South East Area dummy. The specification without control of industry dummies is presented in the last column.

Table 7.12: Wage premium in manufacturing: OLS estimates, Vietnam, 2009

Dependent variable: logarithm of firms' wage premium

Explanatory variables	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
IT (input tariff)	0.747**	0.697**	0.756***	0.750**	-0.227
	(0.294)	(0.294)	(0.293)	(0.293)	(0.166)
OT (output tariff)	0.276***	0.294***	0.291***	0.286***	0.182***
	(0.050)	(0.050)	(0.050)	(0.050)	(0.038)
EO (export orientation)	-0.020	-0.011	-0.026	-0.025	0.069***
	(0.023)	(0.023)	(0.023)	(0.023)	(0.017)
DP (domestic private firms)	0.003	0.015	0.010	0.005	0.017
	(0.021)	(0.021)	(0.021)	(0.021)	(0.020)
JVS (joint ventures with SOEs)	0.316***	0.301***	0.326***	0.318***	0.328***
	(0.051)	(0.051)	(0.051)	(0.051)	(0.053)
JVP (joint ventures with domestic private firms)	0.302***	0.305***	0.317***	0.304***	0.316***
	(0.049)	(0.049)	(0.049)	(0.049)	(0.048)
WFIE (wholly owned FIEs)	0.380***	0.392***	0.405***	0.382***	0.400***
	(0.025)	(0.025)	(0.024)	(0.025)	(0.024)
RQ (output)	0.007**	0.007**	0.010***	0.008***	0.007***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
KL (capital intensity)	0.013***	0.010***	0.012***	0.013***	0.015***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
GR (gender ratio)	0.008***	0.009***	0.008***	0.009***	0.010***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
SS (skill share)	-0.191***		-0.186***	-0.172***	-0.193***
	(0.032)		(0.032)	(0.032)	(0.031)
Rrd (Red River Delta including Ha Noi)	0.045***	0.033***	0.005		0.050***
	(0.011)	(0.011)	(0.010)		(0.011)
Sea (South East Area including Ho Chi Minh city)	0.075***	0.073***		0.052***	0.086***
	(0.012)	(0.012)		(0.011)	(0.012)
Constant	4.760***	4.741***	4.751***	4.762***	4.847***
	(0.047)	(0.047)	(0.047)	(0.047)	(0.036)
Industry dummies	Yes	Yes	Yes	Yes	No
F-test	47.98	47.68	47.50	48.90	105.18
Observations	18,178	18,178	18,178	18,178	18,178
R^2	0.102	0.100	0.100	0.101	0.093

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively.

(a) Standard errors adjusted for arbitrary heteroskedasticity are given in brackets.

(b) For brevity, the coefficients of industry dummies are not reported here.

A reduction in tariffs on intermediate inputs is likely to be associated with a narrowing of the wage premium since the coefficients of input tariff (*IT*) are positive and significant at conventional levels in most cases. Holding other factors unchanged, a ten-percentage point reduction in input tariff is likely to result in a reduction of seven

per cent in the wage premium in the manufacturing sector. There is strong statistical evidence of an intra-industry effect on the wage premium from lowering the input tariff. This finding is well in line with recent studies (Amiti & Cameron 2012). More interestingly, the result is also relevant to the feature of export performance in Vietnam. As in our own analysis based on the I-O tables of Vietnam,[59] a high proportion of labour-intensive manufacturing exports in the Vietnamese economy over the period 2000-09 draws heavily on imported intermediate inputs which are viewed as more skilled labour-intense. Lower input tariffs will stimulate a higher demand for imported inputs, leading to an expansion in demand for unskilled workers in traditional labour-intensive industries such as apparel, footwear, and furniture. For this effect, the wage premium is likely to decline.

Next, lowering output tariffs also tends to narrow the wage premium. The positive sign and significance of output tariff (*OT*) across various specifications implies that cutting output tariffs tends to narrow the wage premium. The model predicts that a ten per cent fall in the output tariff results in a three per cent decline in the wage inequality between skilled and unskilled workers, holding other factors constant. This result is highly consistent with the Heckscher-Ohlin trade model; opening up to international trade will cause each country to specialize in industries that use the country's most abundant factor more intensively. This result is especially relevant in the case of the Vietnamese economy, where a massive pool of unskilled workers has not been depleted. Trade liberalization adopted since the second half of 1990s has stimulated resources reallocation toward unskilled labour-intensive industries. Consequently, export expansion resulting from the reduction and elimination of tariffs has increased the price of unskilled labour-intensive goods, causing a rise in wages of unskilled workers. All together, the significance of both tariffs implies a synergy in the effects of trade liberalization on the wage premium.

In addition, export orientation appears to have widened the wage premium. The coefficient of an export orientation (*EO*) is statistically insignificant in many cases, suggesting that export orientation is less likely to be related to the wage premium. However, as shown in Column 5, the coefficient on the *EO* variable is highly significant with a positive sign after excluding two-digit industry dummies. Holding other effects constant, higher export expansion is possibly associated with an increase in the wage

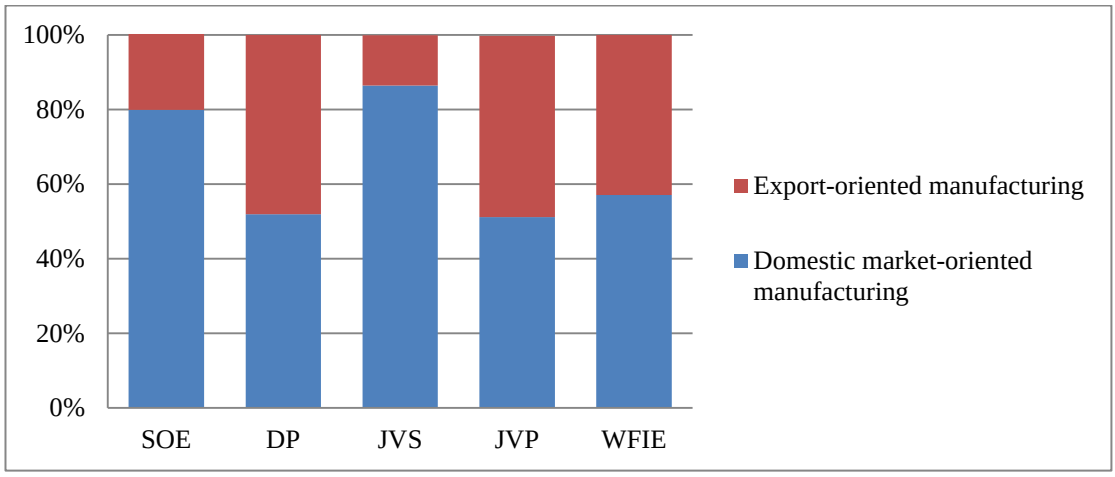
[59] See Chapter 5 for the finding on the import content of exports.

premium between skilled and unskilled labour. This finding runs counter to the prediction of the HOSS model but is consistent with the abundance of unskilled labour in Vietnam. Export production in Vietnamese manufacturing employs a large proportion of unskilled workers. As examined in Chapter 4, the labour surplus conditions in Vietnam have persisted until 2010, and thus the wage premium can increase as implied by the Lewis-Fei-Ranis model. Thus, there is the possibility that a rise in exports contributes to a widening of the wage premium.

The coefficients of ownership dummies (*JVS*, *JVP*, and *WFIE*) are significant at the one per cent level with the expected (positive) sign in all cases. The estimates suggest that the presence of FIEs, regardless of investment entry, is very much likely to be associated with a widening of the wage gap between skilled and unskilled labour. The implication of this is that on the whole, the wage skill premium in FIEs is higher than that of domestic enterprises, holding other factors constant. This finding, which suggests that increasing foreign investment contributes to an increase in the wage premium in Vietnamese manufacturing, is well consistent with the widely held proposition in the model of foreign investment and relative wages (Feenstra & Hanson 1996; 1997). Additionally, the insignificant coefficient on a domestic private firm (*DP*) reveals that there is no statistical evidence explaining the effect of domestic private firms on the wage premium.

Given the greater participation of FIEs in labour-intensive industries, it is likely that export-oriented foreign investment, particularly wholly owned FIEs in export-oriented manufacturing, has played a significant role in increasing the wage inequality between skilled and unskilled labour. As revealed in trade orientation in Figure 7.3, joint ventures with private firms and wholly owned FIEs tend to be concentrated on labour-intensive manufacturing for exports, as above 40 per cent of their output in 2009 was in export-oriented manufacturing industries. On the other hand, nearly 80 per cent of SOE total output is involved with domestically oriented industries. Within export-oriented manufacturing, one half of employment has been attributed to the wholly-owned FIEs which account for over a third of total manufacturing output in 2009 (Figure 7.4). In summary, export-oriented foreign investment has been the backbone for output growth and employment expansion in Vietnamese manufacturing.

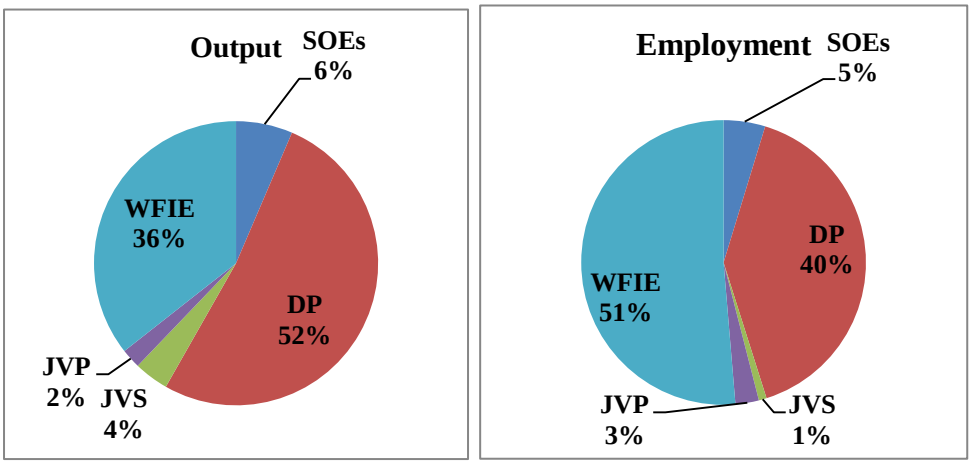
Figure 7.4: Pattern of output orientation by ownership group in 2009 (in %)



Notes: SOE - State-owned enterprises; DP - Domestic private firms; JVS- FIE joint ventures with state enterprises; JVP - FIE joint ventures with private firms; and WFIE - wholly owned FIEs.

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey of 2009*.

Figure 7.5 : Ownership pattern in export-oriented manufacturing (in%)



Notes: SOE - State-owned enterprises; DP - Domestic private firms; JVS - FIE joint ventures with state enterprises; JVP - FIE joint ventures with private firms; and WFIE - Wholly owned FIEs.

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey of 2009*.

Other determinants of wage skill premium such as *KL*, *RQ*, and *GR* are statistically significant with the expected signs. As a representation of firm's characteristics, firm output – a proxy for firm size – is positive and significant at the five per cent level or better in all cases. *Ceteris paribus*, larger firms tend to have a widening wage gap between skilled and unskilled workers. Moreover, the coefficient of capital intensity (*KL*) is positive and significant at conventional levels. This result is straightforward as firms with a higher proportion of capital are likely to recruit more skilled workers. As a

result, an expansion of demand for skilled workers results in a widening of the wage skill premium.

In regard to worker's characteristics, the coefficient of the gender ratio (*GR*) is highly significant with an expected (positive) sign, suggesting a higher share of female workers is likely to cause a rise in the wage skill premium. This is explained by the fact that a high gender ratio is associated with a higher proportion of unskilled workers, implying that they will have lower wages.

The role of skilled workers has an unexpected impact in explaining the wage premium. As shown in the first column in Table 7.12, the coefficient of skill share (*SS*) is significant but carries an unexpected (negative) sign in the full model. This result is contrary to the normal expectation that this skill ratio would contribute to the wage premium. As previously noted in the discussion on the data compilation, this unexpected finding could be the result of measurement error. Wages for production workers – a proxy for unskilled workers – may partly include those of skilled workers in the production work, leading to a magnification of the wage for unskilled workers in the wage premium. Testing was undertaken for the possible effects of this issue on the other explanatory variables. The results in the second specification are significantly robust to the exclusion, given that it does not affect the significance level and sign of coefficients on various explanatory variables.

The coefficients of the regional dummies are highly significant in the full model. The positive coefficient of the South East Area (*Sea*) including Ho Chi Minh City implies that firms operating in that region have a higher wage premium than those located in other less urbanized regions, holding other effects constant. A similar comment also holds for those firms located in the Red River Delta (*Rrd*). A plausible reason for these effects is that these two regions have many advantages as compared to the rest of Vietnam in terms of market competition, availability of resources, and business environment. It is important to note that there is a notable difference between these two most urbanized regions. We conduct a test of the effect of that difference on the wage premium, as shown in the Columns 3 and 4. Controlling for the South East Area, the coefficient is still positive and significant while that for the Red River Delta becomes insignificant. Clearly the evidence of the higher wage premium for firms operating in the South East Area may be associated with the fact that the region has been more involved with market-based disciplines than has the North.

7.4.4 Comparison results

The preceding section provides the estimation results examining the effect of trade and investment on the wage premium. For the purpose of comparison, an estimation of the model that relates manufacturing wages to similar explanatory variables is also undertaken. This analysis is based on the following model:

$$RW_{ij}=\beta_0+\beta_1 IT_{ij}+\beta_2 OT_{ij}+\beta_3 DP_{ij}+\beta_4 JVS_{ij}+\beta_4 JVP_{ij}+\beta_5 WFIE_{ij}$$
$$+\beta_6 EO_{ij}+\alpha Z_{ij}+\gamma INS_{ij}+\delta REG_{ij}+\varepsilon_{ij} \quad \textbf{(7.4)}$$

where *i* and *j* index firms and industries. Differing from Equation (7.2), this model examines the determinants of manufacturing wages using a cross-section 2009 data. The dependent variable is a firm's average real wage in logarithm value. All explanatory variables are defined as the same to those in Equation (7.3).

Table 7.13 shows OLS estimated results. As a benchmark, the result of the previous model (Equation 7.2) is shown in the first column. After taking into account of additional explanatory variables such as tariffs and skill share, the second column presents the result of this model (Equation 7.4). The two last columns report the results controlling for the Red River Delta and the South East Area, alternatively.

Wages of unskilled workers are strongly associated with the tariff reduction, given the tendency that employment creation is mainly reliant on unskilled labour-intensive manufacturing industries. Compared to the first column, the results presented in the three last columns are significantly robust to the inclusion of tariffs and skill share. The coefficient of the output tariff is negative with high significance. Thus, the result is consistent with the widely held perception that trade liberalization increases the returns to workers, (who are mostly unskilled) despite the insignificant coefficient of the input tariff. In relation to unskilled worker wages, the result suggests that there is a three per cent increase in unskilled worker wages for a ten per cent fall in output tariff. By contrast, after taking into account the skilled worker share in total employment, the same amount of output tariff reduction is likely to be associated with a five per cent decrease in skilled worker wages. Thus, the output tariff effect on wages stands in sharp contrast for skilled and unskilled workers, helping to further explain its effect on narrowing the wage premium as revealed previously. It becomes clear that the effect of trade liberalization on the wage premium can be delineated into its effect on average wages in Vietnamese manufacturing.

Table 7.13: Determinants of manufacturing wages: OLS estimates, Vietnam, 2009

Dependent variable: logarithm of firms's average wage rates (RW)

Explanatory variables	**(1)**	**(2)**	**(3)**	**(4)**
IT (input tariff)		-0.086	-0.058	-0.087
		(0.253)	(0.258)	(0.253)
OT (output tariff)		-0.313***	-0.268***	-0.317***
		(0.043)	(0.044)	(0.043)
EO (export orientation)	-0.064***	-0.036*	-0.055***	-0.034*
	(0.020)	(0.020)	(0.020)	(0.020)
DP (domestic private firms)	-0.179***	-0.121***	-0.101***	-0.122***
	(0.019)	(0.019)	(0.019)	(0.019)
JVS (joint ventures with	0.305***	0.253***	0.285***	0.253***
SOEs)	(0.043)	(0.038)	(0.039)	(0.038)
JVP (joint ventures with	0.043	0.074**	0.120***	0.073**
domestic private firms)	(0.037)	(0.035)	(0.035)	(0.035)
WFIE (wholly owned FIEs)	0.011	0.077***	0.155***	0.076***
	(0.021)	(0.020)	(0.021)	(0.020)
RQ (output)	0.133***	0.130***	0.139***	0.130***
	(0.003)	(0.003)	(0.003)	(0.003)
KL (capital intensity)	0.012***	-0.000	-0.004	-0.000
	(0.003)	(0.003)	(0.003)	(0.003)
GR (gender ratio)	-0.016***	-0.013***	-0.015***	-0.013***
	(0.001)	(0.001)	(0.001)	(0.001)
SS (skill share)		0.842***	0.858***	0.834***
		(0.033)	(0.034)	(0.033)
Rrd (Red River Delta	0.028***	-0.019*	-0.142***	
including Ha Noi)	(0.011)	(0.010)	(0.009)	
Sea (South East Area	0.236***	0.232***		0.242***
including Ho Chi Minh city)	(0.010)	(0.010)		(0.008)
Constant	1.907***	1.919***	1.890***	1.919***
	(0.036)	(0.042)	(0.043)	(0.042)
Industry dummies	Yes	Yes	Yes	Yes
F-test	285.02	295.68	278.74	304.25
Observations	18,204	18,204	18,204	18,204
R^2	0.363	0.397	0.379	0.397

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively.

(a) Standard errors adjusted for arbitrary heteroskedasticity are given in brackets.

(b) For brevity, the coefficients of industry dummies are not reported here.

As regards the export impact on wages, an increase in exports has an inverse impact on wages in Vietnamese manufacturing. This is because the coefficient of export orientation is negative and significant at standard levels in all cases. Thus, there is statistical evidence supporting the proposition that export expansion has not resulted in a rise in wages of unskilled workers. This depression effect caused by export growth is well in line with our earlier findings. However, in a similar manner, given the positive,

significant coefficient of the skill share variable (*SS*), export intensity is likely to increase the wages of skilled workers after controlling for skill share.

Concerning the effect of foreign direct investment on wages, firm ownership plays an important role in explaining wage differentials among firms. The coefficients of *JVS*, *JVP* and *WFIE* are positive and significant in all cases. Generally, the results are well in line with the results derived from the RE estimation in the preceding section. The wages of unskilled workers in FIEs are higher than those in domestic firms. Holding other effects constant, wages of unskilled workers in wholly owned FIEs, on average, are about eight per cent higher than those in domestic firms. However, the foreign wage premium is even larger for skilled workers, given the positive sign and significance of a skill share variable (*SS*) in all cases. This implies, all else held constant, that wages in firms with a large share of skilled workers in total employment are higher than wages in firms with a low skill share. Hence, the estimated effect of FIEs on skilled-worker wages is much larger compared to the effect on unskilled-worker wages. Although FIEs tend to concentrate on labour-intensive industries for exports, these firms pay higher wages for both unskilled and skilled workers as compared to domestic firms but the foreign wage premium is higher for skilled workers. All in all, there is strong statistical support for the proposition that increasing foreign investment is strongly associated with a rise in the wage premium.

As regard firm characteristics, capital intensity (*KL*), real output (*RQ*), skill share (*SS*), and gender ratio (*GR*) seem to play a significant role in explaining average wages. As the economies of scale effect reveals, wages in large-sized firms are higher than those in small-sized ones. Also, capital-intensive firms also tend to pay higher wages than labour intensive firms, given the positive coefficient and significance of *KL*. Additionally, the coefficient of skill share is positive and significant at a high level, implying a higher share of skilled workers is likely to be associated with higher wages. Thus, this factor plays a significant role in explaining the determinants of manufacturing wages despite its insignificance in explaining the wage premium as revealed in the previous section. Furthermore, gender ratio contributes to an explanation of wage differentials among firms. On average, firms with a high proportion of female/male workers have lower wages than those firms with a low proportion of female/male workers.

From another perspective, average manufacturing wages in the Red River Delta are typically lower than in the rest of Vietnam, including the South East Area, because of the negative and significant coefficient of the region dummy in the regression when there is a control for only that region (Column 3). Firms in the South East Area tend to pay higher wages than do firms in other regions of Vietnam, holding other factors constant (Column 4).

7.5 Conclusions

This chapter has examined determinants of inter-firm differences in wages and the wage premium in Vietnamese manufacturing using firm-level data over the period 2000-09. The wage differentials were first investigated through a comparison of manufacturing wages and their growth amongst five ownership types. Next, the determinants of foreign wage premium for FIEs and domestic enterprises was examined by estimating the effect of firm ownership on determinants of manufacturing wages with a special reference to the intra-industry wage differential using firm-level panel data. Finally, determinants of the wage premium were explored in association with conventional factors explaining manufacturing wages and special characteristics of the outward-oriented liberalization in terms of tariff reduction and firm ownership categories.

The results suggest the wage premium of foreign-invested enterprises is significantly higher than that of domestic firms, although wages in domestic enterprises have grown at a faster rate compared to that of FIEs. As expected, the wage premium of FIEs in capital-intensive industries is higher than that in labour-intensive industries. Likewise, the foreign wage premium is lowest in export-oriented sectors, as compared to import-competing sectors.

Given the wage pattern by firm ownership group, an analysis of functional income distribution in Vietnamese manufacturing showed that domestic private firms tend to employ a large number of unskilled workers at the lowest wage rate. Then, wholly owned FIEs are likely to employ the required high skill workers at higher wages. This suggests that the greater participation of private enterprises in Vietnamese manufacturing has contributed to the rise in living standard as well as to workers' welfare.

Next, estimations presenting intra-industry wage differentials in Vietnamese manufacturing proposed interesting results. First, the foreign wage premium between

FIEs and domestic enterprises is significant. This result is consistent with the Vietnamese economy having an abundance of unskilled workers but a shortage of skilled workers. Second, the highest foreign premium is observed in joint ventures between foreign entrepreneurs and SOEs, after controlling for other relevant variables. This can be attributed to the institutional factors that are associated with the wage premium of FIEs in determining wages for these joint ventures. It is likely that these foreign wage premiums become widened after relaxing an impact of the geographic impact on wages.

Finally, the results from a cross-section estimation of the wage premium are, by and large, consistent with our prior expectation. The findings consistently point to the important role of trade liberalization as an impetus for narrowing the skill premium. Tariff reduction seems to contribute to narrowing the wage gap between skilled and unskilled workers. A reduction of input tariff was found to have a greater effect on reducing intra-industry skill premium than it did a reduction in output tariff. This finding is consistent with the fact in Vietnam the most labour-intensive manufacturing exports have a higher proportion of import content. There is strong empirical support for the hypothesis that foreign ownership for firms has a significant positive effect on the wage premium.

Appendix 7.1: Wage rate[a] and its growth in Vietnamese manufacturing by sector and ownership group, Vietnam 2000-09, (in %)

Manufacturing industries by two-digit VSIC	All firms	SOEs		Domestic private		FIE-JVs with state firms[b]		FIE-JVs with private firms[c]		Wholly owned FIEs	
	Dong (mill)	Index[d]	Growth[e]	Index	Growth	Index	Growth	Index	Growth	Index	Growth
15: Food products	9.4	150	5.7	72	8.8	271	4.0	167	3.4	224	3.0
16: Tobacco products	21.8	110	3.9	41	8.6	101	11.1	0	n.a.	0	n.a.
17: Manufacture of textiles	8.1	113	6.4	67	9.0	271	0.3	117	8.2	184	2.8
18: Wearing apparel	8.9	90	6.5	84	5.8	164	3.1	132	3.1	172	1.0
19: Leather products	9.1	80	8.6	84	5.6	150	2.4	160	0.7	154	2.0
20: Wood products	6.6	120	6.7	89	6.9	238	6.3	86	14.2	166	5.5
21: Paper products	9.3	124	8.4	86	6.7	213	-14.4	269	-1.2	216	1.3
22: Publishing and printing	15.1	110	7.1	55	8.5	373	n.a.	164	-0.8	84	7.1
24: Chemical products	17.8	89	9.0	48	9.6	217	0.4	146	1.6	207	0.5
25: Rubber and plastic products	12.3	121	5.3	76	5.2	202	4.0	154	9.1	165	0.8
26: Non-metallic mineral products	8.4	118	10.9	73	10.1	471	-2.0	270	0.8	248	1.3
27: Basic metals	11.5	96	7.9	67	8.2	332	0.3	236	-4.1	150	6.2
28: Fabricated metal products	11.6	96	8.9	67	8.7	296	0.7	155	3.2	188	0.9
29: Machinery and equipment n.e.c	12.5	85	10.1	78	6.9	229	0.5	119	6.7	208	-0.3
30: Office, accounting and computing machinery	17.4	0	n.a.	116	-0.8	0	n.a.	0	n.a	92	2.3
31:Electrical machinery and apparatus	16.5	105	7.5	60	9.6	197	-0.2	205	-1.2	134	0.7
32: Radio, television and communication equipment	20.0	91	3.5	53	4.2	227	5.0	182	-5.3	85	3.2
33: Medical, precision and optimal instruments	15.3	84	2.8	58	9.4	161	0.1	0	n.a	163	0.0
34: Motor vehicles, trailers and semi trailers	11.8	85	9.7	59	11.3	300	2.4	78	9.1	186	0.9
35: Manufacture of other transport means	12.1	106	5.3	61	9.4	295	-1.4	279	-7.6	176	-0.2
36: Manufacture of furniture, n.e.c	9.0	106	5.4	81	6.3	198	2.6	123	4.4	193	0.5
Whole manufacturing	**100.0**	**119**	**8.0**	**69**	**8.2**	**289**	**2.2**	**173**	**2.4**	**194**	**1.1**
Million dong per worker	**10.4**	**12.3**		**7.2**		**29.9**		**18.0**		**20.1**	

Notes: (a) Average real wage rates per worker for particular manufacturing industries in 2000.

(b) FIE-JV with state firm is a joint venture foreign-invested enterprise with SOE.

(c) FIE-JV with private firm is a joint venture foreign- invested enterprise with domestic private firm.

(d) Average real wage rates per worker in each firm ownership group in 2000, indicated as an index with the ratio for all firms in each industry equal to 100.

(e) Average annual growth of real wage rate over the period 2000-09.

n.a.: data not available n.e.c: not elsewhere classfied

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009*.

Appendix 7.2: Index of average real wages[a] by firm size in Vietnamese manufacturing, 2000 and 2009

Manufacturing industries by two-digit VSIC	All firms	Index of real wages (%) in 2000				All firms	Index of real wages (%) in 2009			
	Dong (mill)	10-49	50-199	200-499	500+	Dong (mill)	10-49	50-199	200-499	500+
15: Food products	9.4	74	105	135	140	12.8	73	116	126	124
16: Tobacco products	21.8	48	72	105	126	32.7	78	114	65	119
17: Manufacture of textiles	8.1	74	99	107	147	13.6	92	99	115	117
18: Wearing apparel	8.9	67	92	111	127	13.2	90	96	102	113
19: Leather products	9.1	78	106	114	99	13.4	92	103	98	103
20: Wood products	6.6	86	115	118	152	11.1	93	107	111	111
21: Paper products	9.3	80	121	134	183	14.7	91	102	133	146
22: Publishing and printing	15.1	75	100	160	161	16.5	82	114	162	229
24: Chemical products	17.8	85	110	115	98	20.8	83	105	127	143
25: Rubber and plastic products	12.3	86	110	122	153	16.1	91	103	113	125
26: Non-metallic mineral products	8.4	69	118	152	206	16.9	89	98	114	150
27: Basic metals	11.5	75	111	202	129	16.2	82	104	143	154
28: Fabricated metal products	11.6	76	135	133	114	15.8	92	107	118	122
29: Machinery and equipment n.e.c	12.5	103	96	110	87	18.2	95	103	103	132
30: Office, accounting and computing machinery	17.4	116	0	50	135	16.6	105	111	78	95
31:Electrical machinery and apparatus	16.5	97	98	88	124	21.9	97	103	98	99
32: Radio, television and communication equipment	20.0	84	114	93	105	19.1	82	105	117	90
33: Medical, precision and optimal instruments	15.3	89	87	196	104	22.8	119	82	82	105
34: Motor vehicles, trailers and semi trailers	11.8	77	104	159	166	19.0	84	107	110	118
35: Manufacture of other transport means	12.1	72	115	114	149	17.1	81	102	112	132
36: Manufacture of furniture, n.e.c	9.0	84	107	128	147	13.1	94	101	103	111

Note: (a) Average real wage rate per employee in each firm size segment, indicated as an index with the ratio for all firms in each manufacturing sub-industry equal to 100.

n.e.c: not elsewhere classfied

Source: Compiled from the unpublished returns to *the GSO Enterprise Survey 2000-2009.*

Appendix 7.3: Determinants of manufacturing wages, Vietnam, pooled OLS estimates, 2000-09

Dependent variable: logarithm of firms' average wage rates

Explanatory variables	(1)	(2)	(3)
RQ (output)	0.164***	0.157***	0.171***
	(0.001)	(0.001)	(0.001)
KL (capital intensity)	0.036***	0.034***	0.033***
	(0.002)	(0.002)	(0.002)
GR (gender ratio)	-0.008***	-0.007***	-0.009***
	(0.001)	(0.001)	(0.002)
HER (industry concentration)	0.214***	0.186***	0.243***
	(0.034)	(0.034)	(0.035)
EO (export orientation)	-0.109***	-0.098***	-0.128***
	(0.008)	(0.008)	(0.008)
FIE (foreign invested enterprises)	0.229***		
	(0.006)		
DP (domestic private firms)		-0.080***	-0.008
		(0.006)	(0.006)
JVS (joint ventures with state enterprises)		0.455***	0.517***
		(0.013)	(0.013)
JVP (joint ventures with domestic private firms)		0.153***	0.265***
		(0.016)	(0.017)
WFIE (wholly owned FIEs)		0.122***	0.280***
		(0.008)	(0.008)
Rrd (Red River Delta including Ha Noi)	0.033***	0.033***	
	(0.005)	(0.005)	
Sea (South East Area including Ho Chi Minh City)	0.292***	0.306***	
	(0.004)	(0.004)	
Constant	0.321***	0.428***	0.345***
	(0.013)	(0.015)	(0.016)
Observations	105,733	105,733	105,733
R^2	0.469	0.473	0.441
Breusch-Pagan test for heteroskedasticity	$\chi^2(1)=1,241$	$\chi^2(1)=1,499$	$\chi^2(1)=1,569$

Notes: ***, ** and * Denote significance at the 1%, 5% and 10% levels, respectively.

(a) Standard errors adjusted for arbitrary heteroskedasticity are given in brackets.

(b) All specifications include industry dummies and time dummies. For brevity, their coefficients are not reported here.

(c) For the Breusch-Pagan/ Cook-Weisberg test for heteroskedasticity, null hypothesis is rejected at the 1% level of significance.

Chapter 8

Conclusions and Policy Implications

8.1 Main findings

The purpose of this thesis has been to examine manufacturing employment and wages in Vietnam during the process of economic transition from a central-planned to a market- oriented economy. Following the introductory chapter which spelt out the purpose and scope of the study, Chapter 2 reviewed both the relevant theory and the empirical literature of manufacturing employment and wages from two perspectives in order to set the stage for the ensuing analysis. This chapter first presented the Lewis-Fei-Ranis economic growth model of a labour surplus economy which iswidely used as a framework for examining structural change and employment generation in a labour-abundant economy in the process of industrialization. It then surveyed the standard theories of trade and foreign investment to provide a framework for a better understanding of the intra-industry effects of trade and investment on manufacturing employment and wages in these economies. The discussion highlighted the relevance of the extended Heckscher-Ohlin trade model in understanding how export patterns in the labour-abundant economy will shift away from natural resources-based goods toward labour-intensive manufacturing commodities during its economic development. More recent literature on the role of foreign direct investment in export-oriented industries, together with skill-biased technology change in explaining wage growth and the wage premium between skilled and unskilled workers were also surveyed. Finally, the chapter undertook an interpretative survey of the previous studies on manufacturing employment and wages in the context of export-oriented industrialization in Vietnam.

Chapter 3 reviewed the market-oriented economic reforms in Vietnam since the announcement of the ‘renovation reforms’ (*Doi Moi*) in the late 1980s. These reforms have resulted in improved labour market conditions in several ways. First, the enterprise reforms particularly emphasized to the removal of investment restrictions; they simplified registration procedures and established uniform investment incentives. Consequently, the Vietnamese economy now provides a consistent business environment for all enterprises, regardless of the form of ownership. Second, the trade reforms aimed to provide appropriate incentives for export-oriented strategies by

making the trade regime, as well as export-import management, more liberal and transparent. Of particular note is that, on Vietnam's admission to the WTO, the organization advocated for further improvement in related policies and legal regulations in order to build a level playing field for both domestic and foreign investors. Finally, as a result of these economic reforms the labour market conditions have greatly improved. In all kinds of enterprises, labour recruitment and firing, along with wage setting, have been mainly reliant on market-based principles. However, there was a dramatic appreciation of the real exchange rate over the period 2006-09 caused by the investment boom, leading to high inflation coupled with consequent macroeconomic disturbance. It is likely that this macroeconomic development hindered the potential outcomes of the economic reforms in terms of employment expansion and wage growth.

Chapters 4, 5, 6, and 7 formed the analytical core of the thesis. Chapter 4 examined trends and patterns of employment over the reform era from the early 1990s. The findings of this chapter indicate that the market-oriented policy reforms have resulted in dramatic changes in the employment pattern in a Vietnamese economy which faced structural change over the two decades of reform. Manufacturing employment has shown an impressive growth over that period, especially in the second decade (2000-09). Manufacturing performance has been significantly associated with the withdrawal of unskilled workers away from agriculture into manufacturing. Employment growth in the manufacturing sector has accompanied notable structural change in the sector's ownership structure. Thanks to the substantial liberalization since the 2000s of trade, investment and enterprise policies, the private sector firms, especially FIEs, have been a mainstay for remarkable job creation in this sector. Consequently, the significant transition of unskilled workers from the agricultural sector to the manufacturing sector accords with the predictions of the Lewis-Fei-Ranis growth model. However, this labour transition has been much slower than for the two earlier industrializers – Taiwan and South Korea – but comparable to the patterns observed in some later industrializers within the ASEAN region. However, it appears that the shift of unskilled workers into the manufacturing sector has begun to falter in recent years owing largely to policy backsliding on the macroeconomic management.

Chapter 5 investigated the effect of manufacturing exports on job creation within the input-output framework using data for 2000 and 2007. Over the period 2000-11, exports from Vietnam grew rapidly, with a palpable compositional shift in commodity

composition toward manufacturing exports. Among the various sub-groups in manufacturing exports, the relative importance of traditional labour-intensive goods, electronics products and processed foods increased over time. Export expansion contributed to a notable increase in labour absorption. During 2000-2007, export-oriented manufacturing contributed to over a half of the total increase in manufacturing employment. Aside from this direct effect of export expansion, there has been considerable spillover effect of export expansion on employment creation in other sectors. Overall, the Vietnamese experience with employment expansion through export-led industrialization is consistent with the experience of other East Asian economies.

Chapter 6 explored the determinants of labour demand in Vietnamese manufacturing during the period 2000-09 using a new panel dataset. Econometric results of this chapter show that the significance of output growth rather than wage change is crucial in explaining a firm's labour demand in the manufacturing sector. One important finding is that the degree of employment creation is strongly reliant on the impact of export expansion on the firm's labour demand. This implies that manufacturing employment can capture benefits from increasing output which is mainly premised on export growth, because export production requires a higher proportion of labour. This is a desirable outcome for labour generation in Vietnam's labour-abundant economy. This suggests that following an export-oriented strategy is a good vehicle to generate new job opportunities in a small developing economy.

Inter-firm differences in manufacturing employment growth were found to be determined significantly by the nature of firm ownership. The presence of FIEs is associated with higher labour demand, as compared to domestic firms. The most important finding is that the FIEs tended to have a high degree of job creation in export-oriented manufacturing. The results indicated that the FIEs were more likely to contribute higher employment outcomes through export intensity than domestic firms, confirming that the FIEs have become a crucial source of manufacturing employment in Vietnam. The results also confirmed the noteworthy findings derived from an analysis of the employment pattern by ownership group in every two-digit manufacturing industry. Across these industries, there has been a notable increasing number of employment opportunities generated through the private sector firms. The higher

involvement of FIEs in the export-oriented, labour-intensive industries contributed significantly to job growth in the manufacturing sector.

Chapter 7 examined two interesting aspects of the wage patterns in the manufacturing sector: the wage premium of FIEs compared to that of domestic firms (the foreign wage premium) and the wage premium between skilled and unskilled workers. A comparison of wage growth and its pattern among firm ownership groups indicates that average wages in manufacturing FIEs declined while those in domestic enterprises experienced an upward trend. This suggests a structural shift in foreign investment toward export-oriented production that was likely to require more unskilled workers. The foreign wage premium – higher wages in FIEs than domestic enterprises – is also observable across most of the two-digit manufacturing industries. This foreign wage premium was higher in capital-intensive industries than in labour-intensive ones. Similarly, the export-oriented sectors that were mostly involved with labour-intensive production witnessed the lowest foreign wage premium.

Wage differentials by firm ownership have been remarkably pronounced in Vietnamese manufacturing. Incorporating the functional income distribution, it can be concluded that the private sector firms, both domestic and foreign, became the main contributor to increasing the workers' incomes and reducing the poverty incidence in Vietnam. While many job opportunities with higher wage rates were generated through FIEs, the domestic private firm group was revealed to be a major provider for unskilled workers from agriculture.

The analysis of the determinants of manufacturing wages over the period 2000-09 has yielded some interesting findings. Results from the examination of inter-firm wage differentials showed significant premium wages for FIEs compared to domestic firms. In particular, both forms of investment entry, joint venture and wholly owned FIEs, were found to be important in explaining the foreign wage premium. More interesting, joint ventures with public enterprises were observed to pay a highest foreign wage premium owing to the institutional factors. This result is consistent with the statistical description of the FIE contribution in wage patterns in Vietnamese manufacturing.

Concerning the impact of trade liberalization on the wage skill premium between skilled and unskilled workers, there is strong evidence that trade liberalization had an

important role in narrowing the wage premium. The reduction in tariff barriers was found to be associated with a lower level of the wage premium. Particularly, the input tariff played a more important role than the output tariff in contributing the narrowing wage premium.

Finally, the results clearly point to the important role of export-oriented foreign investment in explaining inter-firm differences in the wage premium. There is also evidence that the presence of FIEs contributed to an increase in average manufacturing wages.

8.2 Policy implications

The findings of this thesis have important implications for economic policy in Vietnam relating to employment generation and poverty reduction through the design of an industrialization strategy. Over the last two period decades, Vietnam has achieved rapid growth and structural transformation in the manufacturing sector, with notable achievements in employment expansion and increase in real wages, albeit at a modest speed and intensity when compared to other East Asian labour-abundant economies. As discussed in the theoretical framework, capital accumulation is a crucial factor of employment growth, particularly in the manufacturing sector. Vietnam has reformed its enterprise policies as well as other related policies in order to attract investment from the private sector firms (both domestic and foreign enterprises) into Vietnamese manufacturing. The promotion of labour-intensive manufacturing for exports is likely to be the best strategy for achieving an objective of job creation in the Vietnamese economy, which has an abundance of unskilled labour.

A significant finding of this study is that the promotion of labour-intensive manufacturing for exports is the best strategy for employment generation and economic growth for a labour-abundant country such as Vietnam. The manufacturing exports can generate employment not only within the manufacturing sector but also in the overall economy through the spillover effect. In doing so, Vietnam needs to place a consistent emphasis on the exploitation of its current comparative advantages – labour abundance in a pursuit of economic development.

The promotion of export-oriented foreign investment as an integral part of the export-led development strategy is very important in generating job opportunities as

well as in improving workers' welfare. This study finds that the FIEs have a higher degree of employment creation as compared to the domestic firms, in particular in the export-oriented industries through an impact of export expansion. This analysis also indicates that the increasing participation of foreign investment results in a rise in average manufacturing wages. In order to reap positive benefits from foreign investment on manufacturing employment and wages, the government needs to ensure an appropriate structure of incentives for export-oriented industrialization based on labour-intensive manufacturing. The study shows that the presence of foreign investment, in particularly export-oriented FIEs, has widened the wage premium between skilled and unskilled workers, which has contributed to an increased income inequality in the country. However, this seems to be an unavoidable outcome at the early stage of export-oriented industrialization with MNE participation.

Macroeconomic stabilization is an important prerequisite for the economy to reap the positive effect of outward-oriented liberalization of manufacturing employment and wages. The analysis of real exchange rate appreciation over the period 2006-10 clearly indicates that the Vietnamese economy encountered the problems of the Dutch Disease due to the rise in FDI inflow. This resulted in an expansion in non-tradable sectors while simultaneously contracting the manufacturing sector, leading to a reduction in job growth. In addition, the high appreciation of the real exchange rate also contributed to the reduced competitiveness of Vietnamese goods in export markets, thus hindering employment creation through the output impact on labour demand. The government, therefore, needs stable macroeconomic conditions coupled with consistent liberalization reforms, in order to offer the right incentives during a process of export-oriented industrialization. The findings of the study relating to the widening of the wage premium makes a strong case for policies to improve the human capital base of the economy in order to achieve a more equitable growth outcome in the future.

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