

AN ASSESSMENT OF INCOME LEVELS AND DISTRIBUTION

IN ONE LOWLAND AND ONE HIGHLAND VILLAGE

IN WEST JAVA, INDONESIA, 1979

by

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A dissertation submitted in partial fulfilment
of the requirements for the degree of Master of
Agricultural Development Economics in
the Australian National University

June, 1983

DECLARATION

Except where otherwise indicated,
this thesis is my own work.

Pulo Siahaan

ACKNOWLEDGEMENTS

This study was carried on while I was studying at the Australian National University, on a Colombo Plan Award. I would like to express my thank to the Government of Australia for the award.

I thank many people without whose help this study would not have been completed. Many thanks are due to the Vice Chancellor of the Australian National University which provided me with all facilities for my study including those of the Menzies and Chifley Libraries and computer facilities.

I am most grateful to my Supervisor, Dr E.K.Fisk, of the Department of Economics, Research School of Pacific Studies, for his valuable guidance, comments and suggestions throughout the preparation of the thesis. I wish to express my sincere appreciation to my other Supervisor, Ibu Ruth Daroesman, of the same Department, who with great patience provided me with both moral and material support which have enabled me to complete the thesis. Her encouragement and untiring effort stimulated me throughout, to the completion of the thesis. Also, her correction of my English was a wonderful help.

I am also thankful to the former Rector of Tanjungpura University, Pontianak, Ir Soepartono Siswopranoto, without whose permission I would not have had a chance to study at the A.N.U. To Prof. Dr Ir J.C.Hartoyo, Drs Syamsudin Djahmat, and T.F.Manurung SH, I would also like to express my thanks for their recommendations.

Particular gratitude is extended to Dr Peter T. McCawley (my former Supervisor in the Faculty of Economics, Gadjah Mada University), of the Department of Economics, Research School of Pacific Studies, who first encouraged me to enroll in Masters' Programme in Agricultural Development Economics.

I wish also to express my thanks to the project leader of the Rural Dynamics Study, Agro-Economic Survey, Bogor and to M. Husein Sawit S.E., one of the staff of the Rural Dynamics Study (who studied with me in the same programme at the A.N.U.), who provided me with the data of the 1979 Agro-Economic Survey.

My thanks also go to Pak Wargono Adisoewignyo S.E., I Komang Gde Bendesa S.E., and I Made Benyamin S.E. (my colleagues in the same programme), for their help and co-operation during our studying.

Indebtedness is also expressed to Dr D.P. Chaudhri, the Director of Masters' Programme in Agricultural Development Economics and to all the staff for their valuable suggestions, encouragement and constructive criticism during my study up to finishing the thesis.

Finally, my deepest debt of gratitude goes to my wife, Asti Pangaribuan, for her spiritual support and encouragement and wisdom, and for looking after and managing our family during my stay away from home. I am very much indebted to my children, Linda, Deasy and Tommy. With all their patience in yearning for me, they wait for my return from "negeri orang" to offer them something valuable later. Horas.

ABSTRACT

Absolute poverty and great inequality are still major problems in Indonesia in spite of its increase income from oil. As Indonesia has no regular statistical series on income distribution, data from surveys the main purpose of which is not income distribution have had to be used. This fact introduces many problems in addition to the important theoretical problems of measurement and of lack of other statistical series against which to test income data. The Agro-Economic Surveys have collected much information on incomes as part of their studies of farm institutions and other rural problems. This study is an assessment of income data from such a study, and examines the special problems which arise in the use of such income data.

It was found that the coverage and manner of collecting data on income had resulted in a high proportion in each sample village (48 and 26 per cent, respectively) of households which reported incomes insufficient to support life, but that these reported income levels appear to be the result of anomalies in reporting. It was therefore concluded that total household income for the period of one year was not possible to compute for these households and that therefore no reliance could be placed on income distributions based on these incompletely recorded incomes.

Each separate source of income was then examine in detail and tested so far as possible for consistency against other data. To

do this, data on area owned and cultivated, assets, household size, education and employment were examined. It was found that the method of collection of data by season called forth conflicting responses by the farmers, particularly for land cultivated. The fact that not all data on field conditions during interview were available in Canberra (e.g., bases for imputed prices) made it impossible to check consistency of income data against yields or prices.

Sophisticated methods of analysis based on such data were considered inappropriate, so only Gini Coefficients, Lorenz Curves and some regressions have been applied to the data.

A concept of 'plausible' incomes is developed, in which households which report incomes insufficient to support life are considered 'implausible' and excluded from some of the analyses. Similarly, some sources of income which showed very poor internal consistency (e.g., poultry and gleaning) were considered 'implausible'. Plausible incomes were not necessarily accurate, and could also be under-reported, however.

'Plausible' income households were compared to total households. Exclusion of implausible households made a much greater difference in the lowland than in the upland village. Inequality appeared to be far greater in the lowland than in the upland village, but it is not possible to say for sure whether this conclusion arises from what appears to be much more thorough and consistent data collection procedures in the highland village, and to what extent it reflects real levels of inequality. It was found that the higher the

aggregation, the greater the similarity between villages; disaggregation revealed very wide differences.

The conclusion to this study is that, because income data in the SAE study were collected as a side-line to the main purpose of the study, the very difficult conceptual, theoretical and practical problems associated with income measurement have not been met, and that consequently, the data on incomes from this study are not reliable, and not suitable as a basis for policy recommendations on income levels or income distribution.

CONTENTS

	Page
DECLARATION	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT	v
LIST OF TABLES	xi
LIST OF FIGURES	xiv
CHAPTER	
ONE	
INCOME DISTRIBUTION IN INDONESIA: PROBLEMS AND POLICIES	1
1.1 Introduction	1
1.2 Trends in Income Distribution 1963-1980	2
1.3 The Agro-Economic Survey (AES)	8
1.4 Some Theoretical Problems in Income Distribution	12
1.5 The Objectives of the Study	15
1.6 Methods of Analysis	16
1.7 Framework of the Study	19
TWO	
THE DATA ON INCOMES IN TWO SAMPLE VILLAGES	20
2.1 Households and Incomes	20
2.1.1 Non-reporting households	24
2.1.2 Under-reporting households	27
2.2 Data Problems	31
2.2.1 Multiple sources of data	31

2.2.2	Double counting	31
2.2.3	Internal inconsistencies	32
2.2.4	Data on production and prices	32
2.3	"Plausible" Incomes	34
THREE	LAND, ASSETS AND HOUSEHOLD CHARACTERISTICS	37
3.1	Raw Data on Land Area	37
3.1.1	Sawah owned	37
3.1.2	Tegalan	40
3.1.3	Pekarangan	40
3.2	Distribution of Land Owned	41
3.3	Land Cultivated	48
3.4	Land Ownership and Household Income	50
3.5	Household Size	52
3.6	Educational Levels	54
3.7	Employment and Income	55
3.8	Summary	58
FOUR	HOUSEHOLD INCOMES FROM CROPS AND ANIMAL HUSBANDRY	60
4.1	Incomes from Paddy	60
4.1.1	Prices	69
4.2	Paddy Production	70
4.3	Secondary Non-rice Crops (Palawija)	74
4.4	Treecrops	77
4.5	Livestock	79
4.6	Poultry	82

	4.7 Ngasak	87
FIVE	INCOME FROM HOUSEHOLD ENTERPRISES AND OFF-FARM LABOUR	89
	5.1 Household Enterprises	89
	5.2 Off-farm Labour	96
	5.3 Transfer Income	100
	5.4 'Plausible' Households	100
	5.5 Summary	106
SIX	CONCLUSIONS	110
	6.1 General	110
	6.2 Income Data from Non-income Surveys	110
	6.3 Questionnaire Design	113
	6.4 General Conclusions	114
SEVEN	BIBLIOGRAPHY	116

LIST OF TABLES

Tables	Title	Page
1.1	Gini Coefficients of Per Capita Expenditure by Sector and Region, 1964/5 to 1978	6
1.2	Percentage of the Population Living in Poverty in Indonesia, 1963-78	7
1.3	Characteristics of the Sample Villages	10
2.1	Distribution of Total Annual Income and Annual Average Incomes by Decile, Wargabinangun Village, 1979 (all households)	22
2.2	Distribution of Total Annual Income and Annual Average Incomes by Decile, Sukaambit Village, 1979 (all households)	23
2.3	Distribution of Total Annual Household Income and Annual Average Incomes by Decile, Wargabinangun Village, 1979 (Reporting Households only)	26
2.4	Household Incomes by Size of Household in Wargabinangun, 1979	29
2.5	Household Incomes by Size of Household in Sukaambit, 1979	30
3.1	Sources of Data in Questionnaire on Land Cultivated and Owned	38
3.2	Numbers of Households Owning Sawah	40
3.3	Numbers of Households Owning Land by Size of Holding	42
3.4	Distribution of Land Ownership by Deciles, Wargabinangun	43
3.5	Distribution of Land Ownership by Deciles, Sukaambit	44
3.6	Distribution of Households according to Area of Sawah Cultivated (measure U)	49
3.7	Land Ownership and Household Income	50
3.8	Percentage Distribution of Households by Household Size, (Total and 'Plausible')	53
3.9	Households by Total Income and Household Size	53

3.10	The Distribution of Reported Annual Household Income by Educational Level of the Head of Households	55
3.11	Numbers of Households by Income Class and Status of Employed Members	57
3.12	Percentage Distribution of Households by Income Group and Number Households Members 'Employed'	58
4.1	The Distribution of Reported Incomes from Paddy for both Seasons	61
4.2	Households by the Proportion of Total Income Reported derived from Paddy	62
4.3	Household Distribution by Reported Annual Income from Paddy and Paddy Area Planted, 1979 (in ha)	63
4.4	Distribution of Households by Income from Paddy and Sawah Owned (dry season only)	65
4.5	Distribution of Households by Yields of Paddy, Wet Season and Dry Season, 1979	67
4.6	Annual Paddy Yields (4 Crop per Year)	68
4.7	Area Cultivated and Yield per ha	69
4.8	Paddy Prices in Wargabinangun and Sukaambit, 1979	69
4.9	Dry Season Paddy Production	71
4.10	Paddy Production by Season and per Capita Production, Milled Rice Equivalent	73
4.11	Reported Annual Incomes from Palawija	75
4.12	Household Distribution by Income from Palawija and Total Income	77
4.13	Household Distribution by reported Income from Treecrops and Total Reported Income	78
4.14	Incomes from Livestock by the Numbers Owned	81
4.15	Distribution of Households by Reported Income from Poultry and Numbers of Poultry Owned	84
4.16	Percentage Distribution of Households by Proportion of Total Income derived from Poultry	85
4.17	Distribution of Households by Income from Poultry and Total Reported Income, Wargabinangun	87

5.1	Numbers of Households by Type of Household Enterprise	90
5.2	Distribution of Household by Type of Enterprise and Income from Enterprise	92
5.3	Average Reported Incomes from Household Enterprise by Type of Enterprise	93
5.4	Households by Total Reported Income and by Percent of Income derived from Household Enterprises, Wargabinangun	94
5.5	Households by Total Reported Income and by Percent of Income derived from Household Enterprises, Sukaambit	95
5.6	Distribution of Households by Household Enterprise Income and Total Reported Income	96
5.7	The Range of Responses to the Questions on Household Agricultural Labour	98
5.8	Distribution of Households Incomes Reported from Off-farm Agricultural Labour	99
5.9	Distribution of Total Reported Income by Deciles of 'Plausible' Households, Wargabinangun	102
5.10	Distribution of Total Reported Income by Deciles of 'Plausible' Households, Sukaambit	103
5.11	Percentage of each Source of Income bears to Total Village Income ('Plausible' Households only)	104
5.12	Distribution of Reported Household Incomes by Source 'Plausible' Households only	105
5.13	Contribution of Reported Income by Source to Total Reported Income	107
5.14	Distribution of Household by Main Reported Sources of Income	108

LIST OF FIGURES

Figures	Title	Page
1.1	The Location of the Sample Villages of Wargabinangun and Sukaambit in West Java	11
1.2	The Lorenz Curve	18
2.1	Lorenz Curve showing Distribution of Annual Household Income among Total Sample Households in Wargabinangun, West Java, 1979	25
2.2	Lorenz Curve showing Distribution of Annual Household Income among Total Sample Households in Sukaambit, West Java, 1979	25
2.3	Lorenz Curve showing Distribution of Household Income among Reporting Sample Households only, Wargabinangun	27
3.1	Lorenz Curve showing Distribution of Total Land Owned by Deciles, Wargabinangun (Land Owning Households only)	46
3.2	Lorenz Curve showing Distribution of Total Land Owned by Deciles, Sukaambit (Land Owning Households only)	46
3.3	Lorenz Curve showing Distribution of Total Land Owned by Deciles, Wargabinangun (All Households)	47
3.4	Lorenz Curve showing Distribution of Total Land Owned by Deciles, Sukaambit (All Households)	47
3.5	Lorenz Curve showing Distribution of Income and Land Owned by Deciles, Wargabinangun (Reporting Households only)	51
3.6	Lorenz Curve showing Distribution of Income and Land Owned by Deciles, Sukaambit (Reporting Households only)	51

CHAPTER ONE

INCOME DISTRIBUTION IN INDONESIA: PROBLEMS AND POLICIES

1.1 Introduction

Indonesia, like many other developing countries, does not have any regular statistical series on income distribution. This lack of data on inequality and poverty, Seers points out,

"reflects the priorities of statistical offices rather than the difficulties of data collection. The conceptual problems of these measures do not seem to be more formidable than those of the national income. We have just grown accustomed to ignoring them" (Seers, 1969, pp.2).

As a result, other sources of data such as national socio-economic surveys, censuses, labour force surveys, costs of living studies, and even micro studies of urban or rural areas have been used to obtain some indication of income distribution.

Discussions of inequality and poverty in Indonesia have therefore had to be based on surveys where the main focus was not income distribution. This introduces many problems in the analysis of income data or levels of living, both in cross sectional studies and in trends over time. In urban areas, some cost of living studies allow us to look at disparities between different urban areas, but so far there have been no studies of disparities within rural areas. This chapter will review briefly the main features of recent studies based on such survey data and some of the problems of assessment of such survey data.

1.2 Trends in Income Distribution 1963-1980

In 1982, according to World Bank measures, Indonesia moved from the status of a 'low income' country to a 'middle-income' country, with a per capita annual income of \$430 (only \$10 above the level of \$420 designated by the Bank as the bottom rank of the middle income countries). (Asiaweek, 1982, p.42). Indonesia's economic growth in the past decade has been quite high at 7.47 per cent per year average, and has been particularly remarkable considering its population increase, which averaged about 2.34 per cent over the decade 1971-1980 (Hull, 1981, pp.114-20; Sagir, 1983, p.7). This rapid growth has been largely due to the exploitation of Indonesia's wealth of natural resources, principally oil and natural gas, and to some extent timber.

During the 1950s before the oil boom, the distribution of income was already an issue in the newly independent Republic, particularly as it affected the relations between the richer and poorer regions of the country. With the New Order Government after 1966, attention was again focused on problems of distribution and on the question of who was to benefit from the oil income. Since 1970, income distribution has been a major concern of the Government (Booth, 1983, p.1).

But, as Sagir points out, the comparison of the growth rate of the economy and of the population does not tell us anything about the problem of inequality, nor the proportion of total income which is received by the top, middle and bottom segments of the population (Sagir, 1983, p.7).

In the first two decades or so after the Second World War, most newly independent countries were following the developed countries concentrating on problems of economic growth (Sundrum, 1983a, p.1-9). But in the past two decades, there has been much more attention paid to how wealth is distributed among the population. In Indonesia, the national income was increasing very rapidly, and government revenue was also increasing. Aid agencies also began to place more emphasis on the use of aid for the benefit of the poor. There was thus pressure on the Government to use its oil income to help the poor.

High inequality was considered politically dangerous, and not in accord with the main lines of the development of national policy (Garis-garis Besar Haluan Negara). Inequality in Indonesia, at least as between urban and rural areas, was not actually much worse than in the many other countries in the late 1960s (Sundrum, 1973, p.90). However, between the late 1960s and mid 1970s, urban-rural disparities may have increased (Booth, 1983, p.11).

The interest in income distribution in developing countries like Indonesia was based on a concern not only about inequality, but also about the large numbers of people living in absolute poverty. Even where incomes of the lowest groups were rising they were not rising fast enough. For example a 1978 World Bank report (unpublished) found that an increase of income of 5% per annum would need to continue for 24 years for the lowest decile, and 17 years for the next decile of the rural Javanese population to reach the poverty threshold income.

There have been several measures of poverty used in Indonesia. The most commonly quoted is that set by Sayogyo in 1977,

in which he set the equivalent of 240 kg of rice per person per annum in rural areas and 360 kg in urban areas as a 'poverty line' (Sayogyo, 1974). Sayogyo found 34.67 per cent and 27.99 per cent of the population in rural and urban areas, respectively, below this poverty line in January-April 1976 (Sayogyo, 1977, p.6). Another attempt to study trends in income levels and distribution was made by King and Weldon (1976) who looked both at absolute levels and at relative shares over time. They noted that where general economic conditions are improving rapidly, any given quintile of the population could be better-off in absolute terms but worse-off in terms of its share and that relative improvement in any decile could also "mask overall decline in level of living" (p.9).

The importance of the absolute level of poverty is noted in a study by The National Council of Applied Economic Research (Parasila Bhawan) of India as follows:

"Gini Coefficient, the standard index for measuring concentration in income distribution, for a number of developing countries including India is not higher than for the advanced countries of the world. The real difference lies in the large gap in the average income per person and the existence of absolute poverty on a large scale in developing countries. It is with reference to these two features that the problem of income inequalities has to be viewed" (National Council of Applied Economic Research, Parasila Bhawan, 1975, p.8).

In its Second Five Year Plan, the Government of Indonesia began to stress redistribution of wealth as one of its aims; this emphasis was continued in the Third Plan. In the face of decreasing oil prices (McCawley, 1983, p.2), it can be expected that a more equal distribution of the national wealth and greater efforts to reduce poverty will continue to be important in the Fourth Plan which begins in 1984/5.

Indonesia's oil income has reduced the need for government to 'take away from the rich to give to the poor'. Although there is a law on land redistribution, it has not been effective. Other policies to help better distribution have included progressive taxes, taxes on luxury goods, employment creation through government public works, emphasis on labour intensive programs, subsidies on agricultural inputs, subsidies for consumer goods such as kerosene and rice, small credit schemes, and the improvement of social services such as education and rural health.

Trends in income distribution over the past fifteen years or so have been evaluated by Booth (1983). She finds that the main trend is an increase in inequality in urban areas, but not within rural areas, and a widening disparity between urban and rural areas. But, she points out, there are difficulties in interpreting these data because of urban-rural price disparities and because of certain difficulties concerned with the sources of data on incomes. Table 1.1 summarises her findings on trends in rural-urban income inequalities in rural Java. She concludes: "Real growth in per capita expenditures in the rural areas of Java and the urban areas outside Java, as calculated from the Susenas data was only 0.5 per cent per annum" (Booth, 1983, p. 11).

TABLE 1.1

Gini Coefficients of Per Capita Expenditure by
Sector and Region, 1964/5 to 1978

Sector and Region	1964/5 a)	1967 b)	1969/70 c)	1970 d)	1976 e)	1976 f)	1978 f)
<u>Urban</u>							
Java	0.313	0.323	0.340	0.347	0.386	0.359	0.408
Outer Is.	0.403	n.a.	0.305	0.332	0.329	0.319	0.320
Indonesia	0.356	n.a.	0.332	0.341	0.377	0.345	0.381
<u>Rural</u>							
Java	0.336	0.294	0.308	0.312	0.302	0.291	0.302
Outer Is.	0.349	n.a.	0.333	0.313	0.313	0.306	0.313
Indonesia	0.358	n.a.	0.341	0.357	0.318	0.310	0.338

Notes: a) November 1964 - February 1965.
b) September - October 1967.
c) October 1969 - April 1970.
d) January - April 1970.
e) January - April 1976.
f) Calendar year.

Sources: All coefficients except those in the last two columns taken from Anne Booth and R.M.Sundrum, Income Distribution in Anne Booth and Peter McCawley (editors), The Indonesian Economy During the Soeharto Era, Kuala Lumpur: Oxford University Press, 1981, p.183. The coefficients for 1976 and 1978 (calendar years) are taken from Survey Sosial Ekonomi Nasional Tahap Kelima: Pengeluaran untuk Konsumsi Penduduk [Susenas Per Capita Consumption Expenditure: Fifth Round] and ibid., Sixth Round. Jakarta: Central Bureau of Statistics, VUS 79-29 and VUS 81-33.

Taken from Booth (1983, Table 2).

TABLE 1.2

Percentage of the Population Living in Poverty
in Indonesia, 1963-78

	Urban a)			Rural a)		
	Poor (480)	Very Poor (360)	Desti- tute (270)	Poor (320)	Very Poor (240)	Desti- tute (180)
<u>Java</u>						
1963 b)	91.3	80.0	61.2	94.3	80.7	64.3
1964-5 c)	87.2	71.2	47.3	81.7	68.4	50.8
1967 d)	86.7	76.1	58.5	88.0	73.4	54.1
1969 e)	72.5	52.4	34.3	74.5	57.8	38.4
1970 f)	78.2	61.4	42.8	78.9	63.7	44.7
1976 g)	49.7	33.0	18.1	77.0	60.3	40.4
1978 g)	39.2	26.2	15.2	77.5	62.2	44.4
<u>Outer Islands</u>						
1964-5 c)	80.1	70.0	51.0	71.5	55.2	37.9
1969 e)	62.1	37.2	23.8	47.3	30.9	16.9
1970 f)	68.8	48.8	27.7	53.9	35.7	21.7
1976 g)	61.2	40.9	22.7	53.9	35.3	20.5
1978 g)	56.2	33.5	15.7	44.2	26.3	13.7

Notes:

- a) Figures in brackets refer to the poverty lines (in kg rice per capita per annum). The rice equivalents were converted into money terms using rice prices prevailing in the particular region in the months to which the Susenas data apply.
- b) December 1963 - January 1964.
- c) November 1964 - February 1965. Jakarta excluded.
- d) September - October 1967.
- e) October - December 1969.
- f) January - April 1970.
- g) Calendar year data.

Source: Susenas Pengeluaran untuk Konsumsi Penduduk: Tahap 1-6 [Susenas Personal Consumption Expenditure, Round 1-6]. Rice prices used to establish poverty lines were derived as follows:

1963 and 1964-5; Bank Indonesia Report, 1961-5, p.130
1967; Bank Indonesia Report, 1966-7, pp.287-8
1969, 1970, 1976, 1978; rural Java and Outer Islands prices taken from Indikator Ekonomi, various issues; urban Java prices taken from Bulog series as given in Mears (1981), p. 496.

Taken from Booth (1983, Table 7).

In a comparison of various sources of data, and using the rice equivalent measure of poverty, Booth showed (1) that there has been a strong and distinct decrease in the proportions of the destitute, very poor and poor in urban Java between 1963 and 1978 (see Table 1.2); and (2) that the category of the poor still covered more than three quarters of the total rural population in Java in 1978.

It is thus clear that serious problems of income in Indonesia still concern absolute poverty, not merely inequality.

1.3 The Agro-Economic Survey (AES)

The Agro-Economic Surveys were begun in 1966. In 1979, the AES conducted a study of two lowland and two upland villages in West Java. The main purpose of that study was to examine farm enterprises and farm institutions, but quite a lot of data on incomes were collected also. The villages were chosen to represent characteristic features of lowland and upland cultivation. The study included a lengthy questionnaire which was administered by interviewers who lived, with their AES staff member supervisor, in the village involved for about one month at the end of the harvest period, around October-November 1979.

Lowland villages such as those on the northern plains of West and Central Java are the main 'rice bowls' of Indonesia. Large areas of sawah cover these wide plains which were one of the first objects of the major irrigation rehabilitation projects (Booth, 1977, pp.33-74). It was these irrigated areas which received most attention during the governments' efforts to raise rice productivity. Transport is also much more developed in the lowland areas. Because population

density is also much greater there are also more social services, such as schools and financial institutions, in lowland areas. Upland areas, on the other hand, have only very recently had government assistance to increase productivity of dryland rice and secondary crops. Many upland areas, where irrigated sawah generally refers to small "non technical" irrigation (often rainfed), get only one rice crop a year, while in most of the "technically" irrigated lowlands, two and even three crops a year are more common. Marketing and transport in upland areas are generally less developed than in the lowland.

Per capita regional income in West Java is slightly lower than for Central or East Java, (Rp 125,275 in 1978 as compared to Rp 128,901 for Central Java and Rp 134,225 for East Java. By contrast, Jakarta has a per capita regional income of Rp 330,529, second only to East Kalimantan at Rp 393,591) (Booth, 1983, Table 1). This has surprised many observers, since West Java is generally considered to be more prosperous. Regional incomes in Java are generally lower than in the Outer Islands (Arndt, 1973, pp.87-102; Esmara, 1975, pp.41-57; Daroesman, 1972, pp.29-54). Apart from a coastal strip, about two-thirds of West Java province is mountainous.

Because of greater population density as well as far greater availability of facilities both economic and social, in the lowland areas, and because of the enormous financial assistance by the government over the past decade for rice growing areas, it is reasonable to expect that lowland village incomes would be higher than upland village incomes where these attentions and facilities have been relatively neglected. It is also to be expected that there will be

more inequality in the lowland village. It has already been shown that income levels in West Java are below the national average.

From the four villages surveyed in the 1979 AES, two have been selected for analysis in this study: Wargabinangun, a lowland coastal village near Cirebon, and Sukaambit, a highland village near the Kabupaten city of Sumedang. Details of the two villages and their characteristics are given in Table 1.3. Figure 1.1 shows the location of the sample villages of Wargabinangun and Sukaambit in West Java. Unless otherwise specified, the source of all tables and figures will be the 1979 SAE Survey.

TABLE 1.3

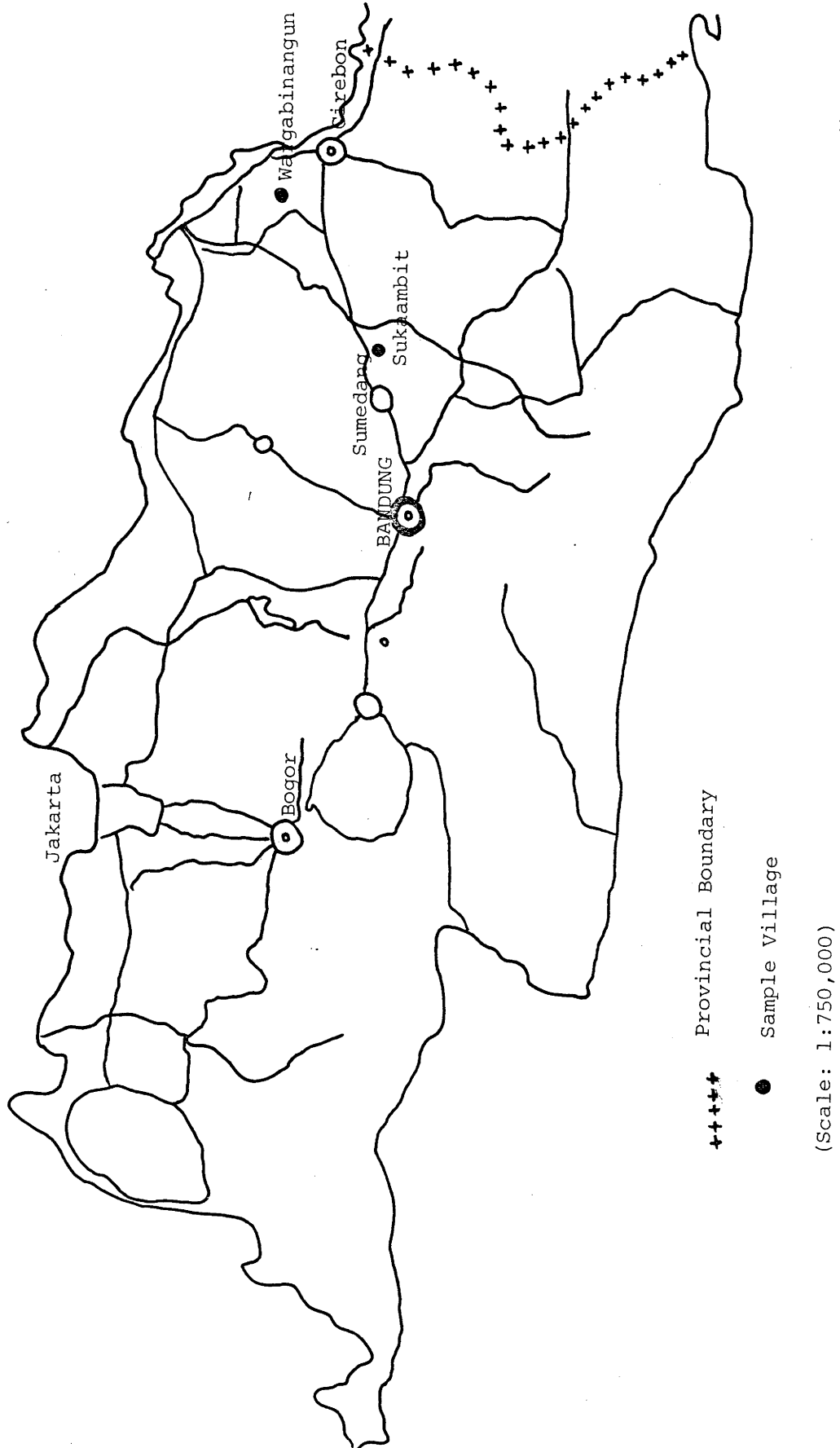
Characteristics of the Sample Villages

	Wargabinangun	Sukaambit
Sub-district	Gegesik	Situraja
District ('Kabupaten')	Cirebon	Sumedang
Total no. of Sample Popn	688	607
No. of Sample Households	136	148
Distance from District Capital	25 km	15 km
Distance from Province Capital	120 km	60 km
Distance from village to nearest city	30 km	15 km
Public Transport	no	yes
Height above sea level	10 m	350 m
Water sources		
traditional	no	yes
irrigation	yes	yes
Fertilizer Kiosk		
Public	no	no
Private	no	yes
Distance village to 'Bank Rakyat'	1 km	6 km
Distance to nearest road		
asphalt	2 km	3 km
non-asphalt	2 km	3 km

Source: a. Makali and Gunawan Wiradi (1980, p.8).

FIGURE 1.1

The Location of the Sample Villages of Wargabinangun and Sukaambit in West Java



The villages were chosen to represent two types of land, lowland and upland. In each village, one "community" was chosen; this could be either a geographical unit bounded by natural features, or where the inhabitants represented a particular group (dukuh, kampung, or block). Everyone within the chosen group was enumerated. The interviewers lived in the villages for one whole month while collecting data. This was done in November 1979.

1.4 Some Theoretical Problems in Income Distribution

Almost all writers on income distribution in Indonesia have drawn attention to problems of data (Sundrum, 1983b; Booth, 1983; King and Weldon, 1977; Hughes and Islam, 1981). In the absence of any regular statistical series on income distribution, most national income-distribution studies have been based on National Socio-Economic Surveys and Cost of Living Surveys. There have been six rounds of the National Socio-Economic Surveys (hereafter referred to as Susenas) carried out by the Central Statistical Bureau (BPS) between 1963/4 and 1978. The last three surveys (1969/70, 1976 and 1978) cover both rural and urban areas in most parts of Indonesia.

Apart from problems of data mentioned above, several important

theoretical problems of the measurement of income have been identified by Sundrum (1983b): The first is the identification of the agent receiving the income. This may be the economically active individuals, or those receiving income, whether economically active or not; or it may be the households. The household is a suitable measure in rural areas where unpaid family labour may contribute significantly to income. Second is the period of income receipt. For policy purposes, a long term-period is important, both because income levels change over the life cycle with changes in household size and age structure, and because short-term data can be greatly affected by short-term conditions affecting individuals or households. Sundrum quotes Kuznets (1975, p.390) who terms factors such as an accident or a single profitable transaction as an 'accidental' or 'random' fluctuation, while long term factors such as economic recession, land reforms, export regulations etc which affect whole communities he calls 'conjunctural' factors. Third is the identification of income; these may be (a) primary incomes including wages, profits, income from rentals; (b) secondary incomes such as transfers or (c) tertiary incomes, or the effect of subsidies, free services etc. on incomes. Identification of income is generally more difficult in LDCs than in DCs because there is less opportunity for cross checking from other statistical series. Some of the difficulties are (a) varying degrees of under-reporting of income, with the very rich being more likely to underestimate their income; (b) the 'lower degree of monetisation' (p.7) and the relatively high proportions of income received in non-monetary form in LDCs; (c) regional price disparities; (d) variations in individual or household incomes over time, even within a year, and a general lack of records and accounts. As a result, many

surveys collect information on consumption expenditure instead of incomes.

When expenditure data is used, there are still problems ".....some of the monies received by a household may not represent income and some of the expenditures may not be for consumption" (p. II.8). It has been generally found that expenditure data show higher figures than income data. Among the poor this difference may be associated with borrowing, using up savings, mortgaging etc. The measurement of expenditure is also complicated by the fact that there are both consumption and non-consumption expenditures. "Conceptually, the difference between income and consumption expenditures represents savings; the data show that there is a dissaving in the lower income groups and an increasing rate of savings as income level rises, but in practice, these figures are likely to be subject to a large margin of error" (pp. I.8-9).

Stoler (1978, pp.85-101) suggested that consumption of food grown on houseplots was generally excluded from the Socio-Economic Surveys. Socio-Economic Surveys often do not collect information on savings. When surveys are taken over a period of time, price changes affect the interpretation of data. Even when data are for the same period of time, there are often important differences in regional prices (Arndt and Sundrum, 1975, pp.30-68).

Finally, there are problems of data which arise from the design of the questionnaire, sampling procedures, training of interviewers, and in processing of data. Nyberg (1976, pp.110-1) showed that surveys taken near the fasting month obtained quite

different results from those taken in other times of year. While as Booth has pointed out a single question on incomes may be insufficient, there are also problems with very detailed complicated questions particularly those requesting considerable detail from recollections by respondents unfamiliar with the purpose of the study, without accounts and records, in a single interview covering a period of an entire year.[1]

1.5 The Objectives of the Study

The objectives of this study will be to examine the data from the two villages to see what light they can throw on the income distribution patterns under upland and lowland conditions. The original survey had as its primary purpose the collection of information on farm enterprises and rural institutions, in one lowland

[1] The questionnaire used in the field was at least 45 pages long. Only 28 pages were available in Canberra; these provided 1280 items of information. The remaining 17 pages were not available here. Only those items which had some relevance to income were coded for the computer for this study. In questionnaire design, the need to get detailed breakdowns of data has to be balanced with the need to avoid 'over-interview'. Respondents are likely to become careless about answers if a single interview goes on for hours, or to forget previous responses if it is broken up into repeated visits. Interviewers may 'speed up' the interview when respondents get tired and not notice inconsistencies.

Small errors in typing may also cause confusion such as, for example, a heading that reads 'land cultivated and owned in one year' when the following sentence requests data on the wet season (p.5); the use of the term 'and/or' may lead different respondents to provide different reference periods; the absence of an 'other' category or some means of differentiating non-reporting households from nil responses; attempts to standardise in rupiah terms payments which may have been made in kind (p.15) etc.

village and one hilly upland village in West Java. Both areas plant paddy and some other seasonal or annual crops. In this study, data from the original survey will be examined to see whether levels of income and income distribution within and between the villages can be compared, and to identify some socio-economic correlates of low and high income groups in lowland and upland villages --ownership and operation of land, ownership of assets, and extent and type of off-farm activities. In addition, an attempt will be made to assess the reliability for income distribution purposes of data derived from surveys in which the main purpose of the study was not income data.

The two small villages are not of course representative of all rural areas in Indonesia or even of West Java. However, even though we only get a small amount of information, we do hope that the result of the study will give us a better understanding of rural incomes and of factors which influence them.

1.6 Methods of Analysis

In this study, household income is defined as total real income earned by all household members, in money and in kind. In general, sources of income may be classified into farm income (crops, livestock, etc) and off-farm income (household enterprise, off-farm labour, and transfers). For some analyses, income per capita is used (total reported household income per year divided by number of household members). Households have been categorised by income groups (deciles), and by source of income.

Ahluwalia (1975, pp.3-37) looks at income distribution by

dividing the population into income groups and looking at the share of each group in total income. According to his evaluation, if the lowest 40 per cent of the population account for less than 12 per cent of total income, then inequality is high; if they account for between 12 and 17 per cent, then inequality is moderate, and if they account for more than 17 per cent of total income, then inequality is low.

Hughes and Islam cite five indices of inequality i.e., Atkinson Index, Theils' Entropy Index, L Index, Gini Coefficient and the Variance of Logarithms (Hughes and Islam, 1981, pp.46-8). The most frequently used is the Gini Coefficient.

According to Yotopoulos and Nugent,

"Two problems have handicapped the measurement of income inequality: the lack of data and ambiguities in measurement. The former problem can be attributed to the fact that priority in data collection has been given to production and input data, which may be adequate for describing the functional income distribution but which are useless for studying the personal distribution of income. Studies of family income and expenditure, which are necessary for the latter purpose, are much scarcer" (Yotopoulos and Nugent, 1977, p.239).

They also say,

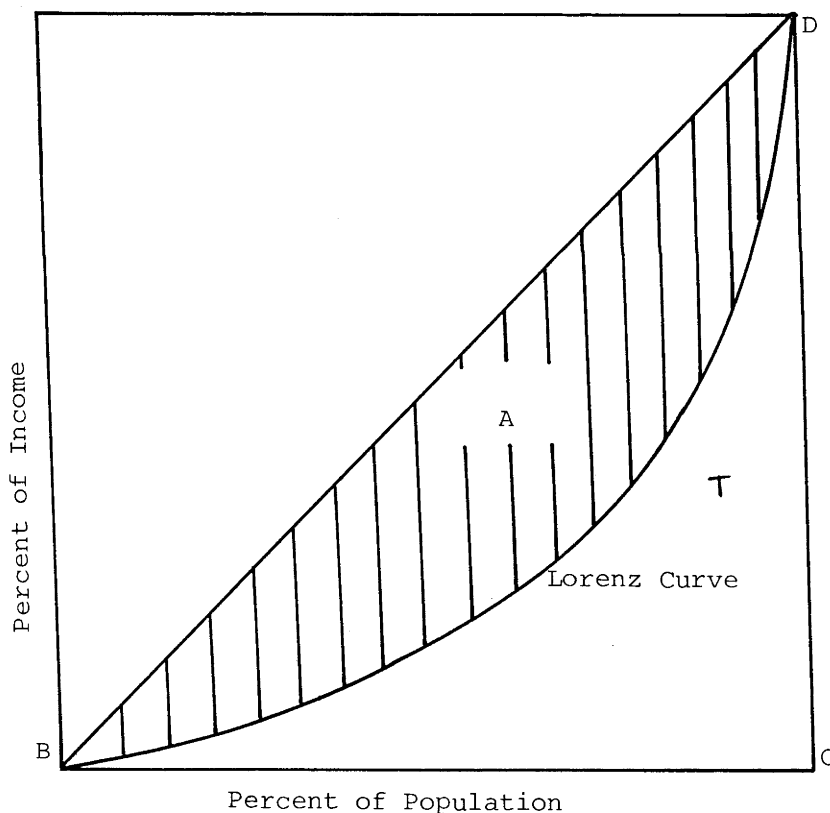
"An intuitive measure of inequality is the share of a certain percentile or decile of the population (eg., the lowest, the highest) in total income. This is especially useful if the purpose of the study of inequality is well defined with respect to a certain group of the population, for example, to improve the lot of the bottom 20 percent. For a view of inequality with respect to all income groups, the cumulative distribution of income is usually plotted as the Lorenz Curve and is described by the Gini Coefficient of Concentration" (Yotopoulos and Nugent, p.239).

An example of a Lorenz Curve is at Figure 1.2. In this figure, the degree of inequality is represented by the size of the shaded area, A, between the Lorenz Curve and the diagonal, as a proportion of the triangle, BCD. This ratio is the Gini Coefficient. If income is

distributed equally, where all points lie on the diagonal line, BD, then the area of T is zero. It means that the index of inequality is zero. On the other hand, if only one person has all income, then the income distribution curve coincides with the right angle triangle, BCD, and the index of inequality is 1.0.

FIGURE 1.2

The Lorenz Curve



In this study, we will use the Lorenz Curve and the Gini Coefficient for computing the degrees of inequality of income distribution and of land distribution for both Wargabinangun and

Sukaambit villages.

In order to measure the degree of poverty, I follow Sayogyo's method (Sayogyo, 1977), but as we will see in the next chapter, I decided to use a per capita cut-off point of Rp 30,000 (1979 values) as a 'poverty line'; this about Rp 10,000 below Sayogyo's measure.

1.7 Framework of the Study

Following this Introduction, Chapter 2 discusses the raw data on incomes, beginning with the 'recipient unit', the household, and with the definition of income as used in the AES study. Each village is treated separately throughout. This is followed by a discussion of non-reporting and under-reporting households and some specific data problems. A concept of 'plausible' incomes is developed and applied to raw data on total incomes.

Chapter 3 deals with the raw data on land ownership and cultivation, assets and households characteristics. Chapter 4 examines incomes by source from agricultural crop and animal husbandry activities and Chapter 5 examines income from households enterprises and off-farm labour, and concludes with the discussion of the concept of 'plausible' incomes. Chapter 6 concludes the study and presents some observations and recommendations on the use of income data from surveys designed for other purposes, and their suitability as a basis for policy decisions.

CHAPTER TWO

THE DATA ON INCOMES IN TWO SAMPLE VILLAGES

2.1 Households and Incomes

The unit of enquiry in the 1979 AES survey was the household, that is, those who eat from the same kitchen (Makali and Gunawan Wiradi, 1980, p.6). There may thus be several households in one dwelling, or the same family may be dispersed in several households. The data available for this study does not give information on the relationship between or among households. Although the decision to use the household as the unit of enquiry was not based on income considerations, it is the most suitable unit in rural areas because it can include some estimation of unpaid family labour.

Data was collected on incomes and not on expenditures. As noted above, incomes tend to be under-reported compared with expenditures. Incomes in this survey were collected in 32 different questionnaire items, and there was no single place in the questionnaire where these were all brought together. For crops, the income data were obtained by asking the farmer for his output, separately for the wet and for the dry season for each crop.[2] However, as the income data on treecrops, livestock, household enterprises, and off-farm labour income were requested on the questionnaire for the entire year, an attempt was made in this study

[2] As the survey was conducted at the end of the dry season, the dry season data are considered likely to be more reliable.

to add the wet and dry season crop income data to get an annual figure. To these output data, the AES interviewer imputed a farm-gate price. (Since the interviewers stayed for one month in the village, it was considered that they had appropriate sources of information for this imputation).

For livestock and poultry, incomes were obtained by asking the total income from livestock (or poultry) and adding on to that an imputed price for all animals thought to have been consumed during the year by the household (as meat). No distinction was drawn between income from hire and income from sales. For tree crops, a question was asked on total income for each separate crop for the year. For dryland crops, total output was asked and the interviewer imputed a price for each crop. There was one question for annual net income for household enterprises, another for off-farm labour, another for income from gleaning; and a final one for income from transfers.

There was no specific question on income from land rentals. There were no data on land sales nor on income received as interest on loans. There was no information on receipts from sales or pawning of personal goods or withdrawal of savings. It is possible that some or any of these items might be hidden in other income items (e.g. such transactions might have occurred in the operation of household enterprises but not be identified separately there). The income data which follow are derived from these 32 items; each main source will be discussed in more detail below.

Tables 2.1 and 2.2 and Figures 2.1 and 2.2 show distribution of the unadjusted total of all the incomes so derived for the lowland village Wargabinangun and the highland village Sukaambit. While the

two villages are remarkably similar in average total per household of all the incomes so recorded, (Rp 355,131 in Wargabinangun and Rp 332,739 in Sukaambit), there are great differences in the distribution of these incomes. It is interesting to note that in every decile except the top decile, incomes are higher in Sukaambit than in Wargabinangun. Almost half (48.88 per cent) of total recorded village income in Wargabinangun (the lowland village) was received by

TABLE 2.1

Distribution of Total Annual Income and Annual Average Incomes by Decile, Wargabinangun Village, 1979 (all households)

Decile	n	Total Income Recorded (Rp)	Cumulative Total Income Recorded (Rp)	Share (%)	Cumul. Share (%)	Average Income (Rp)
I	14	295,130	295,130	0.61	0.61	21,080
II	14	714,650	1,009,780	1.47	2.08	51,046
III	14	1,217,150	2,226,930	2.52	4.60	86,940
IV	14	1,652,250	3,879,180	3.42	8.02	118,018
V	14	2,055,995	5,935,175	4.26	12.28	146,857
VI	14	2,829,305	8,764,480	5.86	18.14	202,093
VII	13	3,580,330	12,344,810	7.41	25.55	275,410
VIII	13	4,881,330	17,226,140	10.11	35.66	375,487
IX	13	7,464,441	24,690,581	15.46	51.12	574,188
X	13	23,607,190	48,297,771	48.88	100.00	1,815,938
Total	136	48,297,771		100.00		355,131

Gini Coefficient = 0.484

the top decile of the population, while in Sukaambit (the highland village) it was less than one-third (31.43 per cent). The average income of the top decile is shown to be more than three times as large as the second top decile in Wargabinangun (and less than twice as large in Sukaambit). The greater inequality of this recorded income within the lowland village is indicated by the higher Gini Coefficient (0.484) as compared to the highland village (0.326) and by the shape of the Lorenz Curves.

TABLE 2.2

Distribution of Total Annual Household Income
and Annual Average Incomes by Decile, Sukaambit
Village, 1979 (all households)

Decile	n	Total Income Recorded (Rp)	Cumulative Total Income Recorded (Rp)	Share (%)	Cumul. Share (%)	Average Income (Rp)
I	14	855,350	855,350	1.74	1.74	61,096
II	14	1,422,184	2,277,534	2.89	4.63	101,584
III	15	2,096,828	4,374,362	4.26	8.89	139,789
IV	15	2,598,818	6,973,180	5.28	14.17	173,255
V	15	3,184,571	10,157,751	6.47	20.64	212,305
VI	15	3,908,170	14,065,921	7.94	28.58	260,545
VII	15	4,969,530	19,035,451	10.09	38.67	331,302
VIII	15	6,292,810	25,328,261	12.78	51.45	419,521
IX	15	8,430,440	33,758,701	17.12	68.57	562,029
X	15	15,486,650	49,245,351	31.43	100.00	1,032,443
Total	148	49,245,351		100.00		332,739

Gini Coefficient = 0.326

The raw data thus give a broad picture of roughly similar average household incomes in the lowland and in the upland village, but very large differences in relative shares, and much greater inequality in the lowland village. However, before this indication can be interpreted it will be necessary to look in more detail at the components of the data.

2.1.1 Non-reporting households

The very low incomes recorded in the lowest decile in Wargabinangun are partly caused by the fact that two households reported no income whatever. (Every household in Sukaambit reported some income, though some incomes were very small). There are several possible explanations for non-reporting of income. First, the household may in fact be part of a larger household and be supported by the other part even though according to the survey definitions they are separate households. Second, the household may have refused or been unable to give information on their incomes. And third, the household may have had some source of income not covered in the questionnaire.

It is clear that no household could exist for a year with no income at all. We therefore have to consider these zero-income households as non-reporting households rather than incomeless households. In Table 2.3 and Figure 2.3, these non-reporting households are excluded from the calculation for Wargabinangun. There is almost no difference in the Lorenz Curve after these households have been excluded, and the difference in the Gini Coefficient is very small (0.003). There is a modest difference, however, in the average incomes in the lower deciles.

FIGURE 2.1

Lorenz Curve showing Distribution of Annual Household Income among Total Sample Households in Wargabinangun, West Java, 1979

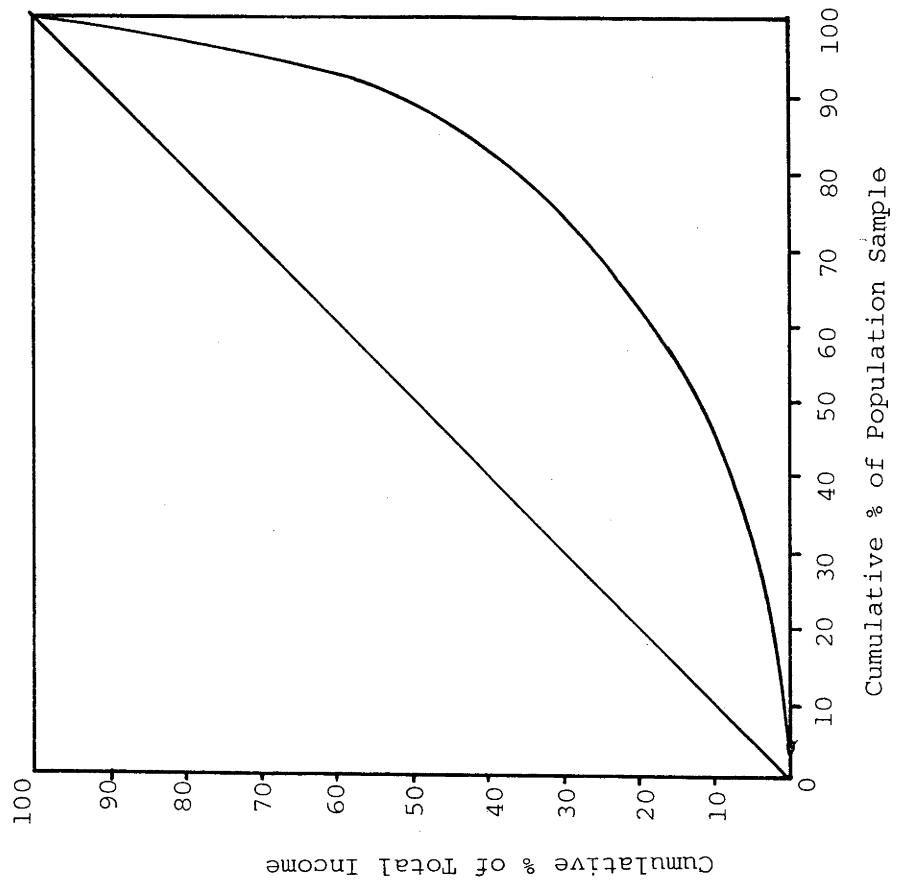


FIGURE 2.2

Lorenz Curve showing Distribution of Annual Household Income among Total Sample Households in Sukaambit, West Java, 1979

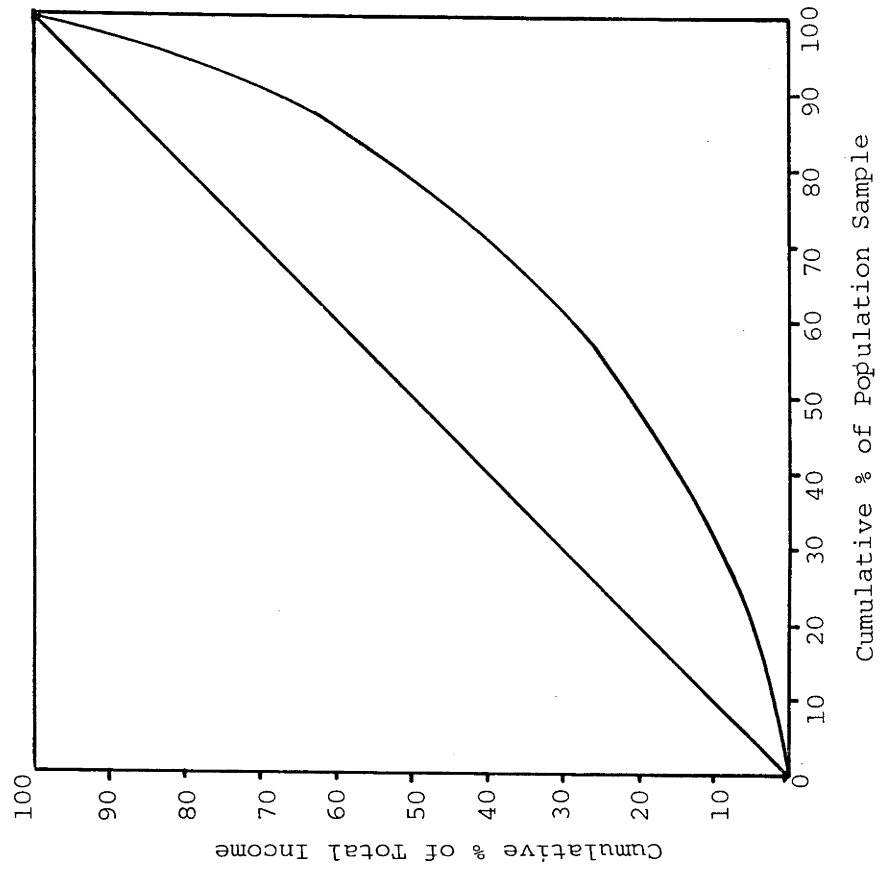


TABLE 2.3

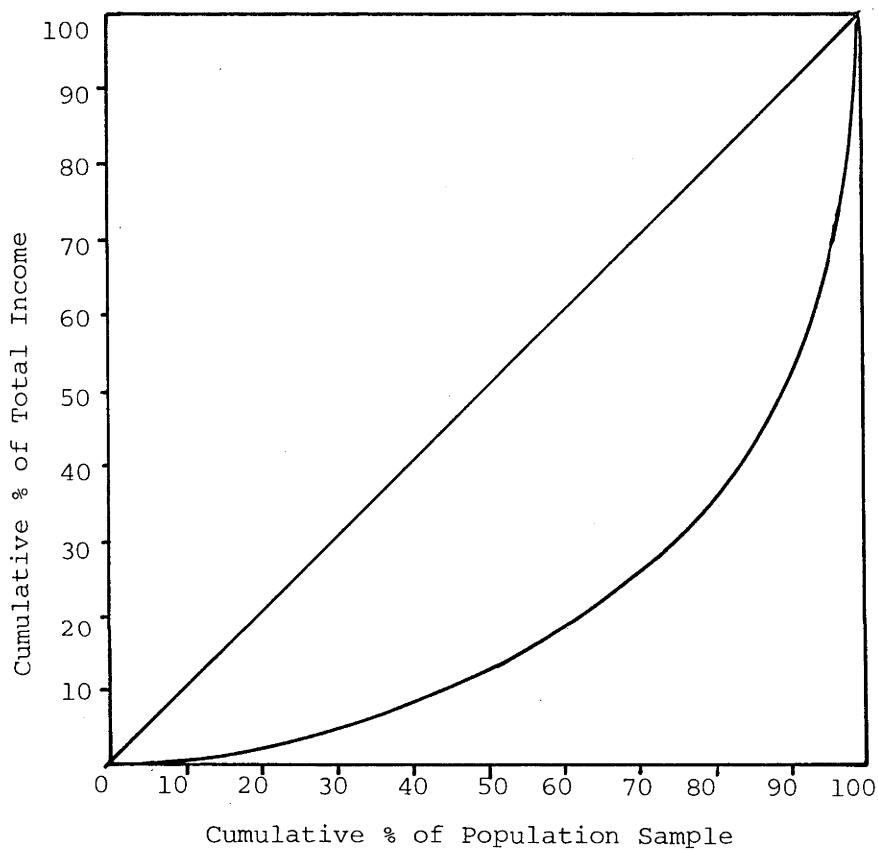
Distribution of Total Annual Household Income
and Annual Average Incomes by Decile, Wargabinangun
Village, 1979 (Reporting Households only)

Decile	n	Total Income (Rp)	Cumulative Total Income (Rp)	Share (%)	Cumul. Share (%)	Average Income (Rp)
I	14	315,180	351,180	0.73	0.73	22,513
II	14	771,050	1,122,230	1.60	2.33	55,075
III	14	1,291,400	2,413,630	2.68	5.01	92,243
IV	14	1,697,050	4,110,680	3.52	8.53	121,217
V	13	1,974,020	6,084,700	4.09	12.62	151,848
VI	13	2,651,980	8,736,680	5.49	18.11	203,998
VII	13	3,580,330	12,317,010	7.42	25.52	275,410
VIII	13	4,881,330	17,198,340	10.11	35.64	375,487
IX	13	7,464,441	24,662,781	15.46	51.10	574,188
X	13	23,607,190	48,269,971	48.90	100.00	1,815,938
Total	134	48,269,971		100.00		360,224

Gini Coefficient = 0.841

FIGURE 2.3

Lorenz Curve showing Distribution
of Annual Household Income among Reporting Sample Households only
Wargabinangun, 1979



2.1.2 Under-reporting households

In Tables 2.1 and 2.2 above, the average reported annual incomes for households in the lowest decile in Wargabinangun was only Rp 21,080 and in Sukaambit Rp 61,096. After the two non-reporting households have been excluded, average annual income in the lowest decile in Wargabinangun becomes Rp 22,513, and in the second lowest it becomes Rp 55,075. The incomes in the lowest decile are clearly not

enough to keep a person alive for a year, much less an entire household.

A few years ago, Prof. Sayogyo said that to provide the basic needs for one person to live, an income of the equivalent of 240 kg milled rice per year is required, and that any one below this level was below the 'poverty line'. In West Java in 1979, the price of milled rice in rural markets averaged about Rp 165/kg (according to the Central Bureau of Statistics in Indikator Ekonomi, December 1979). Therefore, one would have needed an income of at least Rp 39,600 (240 kg x Rp 165) per person in order to keep above the Sayogyo poverty line. As poverty and starvation are not necessarily the same things it may still be possible to keep alive with an income lower than this. I have therefore decided to use a lower cut-off point or about Rp 80 per day (equivalent to US\$ 0.15 at the i.e., Rp 30,000 per person per year exchange rate of US\$ 1 = Rp 625 in 1979). Then taking into account family size and relating it to the relevant minimum income, we find (Table 2.4 and 2.5) that 58 households in Wargabinangun (43 per cent of the total after excluding the non-reporting households) and 24 households in Sukaambit (or 16 per cent of the total) had incomes which were implausibly low. Thus in Wargabinangun, only a little over half of the households reported incomes sufficient to keep the family members alive, even though at a lower level than the Sayogyo 'poverty line', while in Sukaambit 84 per cent of the households reported incomes that were 'plausible' from this point of view.

TABLE 2.4

Household Incomes by Size of Household in Wargabinangun,
1979

Income Class	Household Size											Ttl	
	1	2	3	4	5	6	7	8	9	10	11		
No Income	1	1											2
1-29999	1		2			1	2		1				7
30000-59999	1 !	3	3	2	2	2	4						17
60000-89999	1	1 !	3	2	2	1							10
90000-119999		1	3 !	5	1	3	1						14
120000-149999	1	2	2	3 !		1	2	1		1			13
150000-179999		2		2	2 !	2	1	1					10
180000-209999		1			1		! 2						4
210000-239999	1		1		3	3		!					8
240000-269999			1	1	1				!				3
270000-299999		1			3	2				!	1		7
300000+		2	4	7	4	5	5	6	1	4 !	3		41
T o t a l	6	14	19	22	19	20	17	8	2	6	3		136

Note: Households below the broken line are 'plausible' in that their reported incomes exceed the notional starvation level. Households above the broken line are 'implausible' as they could not live on the incomes reported for them.

TABLE 2.5

Household Incomes by Size of Household in Sukaambit,
1979

Income Class	Household Size											Ttl
	1	2	3	4	5	6	7	8	9	10	11	
No Income												0
1-29999	1											1
30000-59999	1	1	3									5
60000-89999		4	3	2	2	2						13
90000-119999		1	1	3	1							6
120000-149999		5	3	4	1	2						15
150000-179999	1		3	5	1		1	1				12
180000-209999		4	1	5	1	1	1					12
210000-239999	1	3	5	1		1						11
240000-269999		1	3		1	1	2					8
270000-299999		2	3	2		9	1					9
300000+		3	11	12	7		10	4				56
T o t a l	4	24	36	34	14	16	15	5				148

Note: (as for Table 2.4).

Even where the income data are 'plausible', however, they may hide many data deficiencies when they are aggregated. When we look at the components of the income one by one, a number of other problems of measurement come to light.

2.2 Data Problems

2.2.1 Multiple sources of data

Rural households in Java usually have more than one source of income; farmers work on their own land and also hire themselves out as labourers to their neighbours. Some women work for wages as farm labourers, or as unpaid family labour and also they may be traders or make handcrafts for sale. Sometimes salaried officials are also farmers. The AES questionnaire recognised these possibilities and tried to collect data on the various sources of rural incomes.

As noted above, the income data have been assembled from 32 different items; also, as we will discuss further below, data on land cultivated or owned was assembled from 25 different items. These many sources of data can result in some double counting, particularly where data were collected separately for wet and dry seasons. The problem is particularly serious in estimating area of land owned or cultivated.

2.2.2 Double counting

As noted above, income also was collected separately for wet and dry seasons for some crops. Where area is cross classified by

crop, double counting may occur because of inter-planting. In some cases, the same incomes may have been reported twice under different headings, as where one household reported an income of Rp 222,000 from poultry and reported exactly the same amount as income from trade. On further investigation, it was found that his secondary occupation was poultry trader; it thus seems very likely that this was not two items of income, but the same income reported twice.

2.2.3 Internal inconsistencies

An example of internal inconsistency is a household where a woman is reported as a farm labourer (in response to the question about occupation), but in the income section all farm labour is reported as male, although there were no males in the household. Another case involves a very low income for a village official who operated 2.8 ha of village land and owned more than Rp 1 million worth of cattle and livestock. These inconsistencies will be discussed in more detail in the sections below.

2.2.4 Data on production and prices

These data appear to refer to dry unhusked paddy (gabah kering giling). The average yield of unhusked paddy for West Java in 1979 was 3.2 tons/ha, according to the Central Bureau of Statistics (Statistical Year Book). The range of yields reported within each village in our sample, however, was very wide, from less than 2 tons/ha to more than 25 tons/ha. The complicated system of determining total area cultivated from a number of different items in the questionnaire is probably the main cause of some implausibly high

reported yields.

Price data also vary considerably for each crop, and we have no information on how prices were imputed by the interviewer. Variations may reflect different times of year of sale (or valuation) of crops, different qualities or varieties of crop, or some local peculiarity of the market. Alternatively, some prices imputed may have been simply wrong.

Net incomes only are given for household enterprises and for incomes from livestock, but no information was available to me on how these had been calculated or imputed. For livestock, for example, it is not clear how much of the incomes are derived from rentals, how much from sales, and how much from the imputed value of items retained for own use.

Incomes from off-farm labour were requested in terms of man-days and daily wages, but appear to have been reported in some cases in these terms and in other cases as lump sums which appear to be periodic payments received weekly, monthly or even annually, but are not specified as such.

Finally, a general but important problem is that income data were collected for each household at a single interview and are thus subject to all the difficulties of recall, particularly when there are many sources of income, and when income records are seldom kept. It is very likely that as a result there will be a degree of under-reporting rather than over-reporting of incomes.

2.3 "Plausible" Incomes

In the case of total incomes, there is a measure to test 'plausibility', that is, the starvation line approach. For each of the other income sources, an attempt has been made to develop some tests of plausibility; these tests differ with each source. The lack of plausibility for any source of income may derive from

1. the fact that the survey was not designed for this purpose
2. the design of the questionnaire
3. lack of training or care of fieldworkers or their supervisors.
4. human or mechanical errors in transcribing the data.

Data problems may include problems of definition, coverage, and recall by respondents. These problems are common with income data, whether from urban or rural social surveys. When the questionnaire does not adequately cover the data required for income studies, or where it is too complex or difficult for the respondents, defects in the responses can only be corrected by improving the questionnaire. Where questions are too complex, the entire data component (e.g. land cultivation data) may be found to be implausible. Where the questionnaires are administered by incompletely trained interviewers or by interviewers who do not understand the purpose of the questionnaire and therefore are not alert to implausible responses, certain households rather than certain income components are likely to be implausible. In the case of this survey, special efforts were taken by AES to make sure that

interviewers understood village conditions (they were required to live in the village for a month) and regular meetings were arranged with their supervisors to review their data.

Errors in transcription may also be responsible for implausible responses. In this survey, the data were transcribed five times and this may have added to the number of implausible or impossible responses.[3]

Finally there is the possibility of incorrect answers by the respondent, whether deliberate or inadvertant, or from lack of recall or lack of knowledge. As Samuelson notes, even in developed countries,

"An astonishing number of wives --most particularly in the upper-income brackets-- have no close notion of their husbands' paychecks. In addition, there are some people so inept at keeping records and with such variable earnings that they do not themselves know how much they make. Even when income is known within a family, there is a quite natural reticence to reveal it to outsiders." (Samuelson, 1976, p.82).

In this thesis, an attempt will be made to determine plausibility of data by two methods. First, each income source will be tested for internal consistency to see whether it should be considered plausible in total; and second, each household will be examined to see whether its data is plausible. Exclusion of some major sources of income because of implausibility may make distribution patterns very unreliable; while exclusion of certain households may make analysis of village income unreliable.

[3] Not all of the data on the original questionnaires were available in Canberra. The coding sheets brought here included perhaps no more than a half to two-thirds of all the data collected.

The absence of data from some income sources and the high degree of implausibility in the reported income sources (42 per cent in one village and 16 per cent in another) make it quite clear that income data from this farm institution survey are not suitable for an income distribution survey, and that any conclusions drawn on the distribution of 'total' income within or between villages are very inadequately based. It may however, be that data for particular sources of incomes may be more consistent, plausible and complete. Before turning to an examination of each source of income, however, it will be useful to look at the distribution of land and other assets in the two villages, and at the size of households since all these factors influence income levels and distribution.

CHAPTER THREE

LAND, ASSETS AND HOUSEHOLD CHARACTERISTICS

3.1 Raw Data on Land Area

3.1.1 Sawah Owned

In the AES survey, owned land is divided into three land types: sawah or irrigated rice fields; tegalan or unirrigated dry fields; and pekarangan or house gardens. Data were collected separately for wet and dry seasons. For sawah, data on land planted twice and land planted once were separately recorded. Table 3.1 shows that there were ten different measures each for land owned and for land cultivated.

In order to determine just how much land each household owns, it was necessary to compare sawah planted twice and sawah planted once (K with L and P with Q in Table 3.1) to determine whether there was double counting, and we also had to compare the area of sawah owned (K with P and L with Q) in each season. We know by personal communication from the interviewers that the Agro-Economic Survey considered data for the dry season more reliable than data for the wet season because the interviews took place at the end of the dry season and the period of recollection by the respondent was thus much shorter than for the wet season of the previous year.

TABLE 3.1

Sources of Data in Questionnaire on
Land Cultivated and Owned

I. Land Cultivated	Wet Season	Dry Season
Sawah Cropped 2x	A	F
Sawah Cropped 1x	B	G
Dry Land (fields)	C	H
Dry Land (housegardens)	D	I
Ponds	E	J
II. Land Owned		
Sawah Cropped 2x	K	P
Sawah Cropped 1x	L	Q
Dry Land (fields)	M	R
Dry Land (housegardens)	N	S
Ponds	O	T
III. Total Area Planted		
To rice on sawah, wet and dry	U	
Secondary Crop I on sawah		V
Secondary Crop II on sawah		W
Secondary Crop I on dry land		X
Secondary Crop II on dry land		Y

In Wargabinangun, five crops in two years is said to be common according to personal communications from the interviewers. In the questionnaire, however, all 36 households who owned sawah (26 per cent of total sample) reported two crops in the wet season and two crops in the dry season, which would come to eight crops in two years. This strongly suggests that there must be some element of double counting when data for wet and dry seasons are added. A comparison of the area of sawah owned in wet and dry seasons showed a high percentage (31 out of 36 households) who reported exactly the same area owned in the wet and in the dry seasons. We therefore suspect

that K and P in the Table 3.1 may represent the same area of sawah for most households and may be in effect reported twice. Since no farmer reported area for either variable L or Q in Wargabinangun, we select variable P alone to represent area of sawah owned for each household in Wargabinangun.

In Sukaambit, many households are also said to get five crops in two years according to personal communication from the interviewers. 92 households, or 62 per cent of the total sample, reported owning sawah in Sukaambit. 91 households reported that their owned sawah was cultivated twice in the wet and twice in the dry season. Of these reporting households, 77 or 85 per cent, reported the same area for wet and dry seasons (see Table 3.2). This also suggest some double counting.

A comparison of households in Sukaambit planting paddy twice and once (variables K with L or P with Q) showed very few farms with the same area reported. In Sukaambit, these areas may therefore represent different plots and can therefore be added. For Sukaambit, therefore, we have used the sum of P and Q as a measure of land owned.[4]

[4] The fact that variables K/L and P/Q show different areas does not of itself make the data more correct or reliable of course. In general, however, data from Sukaambit showed far fewer internal inconsistencies than the data for Wargabinangun and other reports on the village (e.g. Makali) indicate that land is fragmented. We therefore decided to assume for these tables that the data are additive.

TABLE 3.2

Numbers of Households Owning Sawah

	Wargabinangun (Variable P)	Sukaambit (Variables P and Q)
<u>Wet Season</u>		
Planted 2x	36	92
Planted 1x	0	27
<u>Dry Season</u>		
Planted 2x	36	91
Planted 1x	0	32

3.1.2 Tegalan

For dryland fields, 6 households in Wargabinangun reported that they owned tegalan in the wet and 4 households reported owning tegalan in the dry season. For the latter, the areas reported by the household for the two seasons were either the same or very nearly the same. In Sukaambit, 79 households reported ownership of dry land fields in the wet and 76 in the dry season. Of these, 68 reported the same area in both seasons. For dryland fields, we therefore selected the dry season data, or variable R in both villages.

3.1.3 Pekarangan

For household gardens, or pekarangan, the only comparison which can be made is that between wet and dry seasons. 63 households

in Wargabinangun reported owning housegardens in the wet season and 63 in the dry season. Of these, 46 reported the same area for both seasons, and the remainder show only small differences. It seems reasonable therefore not to add these, but to accept the dry season figure as the area of pekarangan owned.

Similarly in Sukaambit, 109 households reported pekarangan owned in the wet and 104 households in the dry season. Of these, 98 reported the same area in both seasons. For both villages we have therefore selected variable S as a measure of house garden area owned.

3.2 Distribution of Land Owned

Adding all these three land types together, we find that in Wargabinangun there are 76 households which own land, and in Sukaambit 115 (Table 3.3).

TABLE 3.3

Numbers of Households Owning Land
by Size of Holding

Class (ha)	Wargabinangun (n=136)	Sukaambit (n=148)
Own no Land	60	33
0.001-0.050	37	12
0.051-0.100	3	11
0.101-0.150	11	10
0.151-0.200	3	9
0.201-0.300	2	22
0.301-0.400	4	15
0.401-0.500	2	8
0.501-0.600	4	5
0.601-1.000	6	20
1.000-5.000	9	3
5.000-10.000	3	0
10.000+	2	0
T o t a l	136	148

Over 70 per cent of the land holders in the lowland village Wargabinangun own less than 0.2 ha per household, while in Sukaambit only about 36 per cent have such small holdings. Very large holdings (up to 15 ha) are also found in Wargabinangun while in Sukaambit no one in the sample area owned over 5 ha.

The distribution of total land owned by deciles is given in Tables 3.4 and 3.5 for all households, and for land owning households, in Wargabinangun and Sukaambit.

TABLE 3.4

Distribution of Land Ownership by Deciles,
Wargabinangun

Decile	Land Owning Households (n=76)				All Households (n=136)			
	Area Owned (ha)	Cumul. Area (ha)	Share of Total (%)	Average (ha)	Area Owned (ha)	Cumul. Area (ha)	Share of Total (%)	Average (ha)
I	0.053	0.053	0.0007	0.008	0	0	0	0
II	0.098	0.151	0.001	0.014	0	0	0	0
III	0.134	0.285	0.002	0.019	0	0	0	0
IV	0.150	0.435	0.002	0.021	0	0	0	0
V	0.256	0.691	0.003	0.032	0.091	0.091	0.100	0.007
VI	0.862	1.553	1.000	0.108	0.257	0.348	0.300	0.018
VII	2.830	4.383	4.000	0.354	0.385	0.733	0.600	0.030
VIII	5.047	9.430	6.000	0.631	2.733	3.466	3.400	0.210
IX	10.743	20.173	13.000	1.343	8.964	12.430	11.300	0.690
X	59.159	79.314	75.000	7.395	66.902	79.332	84.300	5.146
Ttal	79.314		100.000	1.044	79.332		100.000	0.584

Gini Coefficient = 0.718 Gini Coefficient = 0.757

TABLE 3.5

Distribution of Land Ownership by Deciles,
Sukaambit

Decile	Land Owning Households (n=115)				All Households (n=148)				
	Area Owned (ha)	Cumul. Area (ha)	Share of Area (%)	Average (ha)	Area Owned (ha)	Cumul. Area (ha)	Share of Area (%)	Average (ha)	
I	0.243	0.243	0.006	0.022	0	0	0	0	
II	0.834	1.077	2.000	0.076	0	0	0	0	
III	1.392	2.469	3.000	0.127	0.194	0.194	0.400	0.013	
IV	1.974	4.443	5.000	0.179	1.196	1.390	2.900	0.000	
V	2.576	7.019	6.000	0.234	2.276	3.666	5.600	0.152	
VI	3.510	10.529	9.000	0.293	3.353	7.019	8.200	0.224	
VII	4.045	14.574	10.000	0.337	4.457	11.476	10.900	0.297	
VIII	5.763	20.337	14.000	0.480	5.732	17.208	14.000	0.382	
IX	8.431	28.768	21.000	0.703	9.280	26.488	22.700	0.619	
X	12.102	40.870	30.000	1.009	14.382	40.870	35.200	0.959	
Total	40.870		100.000	0.346	40.870		100.000	0.275	
Gini Coefficient = 0.376				Gini Coefficient = 0.471					

The total area owned by the households of Wargabinangun is almost twice that owned by Sukaambit, although the number of households owning land in Wargabinangun is only two-thirds of that in Sukaambit. The range of holdings in Wargabinangun is far greater, from 0.005 to 15.4 ha, while in Sukaambit the range is from 0.004 to 1.9 ha. Some reasons for this have been described by Makali and Gunawan Wiradi (1980).[5]

[5] In the 1960s, one land owner held more than 28 ha in Wargabinangun. After Land Reform some of this was redistributed to landless families, but subsequently much of it was reclaimed by family of the previous owner (Makali, 1980, p.70).

Table 3.4 shows that the first five deciles in Wargabinangun together own only 0.009 per cent of total land owned by this village, while the top decile owns 75 per cent. The inequality in Sukaambit is considerably less than in Wargabinangun. In Sukaambit, the bottom five deciles own just over 16 per cent of total village land, while the top decile owns nearly twice that proportion at 30 per cent (Table 3.5). The Lorenz Curves and Gini Coefficients representing these distributions in Figures 3.1 and 3.2 show how great is the inequality among deciles, particularly in Wargabinangun. Figures 3.3 and 3.4 show an even greater inequality when all households, (rather than just land-owning households) are included.

FIGURE 3.1

Lorenz Curve showing Distribution of
Total Land Owned by Deciles, Wargabinangun
(Land Owning Households only)

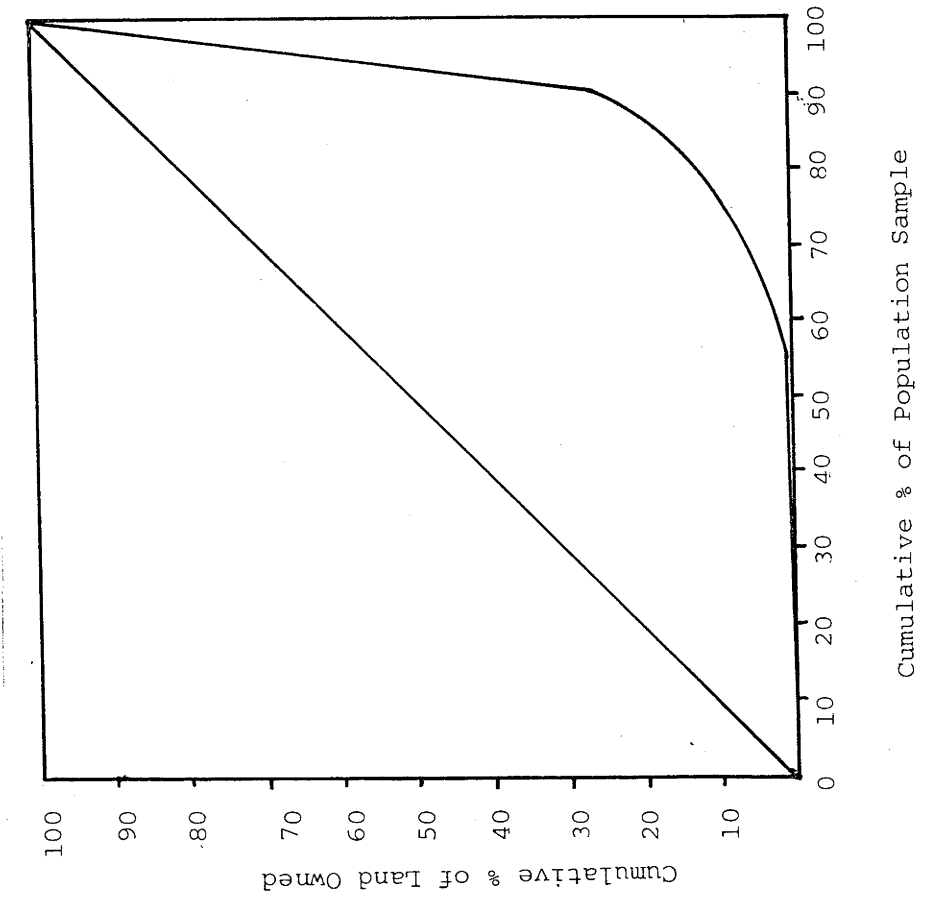


FIGURE 3.2

Lorenz Curve showing Distribution of
Total Land Owned by Deciles, Sukaambit
(Land Owning Households only)

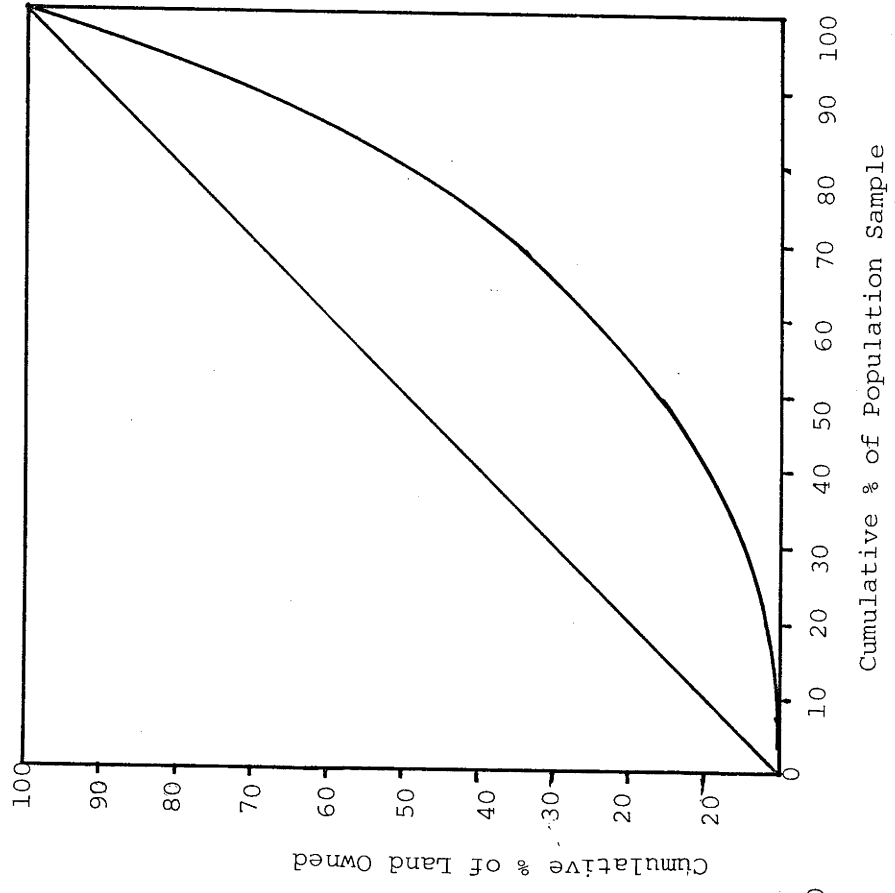


FIGURE 3.3

Lorenz Curve showing Distribution of
Total Land Owned by Deciles, Wargabinangun
(All Households)

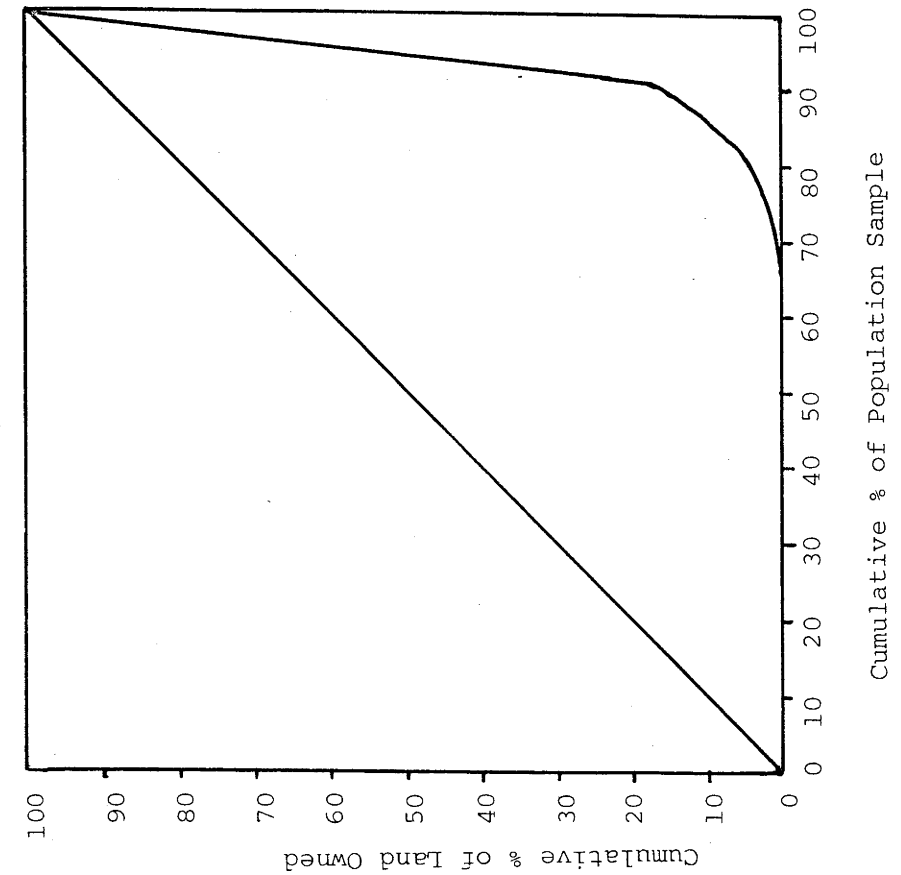
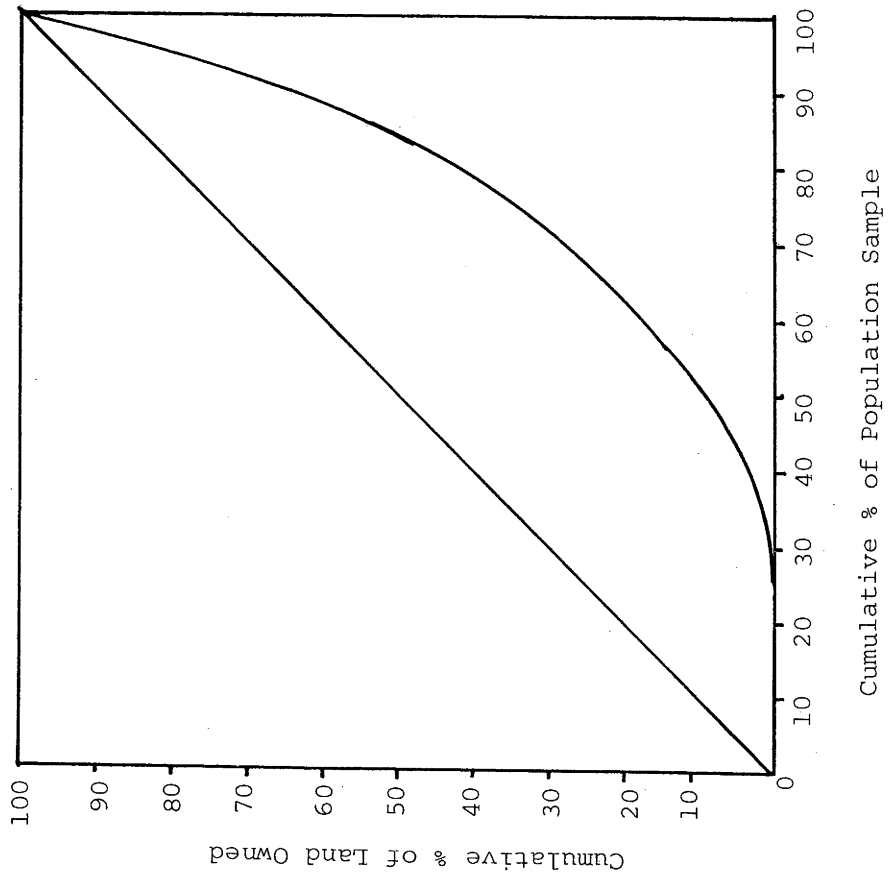


FIGURE 3.4

Lorenz Curve showing Distribution of
Total Land Owned by Deciles, Sukaambit
(All Households)



3.3 Land Cultivated

Because ownership of land is so unequally distributed, it would be useful to look at area of land cultivated by each household since this also may affect household income.

Unlike the data for land owned, there was little or no consistency between area reported to be cultivated in the wet and the dry season, or between that double cropped and single cropped. Because the ways of holding land are known to be very complicated it is quite possible that the area of land cultivated by one household may differ quite substantially from season to season. While the dry season data are considered to be more reliable, there were still many inconsistencies between measures F and G (Table 3.1) for both villages. It is also not possible to add measure U to V, W, X and Y, since V and W may refer to the same area as U (or to part of it); because of inter-cropping V is probably not additive to W.

Therefore, while it would be very interesting to look at the relationship between land cultivated and income, these data cannot support any conclusions. In Table 3.6, we show the distribution of sawah cultivated according to measure U. From a comparison of Table 3.6 with Table 3.3 (total area owned) it would appear that there are more households in Sukaambit cultivating plots of 0.6 ha and over than there are owning such plots; 23 households own more than 0.6 ha, while only five report that they cultivate that much sawah. This will of course be due partly to the fact that many holdings in Sukaambit are dry land, not sawah. It is more difficult to explain why 53 households in Wargabinangun own plots of 0.150 or less (all in sawah since no dry land plots were reported there) but only two households

cultivate sawah plots of that size. These differences may be due to quite normal practices of renting-in and renting-out, or to sharecropping or other practices, but the difficulty of reconciling the various measures of area cultivated tends to cast doubt on any one of the measures available.

TABLE 3.6

Distribution of Households
according to Area of Sawah Cultivated
(measure U)

<u>Sawah</u> Class (ha)	Village	
	Wargabinangun	Sukaambit
N o n e	66	32
0.001-0.050	0	7
0.051-0.100	1	25
0.101-0.150	1	25
0.151-0.200	11	14
0.201-0.300	4	20
0.301-0.400	16	10
0.401-0.500	6	8
0.501-0.600	1	2
0.601+	30	5
Total	136	148

Area cultivated for other crops seems even less reliable since some dry season crops are grown on sawah, and some are inter-cropped on dry land. In general, area cultivated when collected in relation to specific crops, involves so many possibilities of double counting or under counting because of intercropping that it does not seem profitable to spend more effort here on trying to reconcile the figures on area cultivated or to choose the most

suitable among them. The problem will be taken up again below in reference to individual crops.

3.4 Land Ownership and Household Income

Table 3.7 compares the distribution by deciles of households in the two villages between reported aggregate incomes per household and total land owned. Land ownership in both villages is far more unequally distributed than aggregate incomes reported, and far more unequally distributed in Wargabinangun than in Sukaambit. Figures 3.5 and 3.6 shows the same data in a more dramatic manner in the Lorenz Curves and in the Gini Coefficients.

TABLE 3.7

Distribution of Shares of Aggregate Reported
Income and Land Owned, by deciles
(in percentage)

Decile	Wargabinangun		Sukaambit	
	Income (n=136)	Land Owned (n=76)	Income (n=148)	Land Owned (n=115)
I	0.004 a)	0.0007	1.6	0.006
II	0.010	0.0010	2.7	2.000
III	1.800	0.0020	4.0	3.000
IV	2.700	0.0020	4.8	5.000
V	3.400	0.0030	6.3	6.000
VI	5.500	1.0000	7.9	9.000
VII	6.900	4.0000	10.0	10.000
VIII	10.000	6.0000	12.9	14.000
IX	16.100	13.0000	17.2	21.000
X	52.200	75.0000	32.4	30.000
Total	100.000	100.0000	100.0	100.000

Note: a) includes the two households reporting no income.

FIGURE 3.5

Lorenz Curve showing Distribution of Income and Total Land Owned by Deciles, Wargabinangun (Reporting Households only)

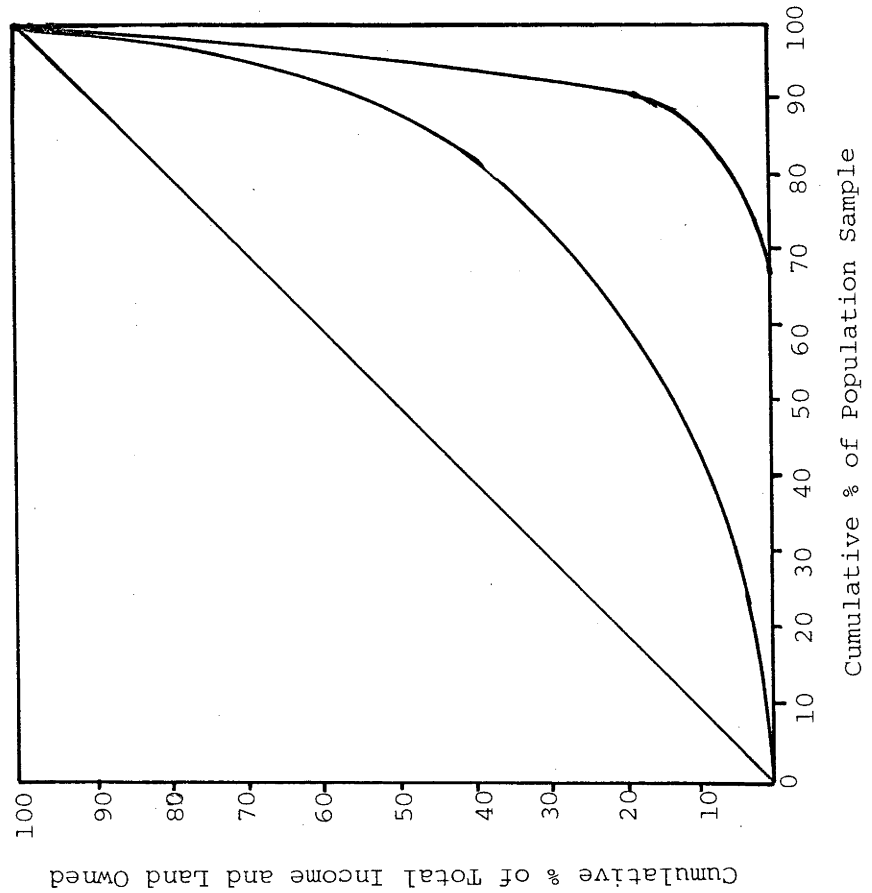
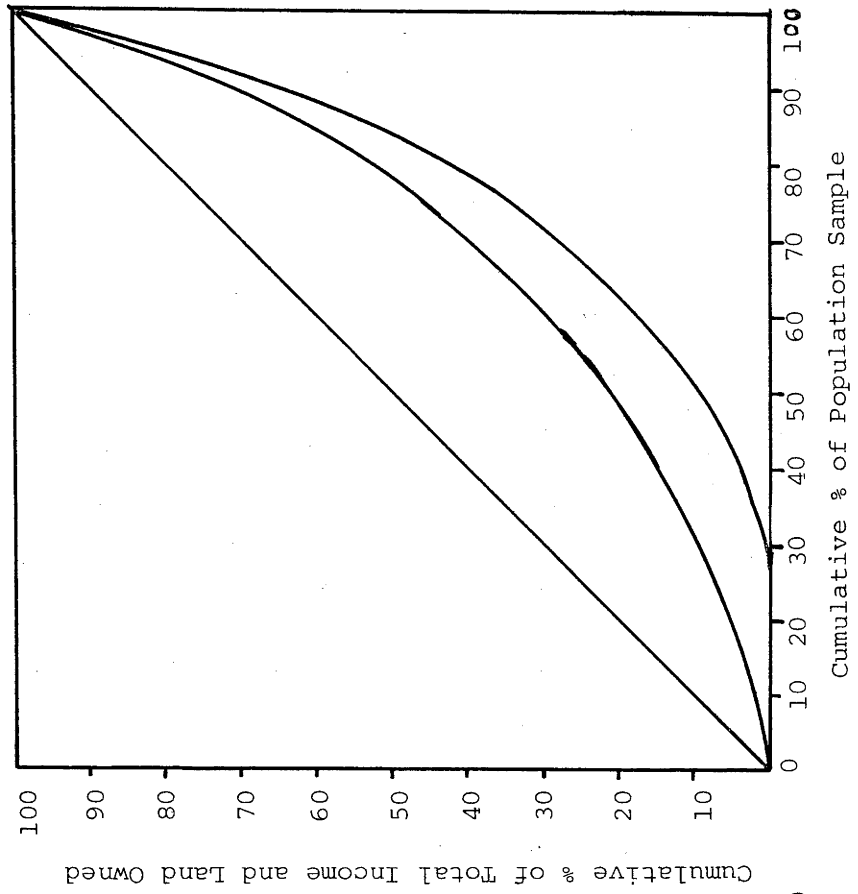


FIGURE 3.6

Lorenz Curve showing Distribution of Income and Total Land Owned by Deciles, Sukaambit (Reporting Households only)



3.5 Household Size

The distribution of households by size is given in Table 3.8, separately for total and for 'plausible' households. Average household size in Wargabinangun is over twice that of Sukaambit for all households. Makali (1980, p.12) pointed out that the dependency ratio (defined as the proportion of those of non-working age to those of working age) is much higher in Wargabinangun at 0.96 compared to 0.62 in Sukaambit. Not only are households larger, he says, but the number of children under the age of 10 is much greater in Wargabinangun. The larger household size and the larger number of economically active persons per household is undoubtedly one reason for the lower incomes in Wargabinangun among the lower deciles as shown in Tables 2.1 and 2.2, particularly as we see that it is the lower income households which are lost when we exclude the implausible households (Table. 3.9). The distribution of plausible households is much more regular.

TABLE 3.8

Percentage Distribution of Households
by Household Size, (Total and 'Plausible')

Household Size	Wargabinangun		Sukaambit	
	Total %	Plausible %	Total %	Plausible %
1	4	5	3	3
2-3	24	27	45	44
4-5	30	34	32	31
6-7	27	16	21	21
8-9	7	9	3	3
10+	7	7	-	-
Total	100	100	100	100
Aver. Size	9.0	4.8	4.1	3.9

TABLE 3.9

Households by Total Income and Household Size

Income Group (Rp000)	Household Size											
	Wargabinangun						Sukaambit					
	1	2-3	4-5	6-7	8-9	10+	1	2-3	4-5	6-7	8-9	10+
All Households (n=136)												
No Income	1	1	-	-	-	-	-	-	-	-	-	-
1-50	1	7	2	8	1	-	1	2	-	-	-	-
50-100	2	5	10	3	-	-	1	9	7	2	-	-
100-200	1	11	10	10	2	1	1	17	16	3	1	-
200-500	1	7	12	11	3	3	1	28	16	15	-	-
500+	-	2	7	5	4	5	-	4	9	11	4	-
Plausible Households (n=73)						Plausible Households (n=112)						
50-100	2	1	-	-	-	-	1	3	-	-	-	-
100-200	1	11	8	-	-	-	1	16	12	-	-	-
200-500	1	6	11	8	3	-	1	16	15	12	-	-
500+	-	2	6	4	4	5	-	4	7	11	3	-

3.6 Educational Levels

It has widely been found that there is a clear link between higher educational levels and higher incomes (Psacharopoulos, 1973, p.85). To examine this relationship in the two sample villages, we looked both at the education of the head of household, and at a more general educational level for the entire households. The educational level of the head of households, if he is also the chief wage earner can be expected to determine the household income level to some extent. In rural areas where educational facilities were scarce in the past, however, the potential if not the actual income level may also be determined by the educational levels of other members of the household. A household educational index was thus constructed in which the educational levels were given weights for each member of the family; these were summed to give the educational weight of the household. Table 3.10 shows the distribution of income by the educational level of the head of household; and Table 3.11 gives the households income by income class and status of employed members.

TABLE 3.10

The Distribution of Reported Annual Household
Income by Educational Level of
the head of Households

Income Class (Rp000)	Wargabinangun				Sukaambit			
	A	B	C	D	A	B	C	D
All Households (n=136)					All Households (n=148)			
Under 50	13	7	1	0	0	2	1	0
50-100	9	9	2	0	3	7	9	0
100-200	18	14	3	0	5	14	19	0
200-500	17	14	3	3	4	16	35	5
500+	5	14	3	1	2	2	9	15
Av.(Rp)	216129	316379	327083	450000	276786	238415	425472	650000
Plausible Households (n=73)					Plausible Households (n=112)			
Under 50	0	0	0	0	0	0	0	0
50-100	2	1	0	0	0	2	2	0
100-200	11	8	1	0	4	10	15	0
200-500	15	10	3	2	4	14	31	5
500+	3	13	3	1	2	2	6	15
Av.(Rp)	300000	453906	492857	483333	350000	287500	328704	650000

Notes: A : No School

B : Incomplete Primary

C : Complete Primary

D : Complete High School to Higher Education.

3.7 Employment and Income

In this section, we look at the relationship between employment and income. Data on employment in the questionnaire were available from a series of items requested from each person in the household on his 'occupation' (jenis pekerjaan) and occupational status, separately for first and second 'jobs' which were ranked by the amount of time spent at each (The actual amounts of time spent at each job were not reported.) The 'employed' thus include farmers working their own land (or rented or sharecropped land) labourers and

employees. It is not clear to what extent unpaid family labour was included, although it clearly was in some cases. Occupational categories were general and vague, and no distinction was made between landless agricultural labourers, factory or other employees, and civil servants.

In Sukaambit, there were only 15 households which reported a single 'occupation' that is, who did not have either two distinct sources of income or two or more income earners (or both) in the households. In Wargabinangun, there were 26 such households (10 per cent and 20 per cent, respectively). In Table 3.11, the categories 'self-employed' and 'employee' therefore include both single and multiple earners in any household. The 'mixed' category refers to households where (1) a single earner has different employment status in two jobs or (2) there are two or more workers each with different employment status. In Wargabinangun, the 'employee' category is heavily concentrated in the lower income groups, while in Sukaambit, most of the 'employees' are found in the higher income groups.

The numbers of persons employed per household is shown in Table 3.12. In Sukaambit, 78 per cent households reported two or more wage earners ('employed') while in Wargabinangun, there were only 62 per cent of households reporting two or more wage earners. We know from other data (Makali, 1981, p. 12) that Wargabinangun households are over twice as large (average size 9.0) as those in Sukaambit (average size 3.9), that there are very many more children aged under 10 in Wargabinangun and thus a much higher dependency ratio (0.96) as compared to Sukaambit (0.62).

TABLE 3.11

Numbers of Households by Income Class
and Status of Employed Members

Wargabinangun

Income Class (Rp000)	Self- Employed	Employee	Mixed	Non- Reporting	Total
----------------------------	-------------------	----------	-------	-------------------	-------

Under 50	1	17	7	4	29
50-100	4	9	12	6	31
100-200	7	4	12	1	24
200-500	7	6	17	1	31
500+	11	1	9	0	21

Total	30	37	57	12	136
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Sukaambit

Under 50	1	2	2	1	6
50-100	8	1	9	0	18
100-200	14	2	19	4	39
200-500	24	8	15	4	51
500+	9	9	16	0	34

Total	56	22	61	9	148
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TABLE 3.12

Percentage Distribution of Households
by Income Group and Number
Households Members 'Employed'

Income Class (Rp000)	No. of Households Members 'Employed'											
	Wargabinangun (n=136)						Sukaambit (n=148)					
	0	1	2	3	4	5	0	1	2	3	4	5
Under 50	0	9	8	1	0	0	0	2	2	0	0	0
50-100	0	8	7	1	1	1	0	4	10	4	0	0
100-200	0	11	14	7	1	0	0	4	22	7	2	0
200-500	0	16	11	8	2	0	0	10	36	8	2	2
500+	0	8	9	3	2	1	0	12	10	4	2	0
Total	0	52	49	20	6	2	0	32	81	23	6	2
'Plausible' Households n= 73						n=112						
Under 50	0	0	0	0	0	0	0	0	0	0	0	0
50-100	0	2	1	0	0	0	0	2	2	0	0	0
100-200	0	5	9	1	0	0	0	4	18	4	1	0
200-500	0	14	9	5	2	0	0	10	31	8	2	2
500+	0	7	8	2	2	1	0	11	9	4	1	0
Total	0	31	27	8	4	1	0	27	60	16	4	2

In Sukaambit, well over half the households report two wage earners ('employed') while in Wargabinangun, there are more households reporting a single earner. Among 'plausible' households, the distribution is much more regular than among total households, especially in Wargabinangun. Roughly 20 per cent of all households in Wargabinangun report three or more earners.

3.8 Summary

The discussion above has shown that, using raw aggregate

data, there appear to be very much greater inequalities in land owned than in reported incomes, and the inequalities in both incomes and land appear to be greater in the lowland than in the upland village. The uncertainties in the data, both for income, and for area owned or cultivated, are such that it is not possible to put much confidence in either measure. One of the main reasons for this is the fact that the income data were of secondary importance to the survey.

In the following two chapters, each source of income covered in the questionnaire will be examined separately in regard to the household and to the village as a whole. So far as possible, each income component will be assessed for reliability.

CHAPTER FOUR

HOUSEHOLD INCOMES FROM CROPS AND ANIMAL HUSBANDRY

4.1 Incomes from Paddy

Gross income from paddy was obtained from the questionnaire where it had been calculated by multiplying total output in kg, as reported by the respondent, by an imputed price determined by the interviewer, separately for wet and for dry seasons. Table 4.1 shows the distribution of reported incomes from paddy for both seasons and Table 4.2 shows the proportion of total reported household income derived from paddy. The latter indicates that 60 per cent of the households in the lowland village and 22 per cent of those in the upland reported no income from paddy during the year, and only very small numbers reported that they received all their income from paddy.

In order to test the plausibility of reported incomes from paddy, we should examine area, prices and yields. A comparison of Table 4.1 with Table 3.6 shows that in Wargabinangun, 21 households who cultivated sawah reported that they received no income from paddy. If there had been a flood or some other disaster affecting these households, both area and income data could be acceptable, but no such information was available and we must assume that there was either

TABLE 4.1

The Distribution of Reported Incomes
from Paddy for both Seasons

Income Class	Wargabinangun			Sukaambit		
	Wet	Dry	Both	Wet	Dry	Both
0	89	69	68	36	44	33
1- 29,999	4	5	3	31	43	13
30,000-49,999	10	24	9	25	23	20
50,000-69,999	6	6	7	21	22	17
70,000-99,999	9	10	12	17	9	18
100,000-149,999	3	9	13	14	5	27
150,000-199,999	4	3	5	2	1	10
200,000-499,999	7	7	10	2	1	9
500,000-999,999	2	3	6	0	0	1
1 m. +	2	0	3	0	0	0
T o t a l	136	136	136	148	148	148

TABLE 4.2
Households by the Proportion of Total Income
Reported derived from Paddy

Percentage of Total Inc. de- riving from paddy Cultiv.	Wargabinangun		Sukaambit	
	No. HH	% of HH	No. HH	% of HH
100	6	4	1	1
90-99	7	5	5	3
80-89	8	6	11	7
70-79	8	6	9	6
60-69	6	4	7	5
50-59	4	3	11	7
1-50	16	12	71	49
Nil	81	60	33	22
Total	136	100	148	100

non-reporting of paddy income, or double-counting of area, or both. Another possibility, that sawah was planted to other crops, was not proven. We cannot thus test the reliability of paddy incomes by consistency with area planted. The data in Table 4.3 are therefore given as an example of the kind of analysis that would be useful if their reliability for this purpose were stronger. The weakness of the data is illustrated by the fact that two households with areas between 0.2 and 1.0 ha cultivated reported no income at all, and that within a single size class (1.0 to 2.0 ha) there are wide variations in paddy incomes. The data are particularly weak in Wargabinangun, with the top incomes in some size categories as much as ten times the lowest).

TABLE 4.3

Household Distribution by Reported Annual
Income from Paddy and Paddy Area Planted,
1979 (in ha)

<u>Wargabinangun</u>									
Paddy Income Class (Rp)	Paddy Area Planted (Measure "U")								Ttl
	None	0.001- 0.070	0.071- 0.100	0.101- 0.200	0.201- 0.400	0.401- 1.000	1.000- 2.000	2.000- over	
None	66	0	0	0	1	1	0	0	68
1-29999	0	0	0	2	0	0	1	0	3
30-49999	0	1	0	2	2	2	1	1	9
50-69999	0	0	0	2	4	1	0	0	7
70-99999	0	0	0	5	3	4	0	0	12
100-149999	0	0	0	1	8	3	0	1	13
150-199999	0	0	0	0	1	3	0	1	5
200-499999	0	0	0	0	1	9	0	0	10
500-999999	0	0	0	0	0	1	3	2	6
1 m.-over	0	0	0	0	0	0	0	3	3
T o t a l	66	1	0	12	20	24	5	8	136

Sukaambit

Paddy Income Class	Paddy Area Planted (Measure "U")								Ttl
	None	0.001- 0.070	0.071- 0.100	0.101- 0.200	0.201- 0.400	0.401- 1.000	1.000- 2.000	2.000- over	
None	29	1	0	2	0	1	0	0	33
1-29999	2	8	2	1	0	0	0	0	13
30-49999	0	7	8	4	2	0	0	0	21
50-69999	0	3	2	9	2	1	0	0	17
70-99999	1	0	0	10	5	1	0	0	17
100-149999	0	1	0	11	11	4	0	0	27
150-199999	0	0	0	1	6	3	0	0	10
200-499999	0	0	0	1	4	4	0	0	9
500-999999	0	0	0	0	0	0	1	0	1
1 m.-over	0	0	0	0	0	0	0	0	0
T o t a l	32	20	12	39	30	14	1	0	148

We also compared incomes from paddy production with area of sawah owned. Here the most noticeable thing is that 39 households (28 per cent of the total) in Wargabinangun reported income from paddy though they reported no ownership of sawah. These may be sharecroppers and renters-in. Among those reporting ownership of 0.6 ha or more of sawah, however, there were six households which reported no income from paddy whatever. In Sukaambit, only 2 households in the largest size class reported no income from paddy, while 25 reported income from paddy but owned no sawah. One is forced to conclude that there is no clear relationship between area of sawah owned and incomes reported from paddy.[6]

[6] A regression of income from paddy on area of paddy owned gave an R-square of 0.61 for Wargabinangun and of 0.36 for Sukaambit. A scattergram showed a high cluster of points around the origin, arising from the fact that there were many zero X points which did not correspond to zero Y points. There was not enough variation in either X or Y to give an idea of a regression relationship, so that even where the R-square was shown to be high, the regression had no meaning.

TABLE 4.4

Distribution of Households
by Income from Paddy and sawah owned
(dry season only)

Income Class	Area of Sawah Owned					Total
	0	0.001- 0.100	0.101- 0.299	0.300- 0.599	0.600- over	
<u>Wargabinangun</u>						
0	60	0	0	3	6	69
1-50000	20	1	3	5	0	29
50001-100000	8	0	1	3	4	16
100001-150000	6	0	0	0	3	9
150001+	5	0	0	0	7	13
Total	99	1	4	11	20	136
<u>Sukaambit</u>						
0	26	10	4	2	2	44
1-50000	17	15	31	3	0	66
50001-100000	7	1	15	8	1	32
100001-150000	1	0	1	2	0	4
150001+	0	0	0	1	1	2
Total	51	26	53	16	4	148

Yields of paddy are an important determinant of incomes from paddy. It would be interesting to know whether farmers getting the highest yields are those with the largest incomes as has often been suggested by critics of the 'green revolution'. An attempt was therefore made to look at the relationship between yields and incomes.

Yields of paddy are normally calculated per harvest. When given per season they should indicate the number of harvests involved. Since all the sample farmers in both villages reported two crops in

the wet and two crops in the dry season, there are several alternatives we can take in analysing these figures. First, we can adjust the raw data to make it more plausible i.e., we can assume the farmer was wrong and that he in fact got 3 crops a year, and change the figures downward. This seems unacceptable, particularly since there is no way to ensure that such an 'adjustment' would be valid. Secondly, we may take the data at face value as reported, i.e, four crops a year. In view of what we are told of the cropping patterns, this seems implausible and is also rejected. Thirdly, we can use data for one season only and assume that two crops per season is plausible and that the data for the other season is less reliable. This is somewhat more valid since we are told by the interviewers that the dry season data on the whole are more reliable. Tables 4.5 gives the yield estimates for each season and per crop. For comparison Table 4.6 shows what happens to the distributions when the reported four crops one year are used. It is important to emphasize that these tables are included only to show the affect of aggregation. When the very important questions of definition and inconsistencies are ignored, the average yields (with the significant exception of the yield per crop in Wargabinangun) all fall within somewhat more plausible looking ranges.

TABLE 4.5

Distribution of Households by Yields of Paddy,
Wet Season and Dry Season, 1979

Yields Class (Tons/ha)	Wargabinangun		Sukaambit	
	Wet	Dry	Wet	Dry
Under 2	8	28	8	38
2 - 3	13	22	23	19
3 - 4	14	10	40	22
4 - 5	7	5	35	15
5 - 6	3	2	4	4
6 +	1	0	1	4
Total Household	46	67	111	102
<u>Average yield (in tons) per household</u>				
Seasonal	3.12	2.26	3.90	2.71
Crop	11.60	1.13	1.95	1.35

Even so, the ranges given in Table 4.6 imply that, at the bottom end, at least one farmer obtained only 0.12 tons/ha per crop while at the other end of the range there were farmers getting over 6 tons/ha on four crops a year. Crop losses may have accounted for the bottom end of the range, but the top end implies yields (and crops) as high as or higher than the most advanced rice-growing countries.

TABLE 4.6

Annual Paddy Yields (4 Crops per Year)

Yields (in tons)	Village	
	Warga- binangun	Suka- ambit
Under 2	5	0
2-3	5	7
3-4	10	7
4-5	10	21
5-6	11	19
6-7	12	15
7-8	3	15
8-9	4	14
9-10	2	5
10+	4	9
Total Households	66	112
<u>Average Yield</u>		
Four crops	6.9	6.6
One crop	1.7	1.6
R a n g e	0.480-11.2	2.4-25.00

Another interesting question about yields would be to see whether they are higher for small or for large holdings. Although for reasons already given, we judge the area data unreliable and hence the yields also, Table 4.7 is included as an example of the kind of analyses which would give useful information if the data were more reliable. The lack of data on the length of the season and the possibility of non-rice crops being planted on sawah, added to the data problems above, indicate that no reliable conclusions can be drawn on the relationships between yields and incomes from paddy.

TABLE 4.7

Area Cultivated and Yield per ha

Village	Area (ha)	No.	Average Area	Aver. Yield	
				'Annual'	Per Crop
W	Largest ten farms	14	3.643	4.833	1.208
	Smallest ten farms	13	0.163	6.768	1.692
S	Largest ten farms	15	0.536	5.084	1.271
	Smallest ten farms	20	0.054	8.911	2.228

Note : Applied measure "U"

4.1.1 Prices

Prices for paddy are another determinant of incomes from paddy. Interviewers say that the imputed prices, which vary considerably, were determined by local conditions, such as the time of year the crop was sold. Table 4.8 gives the ranges prices imputed in the questionnaire by season, and the average.

TABLE 4.8

Paddy Prices in Wargabinangun and Sukaambit, 1979

	Wargabinangun		Sukaambit	
	Range (Rp/kg)	Average (Rp/kg)	Range (Rp/kg)	Average (Rp/kg)
Wet Season	50-80	64.5	80-110	84.8
Dry Season	50-140	72.7	80-120	91.7

These prices may be compared with prices reported in the Central Statistical Bureau publication Indikator Ekonomi, which show that in the months of January-December 1979, prices in rural markets of Java ranged from Rp 98.57 to Rp 107.28 per kg, while in the months of October-November, the range was from Rp 101.64 to Rp 106.22 per kg. While time of year is an important factor in prices, the farm gate prices reported in the AES Survey show a much wider variation than the Indikator Ekonomi series, particularly in the dry season and particularly in Wargabinangun. Interviewers say that all rice in both villages was HYV so that the range of nearly three times between the highest and the lowest seems excessive. Without more explanation on the imputed prices and reasons for the wide differences, it is considered that the data do not support any further analysis of relationships between paddy prices and incomes from paddy.

The test for reliability of paddy income data strongly suggest that they are not to be relied upon because of difficulties associated with the manner in which the data were derived.

4.2 Paddy Production

While it has been demonstrated that rupiah incomes from paddy are not reliable because of (among other things) the large and unexplained price variations, figures of paddy production may be more reliable, especially for the dry season. Table 4.9 shows the distribution of households according to the amount of paddy produced in the dry season in the two villages. A number of points must be made, however. For Wargabinangun, there appears to be little or no relation between output of paddy and the amount of sawah owned; as

noted above, it is not possible to relate production to area cultivated. I have made the assumption in this table that the farmer's response about the total production in the recent dry season is more likely to be correct than his responses concerning the crops per season ---though this is not necessarily a correct assumption, it seems reasonable.

TABLE 4.9

Dry Season Paddy Production

Production (kg)	No. of Households	
	Wargabinangun	Sukaambit
None	71	46
1- 99	-	6
100-199	-	14
200-299	2	15
300-399	-	15
400-499	9	12
500-599	4	8
600-699	9	12
700-899	8	7
900-1299	8	8
1300-1999	14	4
2000-2999	2	-
3000-3999	3	-
4000-4999	1	1
5000+	5	-
Total	136	148

Closer examination, however, reveals a number of circumstances which throw some doubt even on these data, especially for Wargabinangun. First, there was a strong tendency for production to be reported in round figures ---for example, all those reporting production in the

600-699 kg category actually reported exactly 600 kg, in the 400-499 category all but one reported 480 kg etc.

It would be interesting to know the amount of paddy produced in one year in each of the villages ---this could tell us whether, for example, either village was a net importer or net exporter of rice. The wet season data on paddy production appear to be very weak, however. First, only 47 households reported production data for the wet season (as compare to 65 for the dry season) in Wargabinangun. In Sukaambit, 112 households reported wet season production, or 10 more than reported for the dry season. This again appears to be a reporting characteristic rather than an absence of production in the wet season in Wargabinangun. Secondly, a comparison of wet and dry season production data in Wargabinangun shows that about 30 per cent of reporting households gave exactly the same figures for wet as for dry seasons which leads us to suspect that there is some double counting, arising perhaps from farmers misunderstanding the question. Again there was less such double counting in Sukaambit ---where only about 16 per cent of the farmers reported exactly the same production for both seasons. Thirdly, there are a number of unexplained anomalies between dry and wet season figures, especially for the larger farmers whose reported production greatly affects the total. Thus in Wargabinangun, the largest landowner (11.2 ha) reported a wet season crop of 81,000 kg and a dry season crop of 1,000 kg ---this single figure accounted for 40 per cent of the total wet season production. The second largest farmer (7.0 ha) reported no production for the wet season but 11,500 kg from the dry season.

If the data had been more reliable, it would have been

interesting to compare annual production between each village. The reported data show the following distribution of production for total village and for per capita for each season.

TABLE 4.10

Paddy Production by Season and
per Capita Production, Milled Rice Equivalent

	Total Paddy Production (kg)	Population	Per Capita Production	
			Paddy (kg)	Milled Rice Equivalent (kg)
<u>Wargabinangun</u>				
Dry season	106,833	688	155	93
Wet season	198,127		288	173
Both seasons	304,960		443	265
<u>Sukaambit</u>				
Dry season	52,741	607	87	52
Wet season	82,386		136	82
Both seasons	135,127		223	134

If we could assume that the dry season data are reliable, we could conclude that per capita production in Wargabinangun is nearly twice that of Sukaambit. If we go a step further and assume that the wet season production data are also reliable, then we could conclude that Wargabinangun produces enough rice each year to keep its population above the Sayogyo poverty line, though there is no evidence about how this production is distributed. As we have seen, however, the wet season data are quite doubtful especially for Wargabinangun, and it would be very difficult to say whether actual production would

have been higher or lower than reported. In Sukaambit, the data are more consistent and show fewer anomalies and it seems likely that data collection there was more carefully done. If the data are correct, it would mean that Sukaambit village would be a net importer of rice since it would produce much less than the minimum consumption figure set by Sayogyo for rural areas of 240 kg per person. As we will see below, other data on Sukaambit are consistent with this view.

4.3 Secondary Non-rice Crops (Palawija)

Palawija, or secondary (non-rice) crops generally refer to vegetables (such as onions, chillies, beans), maize, cassava, or pulses grown on sawah land during the dry season. It may also refer to the same crops grown on unirrigated dry land plots (tegalan) throughout the year. Interplanting of two or more crops is common, a fact which often makes estimates of yields difficult, not only in this survey.

The survey collected data on palawija in four separate places in the questionnaire: for two different crops planted on sawah during the dry season and for two different crops planted on dry land plots (tegalan) during the entire year (or variables V, W, X and Y in Table 2.6). Area planted and total production in kg was requested for each crop. The income figure was derived by multiplying production in kg as reported by the respondent by an imputed price determined by the interviewer.

The range of incomes from palawija crops was wide, from Rp

7,500 to Rp 824,000 a year in Wargabinangun and from Rp 100 to Rp 110,000 in Sukaambit. Palawija incomes were reported for far more households in Sukaambit (82) than in Wargabinangun (17), but reported incomes from palawija were both greater in value and in proportion to total income (5.6 per cent) in Wargabinangun than in Sukaambit (2.7 per cent). Probably this was because of the kinds of crops raised on sawah, which tend to be high-value low-volume crops such as chillies. In Sukaambit there was a mix of high-volume low-value crops such as cassava, sweet potatoes and maize with only a few high value crops: one of these was upland paddy (padi huma) which is not strictly a palawija crop, but was included in the original data as one. Table 4.11 shows the range of incomes from palawija.

TABLE 4.11

Reported Annual Incomes from Palawija

Income from Palawija (in Rp)	Wargabinangun n=17	Sukaambit n=82
< 10000	3	45
10000-49999	5	31
50000-99999	4	5
100000+	5	1
Total Households	17	82

The incomes in Table 4.11 represent totals of all crops both on sawah and on dry land fields. An attempt was made to estimate yields but this proved very uncertain for several reasons. First, a comparison of area planted to palawija on sawah and to paddy on sawah

indicated that the palawija crop appeared to be a fifth crop (in addition to 2 crops in the wet and 2 crops in the dry season reported for paddy) on the same sawah. This seems unlikely. Second, it was impossible to tell whether or which crops had been interplanted. An attempt was made to separate out income from palawija on dry land and compare it to dry land area planted to that crop, but this ran into difficulties of double counting where farmers reported, for example, 0.175 ha dryland planted to crop 1 and 0.175 ha planted to crop 2; there is no clear indication of whether the farmer operated 0.175 or 0.350 ha of land.

Similarly analyses of prices were inconclusive because there was no indication of what was being priced, the product before drying, shelling or processing, or after. Since there were fairly substantial differences in prices within one village, for single products which might have been due either to processing, time of year or quality of product, further efforts to analyse prices were not undertaken.

Reported annual palawija income to total annual household incomes is shown in Table 4.12 to see whether incomes from palawija are mainly associated with the higher total income categories. In so far as the data can be relied upon, they appear to show that in Wargabinangun, the lowland village, income from palawija is a feature of the higher income categories. In upland village, Sukaambit, palawija income is more evenly spread among the income classes.

TABLE 4.12

Household Distribution by Income
from Palawija and Total Income

Total Incomes (Rp000)	Income from Palawija (Rp000)							
	Wargabinangun n=17				Sukaambit n=82			
	<10	10-50	50-100	100+	<10	10-50	50-100	100+
Under 10	0	0	0	0	0	0	0	0
10- 25	0	0	0	0	0	0	0	0
25- 50	0	0	0	0	1	0	0	0
50- 75	0	0	0	0	5	1	0	0
75-100	0	0	0	0	5	2	0	0
100-150	0	2	0	0	6	6	0	0
150-200	0	1	1	0	8	2	1	1
200-500	2	2	1	0	19	12	3	0
500+	1	1	1	5	3	6	1	0

It would be interesting to study the relationships between incomes from palawija and individual crops grown but because of the way the data were entered into the coding sheets this was impossible.

4.4 Treecrops

Treecrops are an important source of income in the upland village where over half (65 per cent) of the households report such income and where income from treecrops represents 6 per cent of total reported village income. In Wargabinangun, only 29 households (21 per cent) reported income from treecrops, and this accounted for less than 1 per cent of reported total village income. Because no area data for treecrops were collected in the questionnaire and because of the way the production (kg) data were coded, it has not been possible

to make any yield analyses nor to identify particular crops. No data on prices were collected.

Treecrops are, in any case, probably inter-cropped with other crops, or planted on bunds in the sawah, or on houseplots. This distribution of incomes from treecrops is crosstabulated with total reported income in Table 4.13.

TABLE 4.13

Household Distribution by Reported Incomes
from Treecrops and Total Reported Income

Total Incomes (Rp000)	Incomes from Treecrops (Rp000)							
	Wargabinangun n=29				Sukaambit n=82			
	1-10	10-50	50-100	100+	1-10	10-50	50-100	100+
< 10	0	0	0	0	0	0	0	0
10- 25	0	0	0	0	0	0	0	0
25- 50	2	1	0	0	0	0	0	0
50- 75	2	0	0	0	4	0	0	0
75-100	0	0	0	0	1	3	0	0
100-150	3	1	0	0	1	3	1	1
150-200	2	0	0	0	5	7	2	0
200-500	8	2	0	0	7	17	12	4
500+	4	3	0	1	3	8	1	2

As for palawija, it appears that income from treecrops is largely an auxiliary income source for those in the higher income brackets. In one case at least, it appears to be almost the main source.

4.5 Livestock

Data on livestock was obtained in the survey by two sets of questions, first on numbers owned and their values, and second on total net incomes from livestock, --each separately for small and large livestock over the period of a year. Analysis of ownership and value data is complicated by several factors: first, there is no distinction between cows and buffalo in the coded data, nor between sheep and goats; secondly, numbers owned are given for the year so where there have been sales of stock during the year it is not clear whether these have been included in numbers owned or not; thirdly, we have no information on how the valuations were arrived at. The income data are also subject to some problems: it is not possible to cross-check income from livestock with numbers or values of animals owned because (a) it is not clear whether income includes or excludes rentals as well as sales, nor whether sale of products (meat, hides, manure) are included as well as sales of live animals; and (b) while the net figure for income from livestock is given, we have no data (on the coding sheets) on how this was derived from the gross figure; (c) livestock, particularly cattle are also kept under different sharing schemes; though these data were said to have been collected in the interview, they were not available on the coding sheets. Thus a farmer may have had only a part interest in an animal and in any income it produced. The income data on livestock therefore differ from income data from other sources such as paddy and palawija where they represent gross income, while livestock income is given in net.

It is important to keep these points in mind when looking at Table 4.14, which shows reported income from livestock by numbers

owned, and illustrates some of the difficulties encountered. In Wargabinangun, only 3 households reported ownership of 5, 6 and 7 large animals respectively, while incomes received from large livestock (the same 3 households, but not necessarily the same animals) ranged from Rp 22,500 to Rp 200,000, or by nearly 1000 per cent. In Sukaambit, on the other hand, six households owned large livestock and the income range was 333 per cent between highest and lowest.

Small livestock ownership was reported for Wargabinangun but no households reported income from small livestock; only 22 small animals were reported, reflecting perhaps the difficulty of grazing land in intensively cultivated lowland areas. Small livestock was far more numerous in Sukaambit. Two households there reported income from small livestock but owned none; these may refer to livestock sold during the year.

In an attempt to test plausibility of reported incomes from livestock, an arbitrary limit of twice the value of current stock was set on the assumption that it was unlikely for a farmer to have sold, say, 8-10 times the value of current stock in the single year previous to the interview. For small livestock, this worked out at Rp 11,000 per animal in Wargabinangun and Rp 14,000 in Sukaambit. For large livestock, average value of current stock in Wargabinangun was Rp 113,000 and in Sukaambit Rp 128,000. By this test, incomes in general appeared plausible. Even where no stock was currently held, incomes

TABLE 4.14

Incomes from Livestock by the Numbers Owned

Income from Large Live- stock	Numbers of Large Livestock held						
	0	1	2	3	5	6	7
<u>Wargabinangun</u>							
No inc. report	129	2	0	1	0	0	1
22,500	0	0	0	0	1	0	0
31,400	0	0	0	0	0	1	0
200,000	0	0	0	0	0	0	1
<u>Sukaambit</u>							
No inc. report	121	11	5	4	0	0	0
34,500	0	0	1	0	0	0	0
35,000	0	0	1	0	0	0	0
40,000	0	0	1	0	0	0	0
47,730	0	1	0	0	0	0	0
50,000	1	0	0	0	0	0	0
90,000	0	1	0	0	0	0	0
150,000	0	1	0	0	0	0	0
<u>Income from Small Livestock</u>							
Income from Small Live- stock	Numbers of Small Livestock held						
	0	1-2	3-4	5-6	7-12	13-15	
<u>Wargabinangun</u>							
No Inc. Reported	113	7	6	5	3	1	
<u>Sukaambit</u>							
No Inc. Reported	76	32	24	5	1	1	
3,200	1	0	0	0	0	0	
5,000	0	1	0	0	0	0	
25,000	0	1	0	0	0	0	
30,000	0	1	0	0	0	0	
35,000	1	0	0	0	0	0	
40,000	0	0	1	0	0	0	
60,000	0	0	0	1	0	0	
100,000	0	0	0	0	1	0	

from livestock in the previous year represented no more than 2 times the average price per animal of either large or small livestock.

Reported income from livestock was a very small proportion of total reported village income, less than 1 percent in Wargabinangun and just over 1 percent in Sukaambit. The numbers of households owning livestock was small, and the numbers obtaining income from it even smaller. Table 3.14 shows the degree to which these households reported that they depended on livestock. Only 2 households received more than half their total reported incomes from livestock.

4.6 Poultry

Data on poultry were requested in terms of numbers and value of poultry owned in one part of the questionnaire, and in terms of total net value of income from poultry during the year in another part. Values of current stock ranged from Rp 150 to Rp 2,500 per animal (no distinction was made between types of poultry), with averages around Rp 850.

Income from poultry was reported only in Wargabinangun; while some farmers in Sukaambit owned poultry, none of them reported any income from this source. This is suggestive of under-reporting of household consumption of their own poultry products, even if now were sold. In Wargabinangun, 31 households had neither poultry nor income from poultry, 66 had poultry but no income from poultry, and 6 had incomes from poultry but owned none (Table 4.15). Three households reported very high incomes from poultry (over Rp 200,000) in the previous year, but at the time of interview owned fewer than 20. At

an average price of Rp 850, they would have had to have sold about 235 hens (or ducks) in the previous year. The farmer with the highest income from poultry owned only one hen valued at Rp 500. Such an obvious case can be identified quite easily as being implausible (unless it was income from trading in poultry), but whether another farmer with 12 chickens had sold 200 in the previous year is less easy to say. It is just possible, but not very likely, that all chicken farmers in Wargabinangun village had sold out their stocks completely in the previous year, while Sukaambit farmers did not sell even one.

Total reported income from poultry accounted for about 8 percent of total reported Wargabinangun income and of course nil in Sukaambit. Of Wargabinangun households owning poultry, a full one-third reported that they received more than half of their total income from poultry, and over 10 percent of households received more than 90 percent of their incomes from poultry (Table 4.16).

TABLE 4.15

Distribution of Households by Reported Income from
Poultry and Numbers of Poultry Owned

Income From Poultry (Rp)	Numbers of Poultry Owned							To- tal
	None	10 and under	11-20	21-30	31-40	41-70	70+	
<u>Wargabinangun</u>								
No income	31	59	6	0	0	1	0	97
1 -9999	1	1	2	0	0	0	0	4
10000- 49999	1	1	3	0	0	1	1	7
50000- 99999	1	2	4	2	0	1	1	11
100000- 199999	2	6	1	1	1	1	1	13
200000 and over	1	2	1	0	0	0	0	4
Total	37	71	17	3	1	4	3	136
<u>Sukaambit</u>								
No income	41	100	5	1	0	1	0	148

TABLE 4.16
 Percentage Distribution of Households
 by Proportion of Total Income derived from Poultry

Percent of Total Income derived from Poultry	Wargabinangun	Sukaambit
	(n=39)	(n=0)
Under 10	15	0
10 - 20	15	0
21 - 50	33	0
51 - 90	26	0
91 -100	10	0

For poultry, there is no single measure of plausibility. In an effort to determine plausibility of incomes from poultry, a limit of an income of five times that of current value of poultry owned was set according to the average value we found of Rp 850 per hen. Incomes up to five times the value of poultry owned at the time of the interview were accepted as plausible and incomes above that were classified as implausible. According to this measure, 20 percent of households in Wargabinangun with income from poultry had implausible levels of income from this source.

The total absence of income from poultry in Sukaambit must be due to different interview procedure. Even if no hens had been sold, if values had been imputed for hens or eggs consumed as food, as they presumably were in Wargabinangun, it seems very unlikely that no household in Sukaambit consumed any poultry products during the year. Sukaambit is therefore considered a non-reporting, rather than an incomeless village in regard to poultry sales or consumption. Income

from poultry sources is thus generally considered implausible.

Although poultry income need not be associated very closely either with area owned or total income, both of these relationships were examined. Current government policy is to limit chicken farming to small farmers and there was a regulation recently that no farmer should have more than 500 chickens (Daroeman, 1981, p. 32). It would be therefore useful to see whether poultry ownership and income occurs mainly among the poorer smaller farms or among the larger better-off farms.

Keeping in mind the weakness of the area data and the incompleteness of the income data, it was found that in Wargabinangun only one farmer with an income from poultry had a holding of larger than 0.15 ha, and almost all farmers with poultry incomes were in the smallest farm-size classification (less than 0.050 ha). Poultry thus seems to be an income source important to the small farmer. In terms of the relationship between income from poultry and total reported income, Table 4.17 indicates that high incomes from poultry are associated with high total incomes, a somewhat different picture than that of numbers of poultry and area owned.

TABLE 4.17

Distribution of Households by Income from Poultry and Total Reported Income, Wargabinangun

Total Reported Income (Rp000)	Income from Poultry (Rp000)					Total
	Under 10	10-50	50-90	100-199	200+	
Under 50	2	1	0	0	0	3
50 - 99	1	2	0	0	0	3
100 -149	1	0	2	2	0	5
150 -199	0	0	3	2	0	5
200 -499	0	3	3	7	1	14
500 +	0	1	3	2	2	2
Total	4	7	11	13	3	32

4.7 N g a s a k

Ngasak is a term which means gleaning the fields after harvest. It is not a large source of income in either village. Only seven households in Wargabinangun reported income from this source, and in Sukaambit only four households. In both villages, however, there were very wide variations in incomes reported from this source, from Rp 350 to Rp 510,000 in Wargabinangun, and from Rp 42,000 to Rp 424,000 in Sukaambit. In the two top cases, the income from this source represented 100 percent of all income for that household. In one of these cases, the head of household was a religious teacher who owned 1.14 ha land which he rented out. It may be therefore that

level of income is correct but that it was incorrectly entered under income from gleaning rather than as sharecropping or rental (for which there were no categories in the questionnaire), or the right to glean over large areas of the village may have been given in lieu of wages or some other source of income.

In the other household the occupation of the household head was given as becak driver; again the income level may have been possible but the source incorrectly entered. However, since more than half the households have circumstances which make these incomes look implausible, and because the upper half to two thirds of the income levels appear impossibly high for this kind of economic activity, ngasak income is considered implausible.

As it accounts for only about 1.5 percent of reported village income, its exclusion will not greatly affect overall incomes; where it is important in individual incomes, it appears to be caused by some reporting anomaly.

CHAPTER FIVE

INCOME FROM HOUSEHOLD ENTERPRISES AND OFF-FARM LABOUR

5.1 Household Enterprises

Data on household enterprises comes from a single item in the questionnaire, recording the nature of the enterprise separately for up to three enterprises per household, and net income for each enterprise. As was the case with livestock and poultry, data is given only for net income in the modified questionnaire without details of gross income and expenditures. The definition of household enterprise suggested in the questionnaire itself included trade, brokerage, rental of land or equipment, handcrafts. There is some double counting in this category as is clear from the case of the poultry-trader; there may also be similar cases of double counting in livestock income or paddy income or income from off-farm labour (There are two cases of the household enterprise being reported as "labour"), but it has not been possible to identify such possibilities except for a few cases.

The actual range of enterprises reported by the respondents have been grouped roughly into the following categories:

1. Owner operators, including shop-owners, mill owners or operators, transport vehicles owners, contractors, rentiers of land and/or animals, and manufacturers of soysauce and kerupuk (In the last case it was not clear whether these were owners, managers, or merely workers or whether the enterprise was actually owned by, or

located in the household).

2. Traders including keepers of warung or food stall.
3. Craftsmen including tailors, brickmakers and chair makers.
4. Services including watch repair, traditional medicine, dancers, drivers, bicycle repairs and household servants.
5. Officials including teachers, army, local government officials and retired officials.
6. "labourers", not elsewhere classified.

The distribution of these 'enterprises' by village is given in Table 5.1.

TABLE 5.1

Numbers of Households by
Type of Household Enterprise

Enterprise	Wargabinangun (n=40)	Sukaambit (n=68)
Owner-operators	2	10
Traders	33	23
Craftsmen	1	21
Services	1	6
Officials	3	26
Labourers	0	2

Officials were included by interviewers in household enterprises even though their work cannot exactly be called a

'household' enterprise; it is not clear whether the 'labourers' work in their own households or not --no details were given. Household enterprise was clearly a much more important factor in Sukaambit than in Wargabinangun, with nearly 60 percent of all households being involved in Sukaambit and only 29 percent in Wargabinangun. In Wargabinangun, trading was almost the only activity --only three officials were noted. In Sukaambit there were more officials than either traders or craftsmen. This is an important point because we know from Sundrum (1974, p. 92) that incomes from government officials are higher than for any other occupational group.

Table 5.2 shows the reported incomes from household enterprises by type of enterprise. In Wargabinangun, no household reported more than one enterprise, but in Sukaambit, eleven households reported two household enterprises. Two of these reported exactly the same income from each, and two others reported exactly twice the income from the second as from the first, but since the type of enterprise differs in each case, it does not appear to be double-counted.

TABLE 5.2

Distribution of Household by Type of Enterprise
and Income from Enterprise

Income from HH ent. (Rp000)	Owner-operators	Traders	Craftsmen	Services	Officials	Labourers
<u>Wargabinangun n=40</u>						
Under 10	0	1	0	0	0	0
10 - 49	0	4	1	1	1	0
50 - 99	0	8	0	0	0	0
100 -199	1	9	0	0	0	0
200 -499	0	9	0	0	2	0
500 -999	0	0	0	0	0	0
1 m. +	1	2	0	0	0	0
Total	2	33	1	1	3	0
<u>Sukaambit n=78 *)</u>						
Under 10	0	0	1	0	0	0
10 - 49	0	3	4	2	0	2
50 - 99	1	5	3	0	0	0
100 -199	2	5	6	0	4	0
200 -499	6	3	6	2	10	0
500 -999	1	1	0	1	11	0
1 m. +	1	0	0	0	0	0
Total	11	17	20	5	25	2

Note: *) Numbers differ from Table 3.17 because some households have more than one enterprise.

In both villages, trading and crafts have a quite wide range of income, while owner-operators and officials are more concentrated in the upper incomes (The lower incomes from officials refer to pensioners). Rice traders and one land rentier accounted for the highest income brackets of Rp 1 million or more.

Sukaambit is a much more diversified economy than

Wargabinangun, according to Table 5.2. This is confirmed by Makali (1980) who says that there are many small industries in that area.

Household enterprises accounted for just half of total reported village income in Sukaambit, and one-quarter of reported village income in Wargabinangun. Average household incomes from this source were very nearly the same, but when broken down by type of enterprise there were great differences between the two villages, as shown in Table 5.3, the chief differences being that owners-rentiers reported by far the highest average incomes for Wargabinangun, while officials in Sukaambit had the highest average incomes. Inequality was much greater in Wargabinangun, where the highest income reported was 27 times the lowest; in Sukaambit, the highest was only 2.5 times the lowest. Highest individual incomes in Wargabinangun accrued to owners of rice mills.

TABLE 5.3

Average Reported Incomes from Household
Enterprise by Type of Enterprise

Type of Enterprise	Wargabinangun (n=40)		Sukaambit (n=78)	
	Rp	No. of HH	Rp	No. of HH
Owner-rentiers	825,000	2	312,500	10
Traders	249,469	33	274,444	17
Craftsmen	30,000	1	227,105	21
Services	30,000	1	223,000	5
Officials	258,333	3	578,000	25
Average	317,350		313,304	

Note: This average may be far too high, because of a case of double-counting (see Section on non agricultural labour below).

Also, households in Sukaambit depended on income from household enterprises to a much greater extent than in Wargabinangun (see Table 5.4 and 5.5); reported income from these enterprises accounted for more than half of total reported income for 36 percent of all households there. On the other hand, in Wargabinangun only one-fifth of all households got more than half their incomes from this source.

TABLE 5.4

Households by Total Reported Income and
by Percent of Income derived from Household
Enterprises, Wargabinangun

Total Reported Income Class (Rp000)	Proportion from Household Enterprise Income (%)							To- tal
	0	0.01- 20.00	20.01- 40.00	40.01- 50.00	50.01- 60.00	60.01- 80.00	80.01- 100.00	
0	2	0	0	0	0	0	0	2
1- 10000	0	0	0	0	0	0	0	0
10001- 25000	5	0	0	0	0	0	0	5
25001- 50000	14	0	0	0	0	0	0	14
50001- 75000	8	0	0	0	0	1	1	10
75001-100000	9	0	0	0	0	0	1	10
100001-150000	14	1	2	1	0	1	3	22
150001-200000	10	0	0	1	0	0	2	13
200001-500000	21	3	2	0	1	2	8	37
500001+	13	2	3	1	0	1	3	23
Total	96	6	7	3	1	5	18	136

TABLE 5.5

Households by Total Reported Income and by Percent
of Income derived from Household
Enterprises, Sukaambit

Total Reported Income Class (Rp000)	Proportion from Household Enterprise Income (%)							
	0	0.01- 20.00	20.01- 40.00	40.01- 50.00	50.01- 60.00	60.01- 80.00	80.01- 100.00	To- tal
0	0	0	0	0	0	0	0	0
1- 10000	0	0	0	0	0	0	0	0
10001- 25000	1	0	0	0	0	0	0	1
25001- 50000	2	0	0	0	0	0	0	2
50001- 75000	6	1	0	0	0	0	1	8
75000-100000	10	0	0	0	0	0	1	11
100001-150000	13	1	1	1	0	0	2	18
150001-200000	13	0	4	0	0	2	1	20
200001-500000	23	1	7	5	4	5	15	60
500001+	1	3	1	1	1	7	14	28
Total	69	6	13	7	5	14	34	148

Household enterprise incomes in relation to total reported incomes are given in Table 5.62. In wargabinangun, over half the households who do not have household enterprises are in the income group of less than 150,000 annual reported income; while only 27 per cent of those with household enterprise fall in this lower income category. In Sukaambit, just under half (46 per cent) of those without household enterprises are in the lower incomes and 40 per cent of those with household enterprises are in the income groups of Rp 150,000 and over. Even given the incompleteness of total reported income and some uncertainties in the reported incomes from households enterprises, it seems safe to say that household enterprises (as defined here) provide higher income in Sukaambit for an important

number of the population than they do in Wargabinangun.

TABLE 5.6

Distribution of Households by Household
Enterprise Income and Total Reported Income

Total Income (Rp000)	Income from Household Enterprise (Rp000)											
	Wargabinangun						Sukaambit					
	None	>25 50	25- 100	50- 100	100- 200	200+	None	>25 50	25- 100	50- 100	100- 200	200+
> 25	7	0	0	0	0	0	1	0	0	0	0	0
25- 50	12	0	0	0	0	0	2	0	0	0	0	0
50- 75	8	0	1	1	0	0	6	1	1	0	0	0
75-100	9	0	0	1	0	0	10	0	0	1	0	0
100-150	14	1	2	2	3	0	13	1	1	1	2	0
150-200	10	0	0	1	2	0	13	0	2	2	3	0
200-500	21	0	3	2	2	9	23	1	0	4	10	22
500+	13	1	0	1	2	6	1	0	1	1	1	24
Total	94	2	6	8	9	12	69	3	5	9	16	46

Because there are no other questions in the questionnaire by which to test the reliability of the data on household enterprises, no tests of reliability have been undertaken.

5.2 Off-farm Labour

The data on incomes from off-farm labour by household members is particularly difficult to analyse. Data were collected in two separate items on the questionnaire. First, and separately for males and females, the number of persons, number of mandays, hours per day and wage per day on non-agricultural activities was asked. On

another page and in a different context, wage data were requested separately by task, by male and female labour, and by cash and in-kind payment for all household members working in agriculture but outside the home farm. It would appear, therefore, that incomes from these two source would be additive, and that the income from this would be separate from household enterprises (although this is not specifically made clear in the questionnaire). On the agricultural labour question, in-kind payments were transcribed by the interviewer in cash terms (value of meals, etc). The question appears to cover the period of a year and this is presumed to have been calculated by the interviewer from the information on hours, mandays and persons involved. The range of responses to these items for agricultural off-farm labour is given in Table 5.7.

TABLE 5.7

The Range of Responses to the Questions
on Household Agricultural Labour

Items	Wargabinangun n=92		Sukaambit n=58	
	Range (Rp)	No. of HH report- ing	Range (Rp)	No. of HH report- ing
Male in-kind	600-126000	83	350- 91500	42
Female in-kind	1065- 62000	57	400- 23600	37
Male cash wage	900-102125	76	600-181500	42
Female cash wage	450- 33150	47	100- 16624	27

Very few households reported non-agricultural labour activities (eight males and no females in Wargabinangun; and 14 males and two females in Sukaambit). The nature of the non-agricultural work was not stated. There is not a very clear line of distinction between this item and some of the activities reported in household enterprise where we find categories such as labourer, dancer, driver, etc.

The distribution of incomes (cash and in kind combined) reported from both types of off-farm labour (agricultural and non-agricultural) are shown in Table 5.8.

TABLE 5.8

Distribution of Households by
Incomes Reported from Off-farm
Agricultural Labour

Income from Off-farm Labour (Rp)	Wargabinangun	Sukaambit
1- 10000	4	10
10001- 25000	22	13
25001- 50000	28	8
50001-100000	20	17
100001-150000	11	3
150001-200000	6	3
200001+	1	4
Total	92	58

Average income from those households who reported income from agricultural labour was Rp 58,700 in Wargabinangun and Rp 50,115 in Sukaambit. But average income from non-agricultural labour activities in Wargabinangun was, for those households reported it, only Rp 18,881, while in Sukaambit it was Rp 124,627. In Wargabinangun, all the households which reported non-agricultural labour income also had agricultural labour income. In Sukaambit, seven households had non-agricultural labour income but no agricultural labour income, including one household with a non-agricultural labour income of Rp 1.1 million. This household also reported exactly the same income from household enterprise; again it would appear to be a case of double-counting --the enterprise was a food stall so the income level also appears rather unlikely. This single case has an important effect on the average income; when it is excluded, average non-agricultural labour income in Sukaambit drops from Rp 124,627 to Rp 47,477.

In Wargabinangun, fewer households reported income from off-farm labour but the incomes gained from such labour were in general higher than in Sukaambit. In the upland village, nearly 60 per cent of households reported some income from this source and there were higher proportion of them with relatively low levels of income from off-farm labour. Among those households with total reported household incomes of Rp 150,000 and over there were proportionately more (36 per cent) who reported agricultural labour incomes in Sukaambit than there were in Wargabinangun (26 per cent). One-quarter of Sukaambit households reported that they depended on off-farm labour income for more than half their total reported income; in Wargabinangun only 18 percent depended on this source for more than half their total income.

5.3 Transfer Income

Households reporting transfer income numbered five in Wargabinangun and 12 in Sukaambit, with ranges from Rp 5,000 to Rp 120,000 and from Rp 10,000 to Rp 1,050,000 respectively. Only one household in each village relied totally on transfers as a source of income.

No further information on the source or types of transfer was available from the questionnaire, and no tests of plausibility were therefore possible.

5.4 'Plausible' Households

We have seen above that some sources of incomes, poultry and

ngasak, have been classified as implausible in general. Other sources exhibit as many data problems, but the variables which could be used as tests of internal consistency have shown such a degree of weakness that it has not been possible to determine whether the income data are generally plausible or not. For other sources of income therefore our judgement is 'not proven' ---incomes may or may not be plausible, and no conclusive tests have been possible. What is clear is that either the income or the other data ---area, prices, values, etc. are not plausible.

In this section, we compare the 'plausible' households with the total sample. All those households which have been identified as 'implausible' for reasons for non-reporting of income; for under-reporting to the extent that the incomes do not appear sufficient to support life; for double-counting the same income, and for internal inconsistencies, are excluded (although in the last case particularly it is not necessarily the income data which are wrong.)

After excluding 'implausible' households, only 73 households (54 per cent of the original 136) are left in the Wargabinangun sample and 112 (76 per cent) in Sukaambit. The income distribution of these 'plausible' households is given in Tables 5.9 and 5.10.

TABLE 5.9

Distribution of Total Reported Income by Deciles
of 'plausible' Households,
Wargabinangun

Dec- ile	n	Total Income	Cumul. Total Income	% share of Total Income	Cumul. % of Total Income	Average Income
I	8	785,080	785,080	2.01	2.01	98,135
II	8	1,042,670	1,827,750	2.67	4.68	130,334
III	8	1,427,675	3,255,425	3.65	8.33	178,460
IV	7	1,552,420	4,807,845	3.97	12.30	221,774
V	7	1,868,905	6,676,750	4.78	17.08	266,986
VI	7	2,240,595	8,917,345	5.73	22.81	320,085
VII	7	2,797,130	11,714,475	7.15	29.96	399,590
VIII	7	3,808,326	15,522,801	9.74	39.70	544,047
IX	7	5,468,425	20,991,226	13.98	53.68	781,204
X	7	18,123,390	39,114,616	46.32	100.00	2,589,056
Total	73	39,114,616		100.00		535,817

Gini Coefficient = 0.419

TABLE 5.10

Distribution of Total Reported Income by Deciles
of 'plausible' Households,
Sukaambit

Decile	n	Total Income	Cumul. Total Income	% Share of Total Income	Cumul. % of Total Income	Average Income
I	12	1,277,344	1,277,344	2.96	2.96	106,445
II	12	1,812,730	3,090,074	4.20	7.16	151,061
III	11	2,055,093	5,145,167	4.77	11.93	186,827
IV	11	2,453,300	7,598,467	5.69	17.62	223,027
V	11	2,914,260	10,512,727	6.76	24.38	264,932
VI	11	3,509,155	14,021,882	8.14	32.52	319,014
VII	11	4,219,905	18,241,787	9.78	42.30	383,628
VIII	11	5,211,750	23,453,537	12.08	54.38	473,795
IX	11	7,015,120	30,468,657	16.27	70.65	637,738
X	11	12,658,550	43,127,207	29.35	100.00	1,150,777
Total	112	43,127,207		100.00		385,064

Gini Coefficient = 0.272

Because most of the 'implausible' households were excluded because the incomes they reported were too small, the effect of their exclusion is an increase in average incomes. In Wargabinangun, average incomes of 'plausible' households were Rp 535,817 (compared to Rp 355,131 for total households), an increase of 50 per cent. In Sukaambit, however, excluding implausible households changes average income from Rp 332,739 to Rp 385,064, an increase of only 15 per cent. In terms of distribution, a comparison of Tables 5.9 and 5.10 with Tables 2.1 and 2.2 show the top decile of plausible households in both Wargabinangun and Sukaambit receiving only about 2 per cent more of total income than the top decile of total households. The bottom decile in Wargabinangun increases more than 365 per cent; in Sukaambit, the bottom decile for plausible households is 75 per cent

higher than for total households. The effect of excluding a large number of households at either end of the income spectrum is to decrease inequality; as most of the implausible households were, by definition, low-income households, their exclusion decreases inequality among deciles; this is confirmed by the Gini Coefficient.

The distribution of total incomes for the two villages by income source is given in Table 5.11 for plausible households. The effect of excluding implausible households is to increase the shares of paddy, palawija and household enterprises in Wargabinangun and to increase tree crops, transfer and household enterprises in Sukaambit.

TABLE 5.11

Percentage each Source of Income bears to
Total Village Income
('plausible' Households only)

Income from	Wargabinangun n=73		Sukaambit n=112	
	Rp	%	Rp	%
Paddy (MH and MK)	18,753,070	47.39	9,871,385	23.00
Palawija	2,519,000	6.37	1,143,980	2.66
Treecrops	262,650	0.66	3,007,255	7.01
Poultry	2,586,300	6.54	0	0.00
Large Livestock	200,000	0.57	447,230	1.04
Small Livestock	0	0.00	328,000	0.76
Off-farm Labour Agr	3,060,616	7.73	1,657,657	3.86
Off-farm Lb non-ag	109,050	0.27	1,602,706	3.73
Household Enterpr	11,336,620	28.65	22,704,000	52.90
Ngasak	621,310	1.57	303,200	0.71
Transfer	120,000	0.30	1,846,900	4.37
T o t a l	39,586,616	100.00	42,912,507	100.00
Excluding Poultry(37,000,316)				

The distribution by source of household income, after excluding implausible households, is shown in Table 5.12.

In conclusion, at least three points need to be made. First, 'plausible' incomes are not necessarily accurate either for individual households or for the villages as a whole. They simply exclude incomes that appear to have certain defects in their reporting which we are unable to correct. While most exclusions are made on the basis of under-reporting, we have no grounds for assuming that 'plausible' incomes have not been under-reported also.

Secondly, it should be kept in mind that the reporting of agricultural income is subject to many special problems such as imputed prices and the ability of the farmer to recollect after a

TABLE 5.12

Distribution of Reported Household
Incomes by Source
'Plausible' Households only

Source of Household Income	Wargabinangun n=73		Sukaambit n=112	
	No.	%	No.	%
100% Agriculture	7	10	16	14
100% Household Enterprise	7	10	14	12
100% Labour	4	5	-	-
100% Gleaning	1	..	-	-
100% Transfer	-	-	-	-
100% Poultry and Livestock	-	-	-	-
Mainly agriculture a)	21	29	31	38
Mainly HH Enterprise	13	18	33	29
Mainly labour	4	5	4	4
Mainly gleaning	-	-	-	-
Mainly transfer	-	-	4	4
Mainly Livest. and Poultry	6	8	-	-
Other Mixed Sources	10	14	20	18
T o t a l	73	100	112	100

Note: a) Mainly means that more than 50 per cent of the income comes from agriculture, so for Household enterprise etc.

significant period of time has passed. If households had been excluded on the basis of inconsistencies in regard to the number of

crops grown per year, there would be scarcely any household left in the 'plausible' group, since almost all report four crops a year of paddy and an additional palawija crop. Thirdly, the total absence of some kinds of income from one village or the other (i.e poultry in Sukaambit, small livestock in Wargabinangun) appears implausible. It seems more likely that there was a different approach to data collection on these items; it seems hardly likely that not a single chicken was consumed or sold in Sukaambit, and not a single goat slaughtered or bartered in Wargabinangun over the period of the year.

5.5 Summary

The breakdown by source of income for the entire sample in the village as reported in the questionnaire is shown in Table 5.13, summarising the points made above. According to these figures, the lowland village is far more dependent on income from paddy than the upland village where the major source of income is reported to be household enterprises. Agricultural labour is an important source of income in the lowland village which has many landless households, but non-agricultural labour accounts for less than one percent. The total absence of reported income from poultry in Sukaambit and of small livestock in Wargabinangun may well be due to differences in data collection since the number of animals or hens owned did not differ much. The higher income and proportion for palawija in the lowland village appears to be due to the high value of the crops; more land was used in the upland village but crops tended to be high volume, low value.

TABLE 5.13

Contribution of Reported Income by
Source to Total Reported Income

Income from	Wargabinangun	Sukaambit
Paddy a)	Rp 21,728,890 (45 %)	Rp 11,840,115 (24 %)
Palawija b)	2,679,175 (5.55%)	1,318,430 (2.68%)
Treecrops	334,250 (0.70%)	3,364,555 (6.83%)
Poultry	3,925,300 (8.13%)	0 (0.00%)
Large Livestock	253,900 (0.53%)	447,230 (0.91%)
Small Livestock	0 (0.00%)	328,200 (0.67%)
Household Enterprises	12,714,360 (26.32%)	24,752,800 (50.26%)
Off-farm Labour (agric)	5,400,486 (11.18%)	2,555,876 (5.19%)
Off-farm Labour (non-agr)	151,050 (0.31%)	1,932,045 (3.92%)
Gleaning	717,310 (1.49%)	727,200 (1.48%)
Transfers	393,050 (0.81%)	1,978,900 (4.02%)
Total Income	Rp 48,297,771 100.00%	Rp 49,245,315 100.00%
No. of Households	136	148
Average Income/hh	Rp 355,130	Rp 332,739

a) Wet and dry seasons

b) First and second crops, on sawah and on dryland fields
(tegalan), wet and dry seasons.

It is also interesting to see the distribution of households by their reported main sources of income (Table 5.14).

TABLE 5.14

Distribution of Household by Main Reported Sources of Income

Source of Household Income	Wargabinangun		Sukaambit	
	No.	%	No.	%
100% Agriculture	11	8	21	14
100% HH Enterprise	8	6	14	9
100% Labour	24	18	2	1
100% Ngasak	2	1	0	0
100% Livest and Poultry	2	1	0	0
100% Transfer	1	..	1	1
Mainly Agriculture a)	34	25	43	29
Mainly HH Enterprise	16	12	40	27
Mainly Labour	14	10	11	7
Mainly Ngasak	0	0	1	1
Mainly Livest and Poultr	10	7	0	0
Mainly Transfer	0	0	4	3
Other mixed	12	9	12	7
No income reported	2	1	0	0
Total	136	100	148	100

a) Mainly = 50 to 99 per cent.

Sukaambit again is much the more diverse economy. But when households which depend wholly on agriculture are added to those which mainly depend on agriculture (i.e. by more than 50 percent of total income), we find that more households depend on agriculture in Sukaambit (43 per cent) than in Wargabinangun (33 per cent), at least according to this definition of agricultural income (value of crop

production). However, when agricultural labour is included as part of agricultural income as well as ngasak, poultry and livestock, (leaving only transfer and household enterprise as non-agricultural) then Wargabinangun's dependence on agricultural sources is 86 per cent while Sukaambit's dependence is only 60 percent.

Tables 5.13 and 5.14 give a true picture of these village and their income sources and distribution only insofar as the individual households have reported complete and accurate data. As has been seen above, there are many cases of under-reporting, of double counting of incomes, and of internal inconsistencies which make many of the incomes implausible, particularly in Wargabinangun. An abnormally large amount reported for a single household can have a very important result on averages. In Chapter 2, there were also noted many problems of income measurement which this survey has in common with other surveys, especially those which are not specifically designed to measure income.

CHAPTER SIX

CONCLUSIONS

The main conclusions of this study may be summarised under three general headings: those of a general nature, common to all studies of income levels and distribution, especially in developing countries; those arising out of the use of income data from studies designed for other purposes; and those arising out of questions of survey design, questionnaire design, interviewer training, and coding.

6.1 General

For policy purposes, long-term studies are important because the short-term studies can be too much affected by short-term factors, such as the illness of the major income earner, a household catastrophe or other short-term condition affecting a single household. Short-term studies also can not determine whether low incomes are a factor of 'young' households whose incomes may increase over time. While there are also long-term factors which affect incomes, such as droughts, recessions, wars, etc., these tend to affect whole communities, rather than single households.

The first conclusion, therefore, is that Indonesia should begin a long-term income study which will collect information on selected households over a long period of time.

6.2 Income Data from Non-income Surveys

The SAE survey data used in this study were not designed to collect income data as their principal purpose. Nevertheless because no special national income surveys exist, it is not uncommon that such surveys are used for income purposes, both by those who conduct them, and by others, as in this case. These comments are thus not intended as a criticism of the SAE study for not being what it was not intended to be, but simply to illustrate some problems, often not recognised by those who use such data, to draw far-reaching conclusions on poverty and income distribution.

Because income data were collected as a side line, many of the very difficult conceptual, theoretical and practical problems associated with income measurement have not been met. These include the following:

(A) Because data on incomes are not complete, as shown by what is clearly under-reporting by a large proportion of households, and by the exclusion of some items such as rents, these data are not reliable as a basis for drawing conclusions on income distributions within either of the villages.

(B) Because there appears to have been different data collection procedures between the two villages for some items, the data are not reliable for comparisons of income levels between the lowland and the highland village.

(C) Areas cultivated and owned bear no ascertainable relationship to crop production; yields cannot therefore be calculated, nor incomes tested against them.

(D) In the absence of explanation of the extremely wide

variations in crop prices imputed by interviewers, no ascertainable relationships can be proved between crop production, prices, and incomes. Also crop incomes in rupiahs may be less reliable than crop production figures by weight or volume.

(E) The data on production for dry season is probably more reliable than those for the wet season, mainly because of the recall time being shorter for the dry season. Because of uncertainties involving responses on the numbers of crops per season, lack of information of the length of the season, the tendency of respondents to report exactly the same production figures for both seasons, or exactly twice the amount for one season as for the other, it was considered invalid to extrapolate data from one season to an annual figure.

(F) Internal inconsistencies in regard to poultry income and gleaning income cast serious doubt on these items in both villages. Differences in data collection methods appear to be the main reason for the total exclusion of income from poultry in one village and from small livestock in the other.

(G) The respondents (and possibly the interviewers) may have been confused in many cases about the meaning of incomes from labour, from household enterprises and from other sources, leading to double counting of some income. Where these incomes are large, they affect averages, often by 50 per cent or more. This occurred particularly in the case of household enterprise incomes, labour incomes, and certain crop and livestock incomes.

The second general conclusion is that income data collected

as a side line to other purposes may give misleading results and needs to be examined very carefully in disaggregated form, since concentration on the other issues will probably mean that the particular problems of income measurement have not been sufficiently recognised. Aggregation tends to hide, rather than to reveal, data problems on incomes, and sophisticated methods of analysis are inappropriate when the basic data show serious weakness.

6.3 Questionnaire Design

The collection of income data is always a very complicated matter especially in rural areas:

- where much of the income is in kind,
- where seasonal factors may result in low incomes in one year, and high incomes in the next,
- where incomes arise out of a variety of household activities,
- where much of the household income may arise out of work by unpaid family workers,
- where records are seldom kept, and
- where there is a certain reluctance to provide income information for personal or official reasons.

As a consequence, any study which attempts to collect income data has to determine a very fine balance between detailed accuracy on the one hand, and simplicity for the respondent on the other hand. The SAE questionnaire was over 48 pages long, and income questions scattered over 32 items. The variety of questions on area owned and cultivated may also have confused respondents, resulting in what

appear to be double counting in many cases.

The interviewers spent a period of a month in the village and thus grew to understand conditions well. There still appear to have been differences in collection methods between the two villages. Data for one village was far more consistent and plausible than in the other.

The careful training of interviewers and supervisors as to the purpose and use of the data collected by them can not be too strongly emphasised, particularly where data are collected in different areas for comparison. This should enable interviewers to detect double counting, inconsistency, etc. even where respondents may have problems of recall.

The third general conclusion is that if income data are to be included in a survey, particular attention must be paid to the possibility of double counting particularly in long involved questionnaires and the interviewers must be intensively trained in the purposes of the questions as well as in the administrative of the questionnaire.

6.4 General Conclusions

In spite of these problems, there are a number of general observations which it appears safe to make. First, there appears to be more inequality in the lowland than in the upland village. It is difficult to determine the degree of such inequality: the figures may reflect real inequality or they may reflect different data collection procedures. The lowland village had much higher landlessness, much

larger households and thus lower per capita incomes, and depended to a much greater degree on the single crop, paddy, than did the upland village, where family size was smaller, land more equally distributed, and where other income sources played a much larger part.

Therefore my general conclusions are:

A. As the data stand, my investigation suggests that little use can be made of the AES studies of Wargabinangun and Sukaambit for detailed analysis of income distribution.

B. Although there is evidence that seems sufficiently strong to suggest that income distribution in Wargabinangun is probably more unequal than in Sukaambit, it is not possible to say by how much or why.

C. Some changes in the survey procedures for this type of survey have been suggested during the analysis. If these changes were put into effect, future AES investigations could be more useful for analysis of income distribution.

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