VOLUME IV

EMPLOYMENT IN INDONESIA: THE ROLE OF INSTITUTIONS

By

John R. Harris and Gillian Hart

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African Studies Center

May 1987

This study was funded under USAID Contract #OTR-0092-C-00-2254-00, Project #930-092. Project title: "Labor Markets and Labor Market Structure in Developing Countries."

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ACKNOWLEDGEMENTS

This paper draws on work each of us has undertaken in Indonesia over the past decade. A substantial part of Chapter II and the parts of Chapter IV dealing with the institutional structuring of rural labor markets are drawn from previous research by Gillian Hart, and analysis which is central to her Power, Labor and Livelihood: Processes of Change in Rural Java. The core of Chapter III draws on the paper by Bisrat Aklilu and John Harris, "Migration, Employment and Earnings" and the part of Chapter IV dealing with earnings functions and the core of Chapter V draw on the paper by Alden Speare Jr. and John Harris, "Education, Earnings and Migration in Indonesia."

Over many years of working in Indonesia and on aspects of the Indonesian economy, we are indebted to a host of Indonesians who have given generously of their time and insights to guide us.

In addition, a large number of officials in Provincial, Kabupaten, Kecamatan, and Village governments patiently answered our questions in many visits. Finally, we are particularly indebted to the number of farmers, workers, traders, and entrepreneurs who cooperated in our various surveys and interviews.

The following persons also made special contributions to the research on urban labor markets and macroeconomic performance:

At BAPPENAS (The National Planning Board), the help and encouragement of Dr. Sayuiti Hasibuan who has been a senior officer with responsibility for manpower and employment matters has been invaluable. Other senior officials who have gone out of their way to be of assistance include Dr. Soedradjad Djiwandono, Dr. Hasudungan Tampubolon, and a senior advisor to the Board, Dr. Sei Kuribayashi.

At the Ministry of Manpower and Transmigration, Dr. Payaman Simanjuntuk and Mr. Yudo Swasono have been of great assistance. Three officers of the Central Bureau of Statistics, Dr. Sam Sukarno, Dr. Hananto Sigit, and Mr. M. Sukmadi, went to great efforts to provide access to data.

Indonesian Academics who have gone out of their way to share their understanding of labor market functioning include Dr. Dorodjatun Kuntjoro-Jakti at the University of Indonesia, Dr. Budiono Sri Handoko at Gadjah Mada University, Dr. Suharso at LEKNAS/LIPI, and Dr. Sugianto of the Bandung Institute of Technology.

From the Harvard Institute of International Development which has had an advisory team in Indonesia for many years, he has benefited from the cooperation of Dwight Perkins, Malcolm Gillis, David Dapice, David Cole, Clive Gray, Ralph Beals, Alan Strout, Peter Timmer, Louis Wells, and Eric Nelson. One member of the team, Richard Patten, has been in Indonesia for over fifteen years and has been intimately involved with the design and adaptation of the various INPRES labor-intensive rural works programs and he, more than any other foreigner, has a deep understanding and appreciation of the economic, technical, administrative, and institutional features that have made those unique programs function effectively.

In the resident USAID mission, considerable cooperation and help was provided by Robert Dakan, Richard Silc, Jack Bresnahan, and Joseph Stepanek. In the AID-sponsored Central Java Enterprise Development Project, James Boomgard of Development Alternatives Inc. was particularly generous of his time and willing to share his research in progress.

Drs. Akbar Noman, Deepak Mazumdar, Constantino Lluch, Ooey Meesok, Om Nijawan, Leah Jellenick, Dov Chernichovsky and Mark Leiserson, Staff Members or Consultants of the World Bank shared information and ideas on many occasions.

Over the years ideas have been shaped and developed through joint work with Bisrat Aklilu of the International Fund for Agricultural Development, Michael Todaro of New York University, Richard Sabot of Williams College, and Alden Speare Jr. of Brown University. The debt owed to them is considerable.

At Boston University, we have benefited from comments from many colleagues, particularly Gustav Papanek, David Wheeler, Bruce Vermuelen, and Sara Berry. Mr. Rizal Ramli, a graduate student, has helped update statistical material.

Updating our earlier work by interviewing a large number of officials and scholars, collecting recent published and unpublished materials, and travelling to several urban and rural parts of Java during 1982 and 1983 was made possible in part by the financial support of USAID and of the International Labour Office through International Labor Studies Fellowships to each of us.

Prof. Peter Doeringer conceived the larger comparative project of which this is part. We owe him a particular debt for his inspiration, encouragement, collaboration, and pushing.

Finally, the competent and cheerful editorial and production assistance of Victoria Morss, Joanne Hart, and Jenny Hochstadt is particularly appreciated.

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SUMMARY

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SUMMARY

To illustrate the feasibility of economic analysis focusing on the role of institutions we proposed to the Agency for International Development to undertake a pilot study of rural and urban labor markets in Indonesia. Indonesia was chosen for a number of reasons. That country has a relatively "free" labor market in many respects. There is virtually no direct government intervention in the labor market in the form of minimum wage legislation, employment guarantees and the like, although state involvement in other aspects of the economy is considerable. Moreover, organized trade union activity is, for all intents and purposes, nonexistent and there is little or no collective bargaining.

While direct government and union involvement in labor market decisions is limited, there is substantial evidence suggesting that the Indonesian labor market is strongly shaped by institutional forces in urban and rural areas. Java is a particularly interesting case for the study of labor market structure as poverty and access to income are problematic. In 1980 Java's population was 91.3 million with an average population density of 690 persons per square kilometre. As some 83% of households rely on agriculture for all or part of the livelihood, Java is rivaled only by some districts in China, the Ganges Valley, and the Nile Valley as the most densely populated agricultural area in the world and it has been estimated that, in 1976, 61% of

Java's population was below the poverty level of income that would be sufficient to purchase 20 kg. of rice per capita per month. The direct cause of this extent of poverty is that a growing majority of these people are either completely landless or have holdings too small to meet even their basic food needs, and are therefore profoundly affected by changing macroeconomic conditions and patterns of access to income-earning opportunities.

Our analysis of existing information on rural and urban labor markets in Indonesia enhances our understanding of the interaction between competition and institutions in the labor market in developing nations. It also helps to focus attention on the role that larger societal forces play in shaping local labor markets and on the connection between local labor market institutions and the societal framework.

One of the key questions raised in this study is whether or not pursuing employment objectives need be at the expense of other national objectives, such as increasing the rate of growth of national output, achieving a higher degree of social justice, or providing greater opportunities for Indonesian entrepreneurs. In these circumstances, the primary mechanism through which the benefits of development can be spread to the largest number of people is by the provision of gainful employment opportunities to all willing to work.

Since coming to power in 1967, the government of President Suharto has gradually evolved policy approaches to employment generation. In the first years in power, the primary concern was with bringing hyperinflation under control, reestablishing a basic administrative apparatus, mobilizing foreign assistance, and gaining political control of the countryside. Employment policy has moved from a peripheral concern, to an important (but relatively isolated) aspect of development policy, and finally to an integral part of a general approach to efficient growth. In the latter circumstances, one must look more generally at the entire panoply of macro and micro policies to understand the ways in which policy actions affect employment, and not expect to see employment as a neatly packaged independent element.

This study blends three distinct methodologies for examining the Indonesian labor market.

The first is macroeconomic analysis concentrating on resource mobilization, aggregate labor absorption, and movements of general levels of real wages.

The second is analysis of large-scale micro survey data on individuals where we have attempted to model econometrically the operation of specific urban and rural labor markets and their interconnections.

The third is the incorporation of various types of qualitative information gained through interviews and studies in depth of specific institutions. These include the results of local village labor market studies in order to show how micro-level labor market institutions can directly influence patterns of earnings and employment. Other observations include detailed examination of the institutional design of decentralized programs of labor-intensive investment and the emergence of a set of linked local-level institutions supporting the intensification of small-scale, nonagricultural entrepreneurship in rural areas. As a result, we can extend our interpretation of labor market processes and on institutional requirements for policy implementation in ways that are often difficult to do with exclusive reliance on statistical materials.

In the past twenty years Indonesia has made considerable economic progress with the help of oil booms and reasonably good policy. Yet, despite effective mobilization of internal and external resources, substantial increases in investment, effective family planning programs reducing gross fertility rates, substantial expansion of educational opportunities, and success in adopting new high-yielding varieties of rice, Indonesia is still a poor country.

While the data on employment are poor and often conflicting, evidence marshaled in Chapter II concludes that

employment has grown at approximately 3% per annum. A somewhat surprising finding, however, is that the vast majority of new jobs have been in the services sector. Despite considerable technological advance, investment and growth of output in agriculture and large-scale manufacturing, relatively little direct expansion of employment has occurred in those sectors.

A slightly rising proportion of the population has been drawn into the labor force while measured unemployment rates have remained low. The partial evidence that is available suggests that average real wages rose during the period, particularly after the second oil boom in 1979. While average real wages appear to have risen in most industries and in both rural and urban labor markets, it appears that a significant number of persons in the lower end of the income distribution have become absolutely poorer in recent years. It is also necessary to recall that despite apparent increases in real wages the base is still very low: Indonesia is still an economy with abundant low-wage labor.

A necessary condition for effective labor absorption is appropriate macroeconomic management for mobilizing internal and external resources for investment. Indonesia has been very successful in this regard. Investment rose steadily as a share of GDP over the past two decades, fueled largely by oil and foreign aid. However, it is one thing to increase gross fixed capital formation and another thing to ensure

that it is used efficiently both for enhancing output and absorbing complementary factors. This is evident from the Indonesian experience.

It is possible to detect some systematic patterns in the labor market data using relatively straightforward economic models. Our research shows that urban labor markets are minimially segmented while rural labor markets are segmented according to land owning status and must be examined in terms of interconnected labor, land, and credit arrangements.

We have summarized a substantial body of research in Indonesia all suggesting that rural and urban labor markets in Java are well linked. As such, the distinction between labor market policies aimed separately at rural or urban markets is not well founded. Individuals with similar characteristics earn similar incomes whether they are in urban or rural areas, in large cities or small ones. While urban growth in Indonesia is difficult to manage and the manifestations of poverty are more readily visible in cities than in the countryside, the rates of growth have been relatively modest and rates of open unemployment among unskilled persons remain quite low.

Having argued that the macro evidence suggests no serious problems of efficiency with respect to urbanization, some issues regarding poverty and equity remain. The evidence we have on poverty is that its incidence is higher

in rural than urban sectors and is most closely related to access to land and education. However, the gross differences reflect the differential average educational attainment of urban dwellers and we have argued that this arises from the fact that a disproportionate volume of the economic activities requiring and rewarding educational attainment are located in urban areas. The evidence we have been able to marshall suggests that individuals with similar education receive roughly comparable incomes in rural and urban areas once cost-of-living differences are accounted for. In particular, there is no proof that rural-urban proportional differentials are related positively to education.

We have developed evidence that groups of the population with access to land are relatively privileged in both rural and urban nonagricultural labor markets. These families with more wealth in land are able to afford more education for their children and to use some of their wealth to invest in capital used in self-employment. Without fully understanding the mechanisms that generate these differences, it is reasonable to conclude that access to particular social and political networks that confer advantage in employment is facilitated by land ownership. The implications for inequality and perpetuation of poverty are profound. In the longer run, there is an intergenerational transmission of poverty made worse by these arrangements that raise important questions about how

macro strategies can effectively incorporate a larger part of the population into economic progress.

We have observed disproportionate increases in average labor productivity between manufacturing and agriculture and the other sectors of the economy. The vast bulk of employment increases have taken place in the trade and services sectors as well as the very small-scale rural industrial sector. While it is clear that these sectors have acted as a "sponge" to absorb labor, it is not clear whether this is a means of sharing income among the underemployed or a productive vehicle for using labor. Whether workers are pulled into these sectors or pushed out of other sectors remain questions to which there is distressingly little evidence. However, it is clear that there are difficulties in channeling resources to absorb the nonagricultural, low-wage labor force. The principal vehicle to facilitate this in Indonesia has been the labor-intensive rural works program

Letting unfettered markets work has been partially successful in the Indonesian situation. Overall growth has been impressive and the benefits have filtered down the income distribution to some extent. However, the principal impetus to this growth has been mobilization of oil and foreign aid funds by the government. Using these resources effectively has been a challenge which has been met with increasing success. But given the dismal outlook for future

oil prices and the relatively limited reserves possessed by Indonesia, the oil booms are quite properly seen as temporary windfalls that cannot be counted on. The future of foreign assistance revenues is also not terribly bright.

Indonesia has not yet demonstrated that the private sector is capable of mobilizing savings at rates required for sustained growth. Furthermore, it has not fully demonstrated an ability to adapt and adopt technology in ways that use its abundant labor resources most effectively and it is not clear that access to income-generating opportunities will be available to all groups. Part of the historic success of Indonesian society has been the maintenance of social consensus based on poverty sharing. The challenge of maintaining rapid growth while preventing worsening of the incidence of poverty in face of declining external resources available to government is still to be met.

To their credit, Indonesian policy makers have recognized the need to adapt programs to these emerging realities and managerial capacity has been developed to cope with the new requirements of austerity. Bold steps have been taken recently in reducing public investment, rationalizing the trade regime, and reforming credit institutions. Whether these steps will be sufficient to ensure growth with equity remains to be seen. The key to future adjustment will be the ability of the private sector

to provide productive employment to the growing numbers of better educated labor force entrants.

This exploration of labor market institutions can only point out that they must be better understood in order to identify potential points of strain in the system and to identify how policy interventions are most likely to be effective.

I.

INTRODUCTION

This study is based on the conception that a major thrust of economic development policy is to affect employment levels, per capita earnings and the structure of employment and pay. While many development policies such as those relating to capital investment or technology, to name only a few, are directed at economic decisions once removed from the labor market, their performance is usually measured by improvements in employment and wages. Examples of the influence of cultural and institutional factors that might impede or distort otherwise well-designed economic policies are abundant, but little studied. For example, employment and earnings both at the macroeconomic and microeconomic levels have often been limited to examinations of statistical relationships among a small, fairly standardized array of economic variables. By ignoring many other factors which govern economic decisions, these studies tend to produce policy recommendations that neglect significant political and social parameters, often fail to anticipate undesirable side-effects of seemingly sound policies, and are frequently extremely difficult to implement.

Because the fundamental interest of government and of all elements of society are profoundly affected by labor

market decisions, it is hardly surprising that institutions and interest groups attempt to control economic policies. It is these institutional factors, we contend, that are a major source of constraint on individual labor market behavior and must be taken into account in the formulation of policies designed to meet particular objectives. To understand the functioning of labor markets it is essential to know what types of institutional forces are at work, the mechanisms through which they operate, their importance in qualitative and quantitative terms, and how policy makers take these influences into account in order to achieve cost-effective results.

Historically, little work of this type has been done, and that which is available tends to be piecemeal and situation-specific, so there is no coherent framework for analyzing these forces. Instead, the bulk of labor market research in developing countries relies upon a series of propositions that have not been directly verified. Wage rates are treated as satisfactory indices of relative scarcities in the labor market; labor markets are thought to be near and converging toward equilibrium; and assumptions that individuals seek to maximize utility and firms to maximize profits, lead to labor markets being treated as efficient with respect to social as well as private objectives. The actual experience of workers and firms would, however, seem to belie many of these operating assumptions.

WHY STUDY EMPLOYMENT IN INDONESIA?

To illustrate the feasibility of economic analysis focusing on the role of institutions we proposed to the Agency for International Development to undertake a pilot study of rural and urban labor markets in Indonesia. Indonesia was chosen for a number of reasons. That country has a relatively "free" labor market in many respects. There is virtually no direct government intervention in the labor market in the form of minimum wage legislation, employment guarantees and the like, although state involvement in other aspects of the economy is considerable. Moreover, organized trade union activity is, for all intents and purposes, nonexistent and there is little or no collective bargaining.

While direct government and union involvement in labor market decisions is limited, there is substantial evidence suggesting that the Indonesian labor market is strongly shaped by institutional forces in urban and rural areas. Recently collected data reveal some interesting paradoxes in the structural transformation of the economy. For example, when the "New Order" regime came to power in the late 1960s a series of dramatic shifts in macroeconomic policy occurred. In contrast with the political and economic chaos of the Sukarno era, the New Order under General Suharto pursued a strategy of rapid growth and cooperation with the West while simultaneously maintaining strict political control. The restructuring of macroeconomic policy along

with sharp increases in oil and aid revenues resulted in rapid growth and structural transformation of the economy.

As is generally the case in periods of economic expansion, there has been decline both in the share of agricultural output in national income and in the proportion of the population employed in agriculture. But there are several indications that the process of structural change differs from that normally associated with rapid economic growth. Contrary to the usual pattern, for example, the shift of the workforce out of agriculture has not been accompanied by a proportionate migration of rural labor to urban areas. Rather the distribution of population between rural and urban areas has remained virtually unchanged, particularly in Java, and large increases in nonagricultural activities have taken place within the rural sector.

Java is a particularly interesting case for the study of labor market structure as poverty and access to income are problematic. In 1980 Java's population was 91.3 million with an average population density of 690 persons per square kilometre. As some 83% of households rely on agriculture for all or part of the livelihood, Java is rivaled only by some districts in China, the Ganges Valley, and the Nile Valley as the most densely populated agricultural area in the world (Hugo, 1978). Arief estimated that, in 1976, 61% of Java's population was below the poverty level of income that would be sufficient to purchase 20 kg. of rice per

capita per month (Arief, 1979). The direct cause of this extent of poverty is that a growing majority of these people are either completely landless or have holdings too small to meet even their basic food needs, and are therefore profoundly affected by changing macroeconomic conditions and patterns of access to income-earning opportunities.

A second puzzle is that the growing relative importance of nonagricultural work in rural areas does not reflect a growth in wage labor in the nonagrarian rural sector. Between 1971 and 1976 newly reported national data show that more than 80% of the nonagrarian jobs were in the category of self-employment, whereas only about 17% of the new jobs involved wage labor.[1] In rural areas the dominant view is that self-employment has been of even greater numerical significance.[2] National labor force surveys and censuses reveal very little about the nature of nonagricultural self-employment or about the economic returns to such work. To the extent that wage data are available, they are conflicting from different sources: the most plausible

[1] Agricultural surveys conducted by the Central Bureau of Statistics suggest that both the real wages bill and labor use per hectare remained virtually unchanged between 1971 and 1977, but that the wages bill rose somewhat in 1978. In the three years for which reasonably unambituous wage data are available (1976-78), average real wages deflated both by rice prices and a standard price index show a similar pattern. (Handoko et al., 1982).

[2] Leiserson et al., (1978) relied primarily on the 1976 intercensal (SUPAS) survey, and therefore concluded that labor force participation rates had risen substantially. As discussed in Appendix A, these data have since been called into question.

conclusion is that in the past two decades real wages have increased in some sectors of the economy, have been more or less constant in other sectors, and have become more dispersed within many sectors so that a significant minority has suffered real declines in living standards.[3]

The third reason why the Indonesian case is of interest concerns a series of heated debates over the interpretation of national survey and census data on trends in rural employment. These debates are a vivid illustration of the problems inherent in primary reliance on macro data. In addition to the usual problems of definition and measurement, these data are often highly ambiguous. Their interpretation - and hence conclusions about trends in employment and levels of living in the context of rapid economic growth - rests on assumptions about how labor markets operate. Such assumptions are at best justified in terms of a set of "stylized facts."

Our analysis of existing information on rural and urban labor markets in Indonesia will help to provide answers to some of the paradoxes discussed above and to enhance our understanding of the interaction between competition and institutions in the labor market in developing nations. It will also help to focus attention on the role that larger societal forces play in shaping local labor markets and on

[3] These issues will be explored in detail in Chapters III-V.

the connection between local labor market institutions and the societal framework.

WHY BE CONCERNED WITH EMPLOYMENT STRATEGIES?

One of the key questions raised in this study is whether or not pursuing employment objectives need be at the expense of other national objectives, such as increasing the rate of growth of national output, achieving a higher degree of social justice, or providing greater opportunities for Indonesian entrepreneurs. It might be argued that an employment oriented strategy can, in fact, be consistent with all of these other goals, but it must be recognized that when a nation concentrates on expanding the modern sector using relatively capital-intensive techniques, there will be costs in terms of employing labor and achieving social justice. Indeed, given the relative weakness of the Indonesian fiscal system and the demands placed upon the public sector, it is improbable that government will be able to accomplish significant income redistribution via taxation-cum public expenditure programs alone. In these circumstances, the primary mechanism through which the benefits of development can be spread to the largest number of people is by the provision of gainful employment opportunities to all willing to work.

It is clear that Indonesia has abundant labor and relative shortages of land and organizational and administrative capabilities. The challenge then is to find

means of mobilizing and using productively the abundant labor while economizing on scarce land and administrative resources while using capital and foreign exchange efficiently. There is now an enormous amount of evidence that alternative techniques between labor and capital intensive methods of production exist in many sectors of the economy.

In the Indonesian setting it is quite clear that there are many tasks which can be done using labor-intensive techniques. On Java, for instance, there are needs for roads and bridges, flood and erosion control, rehabilitation of irrigation systems, improvement of urban drainage and water supply systems, creation of industrial sites, port development and a vast number of other such tasks. Other islands have similar requirements. Most of these obvious areas of labor absorption lie in infrastructure construction, which necessarily requires public sector implementation.

However, infrastructure building is not the only sector to offer the potential of productively absorbing additional labor. Indeed, infrastructure development along with improved technology will allow intensified agriculture which can directly absorb additional labor, and this in turn can create important linkages through additional demands both for direct agricultural inputs and for satisfying increased final demands arising from higher agricultural incomes. And

these increased demands can be met largely through production of simple consumer goods and implements in industries which are themselves labor-intensive (Mellow and Uma Lele, 1972). In other words, an employment oriented development strategy can be fashioned which is internally consistent and which creates additional linkages among other sectors each of which can productively absorb additional labor.

It is, of course, relatively easy to argue in the abstract that an employment oriented strategy is desirable and feasible. Much more difficult is to identify the range and content of policies that would be required to implement such a strategy. The key questions that must be asked are: Has Indonesia developed a strategy that maximizes the efficient use of scarce resources to absorb labor productivity; and, what are the principal obstacles to refining such an approach? The following section reviews Indonesian employment strategies over the last several decades.

THE EVOLUTION OF INDONESIAN EMPLOYMENT POLICIES

Since coming to power in 1967, the government of President Suharto has gradually evolved policy approaches to employment generation. In the first years in power, the primary concern was with bringing hyper inflation under control, reestablishing a basic administrative apparatus,

mobilizing foreign assistance, and gaining political control of the countryside.

An essential tool for restraining inflation was the maintenance of cheap and stabilized prices for the two principal items of mass consumption - rice and cloth. Increasing production of the staple food, rice, through fostering the adoption of improved technology, was the most import element on the supply side of the strategy. Little specific attention was paid to employment per se: the past follies of inflated employment levels in the public sector which had contributed to the collapse of the economy in the late Sukarno years was to be avoided and it was assumed that increased productivity and political stability would lead to productive absorption of labor.

By 1971, as preparations began for formulating a second five-year development plan (Repelita II, 1973), employment was identified as a major issue of concern. Stabilization efforts had been largely successful in reversing the pattern of economic chaos and decline, and the beginnings of an effective administrative and control apparatus were in place. Priority was established at the highest levels for identifying policies that would ensure effective mobilization of labor and distribution of the benefits of development through wage and self-employment earnings.

However, attention was diverted from this goal by the emergence of two different macroeconomic priorities. First,

in 1973 an unexpected resurgence of inflation occurred as a result of harvest failure in Indonesia coinciding with a world crisis in food availabilities and rapid inflation of food prices. The second "shock" beginning in late 1973 was the OPEC-induced oil boom. How this sudden bonanza could be channeled to productive use in face of a loss of financial and administrative discipline diverted the attention of policy makers from the management of structural change and resource mobilization to attempting to control the profligate frenzy of a fragile state structure.

After erosion of the oil windfalls and extrication of the economy from a serious debt crisis engendered by the lack of control over the disposition of oil revenues, policy makers turned again to the issue of employment. Moving beyond simple macroeconomic measures to step up investment, the limitations of which had become evident during the oil boom, a three-track approach was taken.

The first was explicit concern about employment effects of noncompetitiveness of the non oil sectors in international markets leading to a targeting of exchange rate management to maintain competitive advantages in the labor-intensive sectors. The second was a significant redirection of fiscal resources and public investment to decentralized, labor-intensive infrastructure development programs. And the third was further intensification of

efforts to disseminate and encourage adoption of high-yield, pest-resistant varieties of rice.

The result is that when a second oil boom occurred in 1979-80, Indonesia was in a far better position to use the windfall gains to increase the productive absorption of labor. While aggregate investment increased again, more significant was the changing composition of investment coupled with improved administrative capacity to direct investment to relatively efficient labor-absorbing sectors of the economy. Some rationalization of the systems of incentives provided through taxes, tariffs, and quantative restrictions in the industrial sectors took place during the 1979-82 period.

While recent data are not yet sufficient to document the point, there is partial evidence to suggest that since the erosion of the second oil boom and virtual collapse of revenues in 1986, the Indonesian economy has developed the managerial capacity to cope fairly well with the new requirements of austerity, and finds in such circumstances further impetus to make maximum use of abundant labor resources.

Thus, employment policy has moved from a peripheral concern, to an important (but relatively isolated) aspect of development policy, and finally to an integral part of a general approach to efficient growth. In the latter circumstances, one must look more generally at the entire

panoply of macro and micro policies to understand the requirements for policy actions that will affect employment, and not expect to see employment as a neatly packaged independent element.

METHODOLOGY

This study blends three distinct methodologies for examining the Indonesian labor market. The first is macroeconomic analysis concentrating on resource mobilization, aggregate labor absorption, and movements of general levels of real wages.

The second is analysis of large-scale micro survey data on individuals where we have attempted to model econometrically the operation of specific urban and rural labor markets and their interconnections. Typical examples include the study of earnings determination in urban and rural areas and the determinants of migration. In these econometric models, we have sought to identify the effect of structural parameters, reflecting institutional specifics in the labor markets, whenever possible.

The third is the incorporation of various types of qualitative information gained through interviews and studies in depth of specific institutions. These include the results of local village labor market studies in order to show how micro-level labor market institutions can directly influence patterns of earnings and employment. Other observations include detailed examination of the

institutional design of decentralized programs of labor-intensive investment and the emergence of a set of linked local-level institutions supporting the intensification of small-scale, nonagricultural entrepreneurship in rural areas. As a result, we can extent our interpretation of labor market processes and on institutional requirements for policy implementation in ways that are often difficult to do with exclusive reliance on statistical materials.

PLAN OF THIS STUDY

In addition to this brief historical review of employment policies in Indonesia, the study will examine labor markets and labor market institutions in both rural and urban areas of Java. Chapter II will describe macroeconomic performance under the "New Order", changing employment patterns and institutional structures, investment patterns and fiscal policies, and modern industrial and commercial organizations that have resulted from the oil booms and busts.

Urban labor markets are the focus of Chapter III. Issues such as the variability in seasonal demand for urban labor will be explored. How are the different numbers of workers accommodated and how do wages and earnings move in response? Where are the formal and informal arrangements guaranteeing repeated employment in subsequent seasons for urban seasonal workers? How do seasonal patterns of

agricultural and urban work affect total incomes for participants?

The next chapter will explore similar issues in the rural labor market. We will analyze the incentives that induce rural Javanese from agricultural to nonagricultural occupations, and the complex linkages among government programs, credit institutions, labor and land tenure, and other social systems.

Rural-urban migration in Java is the focus of the next chapter. While most micro-based studies have concentrated on either rural or urban employment, and aggregate data distinguishing between rural and urban sectors, it is important to understand the degree to which these spatially defined sectors are connected. The assumption that they are poorly integrated gives rise to sharply differentiated policies and programs designed to deal with one or the other. This is particularly true of programs financed by donors who desire to target their assistance particular groups.

There is abundant literature citing "urban bias" in development policies as contributing to slow rates of labor absorption and poverty alleviation in developing countries. Central to this approach is some notion of labor market segmentation - another way of stating that there is imperfect mobility between opportunities arising in different sectors. Therefore, analysis of migration

patterns and responses provides us with a convenient window through which to observe ways in which these various sub-markets are, or are not, connected. The purpose of this chapter is to identify more clearly the institutional features of the Indonesian economy that mediate the effects of employment-directed policies.

The final chapter pulls the data together and begins to define a research strategy that could be used in other countries operating under different growth patterns and labor market structures to systematically test the relationship between labor market structures and economic growth.

II.

RECENT DEVELOPMENTS IN THE INDONESIAN MACROECONOMY

The Indonesian economy has undergone rapid change reflecting internal shocks of political upheaval and redirection and external shocks from the violent fluctuations in the environment facing a low income heavily populated oil-producing economy. This chapter will provide some evidence concerning the overall performance of the Indonesian economy against which specific labor-market issues must be understood.

THE POPULIST REGIME UNDER SUKARNO

Having gained independence from the Netherlands in 1947 under the charismatic leadership of President Sukarno, Indonesia pursued a set of populist policies intended to secure nationalist control over the economy and assumed a central role among the group of nonaligned nations seeking to establish a framework for development that would be indigenously controlled and not under domination of either the Capitalist or Communist blocks.

Under Sukarno's leadership, policies were pursued that were quite similar to those being implemented by Nkrumah in Ghana and Nassar in Egypt. The results were also quite similar. Beginning with land reform and nationalization of foreign firms, the country was faced with foreign exchange shortages. The initial response to that problem was the

introduction of detailed controls over international trade through licensing of imports and exports with an accompanying control over access to foreign exchange through a complicated system of administrative allocation with multiple exchange rates. This enhanced role for government in mobilizing resources for investment and expanding employment to run new programs, in addition to seeing public employment as a source of patronage to ensure political support, led to chronic budget deficits. The result was growing food shortages, foreign exchange scarcities, and the onset of hyperinflation in 1964 which accelerated in 1965.

One of the consequences of the hyperinflation was the almost total erosion of purchasing power of wages in the public sector leading to a collapse of morale and performance by officials. Taxes ceased to be collected, controls over expenditure disintegrated, and individuals were forced to find self-employment in agriculture and informal sectors in order to gain incomes.[1]

In 1966 the military took over the country in a bloody coup and established a new government under the leadership of President (General) Suharto. This government which has continued in power now for 21 years, is known in Indonesia as the "New Order."

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1 The collapse of public services and the bureaucratic and administrative infrastructure under eroding real wages have occurred recently in Uganda, Ghana, Somalia, Sudan, and Bolivia. Some recent studies by the World Bank have identified the importance if this issue, but it has been little studied to date.

TRENDS IN MACROECONOMIC POLICY AND PERFORMANCE UNDER THE NEW ORDER

Rapid growth and structural transformation of the Indonesian economy under the New Order are clearly portrayed in Tables 2.1 through 2.2. The average annual growth rate of GDP increased from a respectable 6.0% during the recovery period of 1966-71 to 8.1% during the two oil boom periods of 1972-81, and has declined sharply to 1.3% in the post oil boom period 1982-86.

Structural change, shown in Table 2.2 by the declining relative importance of the agricultural sector, conforms to the usual pattern in the context of rapid growth. But it is important to note that the growth of the agricultural sector was reasonably good at 3.8% for the 1970-81 period, and in several other respects the Indonesian case is rather unusual. Most notably, industrial growth has been very slow, both when compared to other countries with similar rates of growth of GDP and relative to the resources which have been allocated to the industrial sector (McCawley, 1981).

Another striking feature of the Indonesian economy has been the growing importance of oil as a source of government revenue which has in turn financed huge increases in government expenditures. As can be seen in Table 2.3 rapidly increasing oil revenues during the New Order have enabled the state to command an increasing share of gross

Table 2.1 Sectoral Real Growth Rates, 1970-1981

1973 Constant Prices

Year	Agriculture, Forestry & Fishing	Mining	Industry	Tranports & Construc-tion	Comuni-cations	Trade & Services	GDP
1970	4.1	15.5	9.0	25.4	4.4	8.7	7.5
1971	3.6	5.6	12.6	19.6	27.3	7.7	7.0
1972	1.6	22.3	15.1	29.8	9.0	13.0	9.4
1973	9.3	23.3	15.2	18.0	12.2	7.5	11.3
1974	3.7	3.4	16.2	22.1	12.1	9.2	7.6
1975	0.	-3.6	12.3	14.0	5.1	10.7	5.0
1976	4.7	15.0	9.7	5.4	13.2	5.0	6.9
1977	1.3	12.4	13.7	20.6	28.1	10.3	8.9
1978	5.1	-2.0	16.8	14.0	17.2	8.0	7.7
1979	3.9	-0.2	12.9	6.4	8.9	7.5	6.3
1980	5.2	-1.2	22.2	13.6	8.9	12.3	9.9
1981	3.5	3.3	12.0	9.6	7.1	10.1	7.6
Aver-age 1970-81	3.8	6.7	14.4	15.5	13.3	9.2	7.9

Source: Nota Keuanagan, 1983/84.

Table 2.2 Changes in Sectoral Output Shares, 1960-1981

Sector	1960	1967	1971	1978	1981
Current Prices					
Agriculture	53.9	54.0	44.8	29.5	24.5
Mining	3.7	2.7	8.0	19.2	24.2
Industry & Utilities	8.4	7.3	8.9	11.1	12.2
Construction	2.0	1.7	3.5	5.5	5.6
Transport & Communications			4.4	4.5	4.1
Trade, Finance & Other Services	32.0	34.3	30.4	30.2	29.4
	100	100	100	100	100
Constant Prices[a]					
Agriculture	53.9	51.8	44.0	32.8	29.5
Mining	3.7	3.7	9.9	11.0	8.9
Industry & Utilities	8.4	8.4	9.3	13.5	16.7
Construction	2.0	1.6	3.1	5.5	5.8
Transport & Communications		34.5	3.8	5.4	51.4
Trade, Finance & Other Services	32.0		29.9	31.8	33.7
	100	100	100	100	100

Sources: 1960-67: Dapica (1980a)
1971-81: Nota Keuangan (1983/84)

[a] 1960-67: 1960 constant prices
1971-81: 1973 constant prices

domestic (and national) product, while maintaining a balanced fiscal budget. The share of public expenditure in GDP rose from 11.4% in 1969-70 to almost 23% in 1981-82 and thereafter declined only moderately. The coincidence of this increased role of the State in national expenditure with the rise in oil revenues is clearly seen in Table 2.3. Oil contributions to revenues rose from 25% in 1972-73 to a high of 62% in 1981-82, while total revenues rose during these years from 15% to 25.9% of GDP.

Table 2.4 presents data on the mobilization of resources for investment during these same years. In 1971 gross fixed capital formation accounted for 15.8% of GDP; by 1983 it had risen to 24.1%. What is even more striking is the expanded role of government savings in financing investment, rising from 2.2% in 1971 to 11.3% in 1981 while, at the same time, domestic private savings accounted for a declining share, falling from 5.1% to 1.3% during the same period. Perhaps even more remarkable is that domestic savings accounted for only 50 - 60% of investment with the share rising erratically during the late 1970s, while that contributed from foreign aid increased steadily despite Indonesia's membership in OPEC. In the early 1980s, Indonesia began, for the first time, commercial borrowing for a significant share of foreign inflows in response to falling direct investment from abroad.

Table 2.3 Government Revenues and Expenditures, 1969-1982

Year	Revenues			Expenditures		
		Shares				
	Total (Rp. billion)	Oil	Aid	Revenue/ GDP	Total (Rp. billion)	Expenditure/ GDP
1969/70	334.7	20	27	12.3	309.4	11.4
1970/1	465.0	21	26	14.7	416.3	12.9
1971/2	563.5	25	24	15.3	500.0	13.6
1972/3	748.4	31	21	16.4	674.0	14.8
1973/4	1,171.6	33	17	17.3	1,050.1	15.5
1974/5	1,985.7	48	12	18.5	1,782.0	16.6
1975/6	2,733.5	46	18	21.6	2,258.9	17.9
1976/7	3,689.8	44	21	23.9	2,910.7	18.8
1977/8	4,308.8	45	18	22.6	3,568.1	18.7
1978/9	5,301.6	44	20	23.3	4,312.0	19.0
1979/80	8,077.9	53	17	25.2	6,759.7	21.1
1980/1	11,720.8	60	13	25.8	10,286.4	22.6
1981/2	13,921.6	62	12	25.9	12,253.8	22.8
1982/3	14,358	58	12	24.1	14,356	24.1
1983/4	18,315	54	17	25.7	18,311	25.0
1984/5	19,383	50	21		19,381	
1985/6	22,824				22,824	

Source: Nota Keuangan, 1983/4

The increased role of the State in mobilizing resources for public expenditure and for investment have in turn played a major role in shaping aggregate patterns of resource allocation and employment generation.

Important shifts in macroeconomic policy over the course of the New Order fall into four broad phases: a period of stabilization from 1967-72, the first oil boom and its aftermath between 1973-78, the second oil boom from 1979-82, and the post-oil boom austerity that has prevailed since 1983. Each period represented significant shifts in macroeconomic policies.

1967–72: STABILIZATION

During the first phase the state was primarily concerned with bringing the mega-inflation of the early 1960s under control and mobilizing foreign aid. The main policy thrusts were to establish a firm administrative control of the society, rehabilitate the economy, selectively decontrol some parts of the economy, and to attract foreign investment.

To rebuild the shattered fiscal system, and reestablish administrative controls a commitment was made to maintaining a balanced budget. However, developing the mechanisms to collect taxes was no simple task, and establishing a system of budgetary control of expenditure on a demoralized bureaucracy was similarly difficult. A thorny problem was in dealing with the multitude of parastatal

enterprises that accounted for significant numbers of employees and were making large and unpredictable claims on the budget. A unit in the Ministry of Finance was established to provide management oversight and to force public enterprises to be profitable. Under this system of controls, the more powerful state enterprises, parcicularly PERTIMINA (the National Oil Company), became virtual governments within government. As long as they were generating revenues, and hence not requiring subsidy, the Treasury was able to expect little control over their expenditures and new external borrowing.

The populist centerpiece of the strategy was the assurance of adequate supplies of rice and cloth, the two main items of mass consumption, at cheap and dependable prices. A substantial amount of the budget went to subsidizing these two commodities, increasing production, and assuring supplies on concessional terms from international donors. Development and dissemination of improved rice varieties and inputs under an extension and credit system (BIMAS) received top priority. Major investments were made in rehabilitating and expanding the textile sector, and large-scale plants were provided with yarn at subsidized prices. These controls were established in part at the expense of the numerous, small-scale, hand-loom and rice producers.

The same problem of partial displacement of locally owned pribumi (indigenous) enterprises also arose in other labor- intensive sectors such as the cigarette, rice hulling,and beverage industries.[2] New, partly subsidized, large-scale firms with domestic Chinese, state, and foreign equity participation were encouraged through a variety of public edicts to regenerate industrial growth. Incentives were given to make these activities privately profitable, but sometimes this was at the expense of social profitability, most particularly of labor absorption.

Some aspects of the control system for foreign exchange and import licensing were liberalized. In particular the exchange rate was substantially devalued and unified thus ending a long confused tradition of administered multiple exchange rates. However, foreign investment was strictly licensed under direction of the Central Bank which worked through State banks and consisted of a complicated system of allocating credit for different purposes, many of which encouraged indigenously-owned businesses.[3]

1973–78: THE FIRST OIL BOOM AND ITS AFTERMATH

In 1973 the confluence of several important events served to steer macroeconomic strategy in a different

[2] An excellent analysis of economic vs. engineering issues in the choice of appropriate technology is contained in L. Wells and (1975).

[3] Bruce R. Bolnick argues that some of the administered allocations were appropriate given widespread imperfections in other markets. This is the best short survey and analysis of the effects of financial policies in Indonesia.

direction. First was a rapid increase in the price of rice, a consequence of a long dry season, low domestic stocks and tight conditions in the world rice market. The shock of rice price inflation raised considerable alarm and focused attention on the need for greater control over macroeconomic management. Confidence in the stability of the system and the direction in which it was moving was further undermined by the Malari riots of 1974 in which the resentment of students and Islamic groups over foreign investment burst forth.

Sudden increases in oil revenues after 1973 (See Table 2.3) not only compensated for the rise in rice imports, but also provided the state with a new range of opportunities.

The central feature of government policy during the first oil boom was a proliferation of bureaucratic controls, a tendency which has elicited quite severe criticism from many economists and donors (Booth and McCawley, 1981: Glassburner, 1979: Paauw, 1979). While opinions differ over questions such as the feasibility of a labor-intensive growth pattern, the implications of high levels of oil revenues for short- and long-term investment strategies, etc., there is widespread agreement that many Indonesian economic policies and procedures have tended to stifle investment and to distort it in an excessively capital-intensive direction resulting in a great deal of unproductive investment. Particular criticism has been

leveled against investment review, licensing procedures, import controls, and a wide range of measures such as subsidized credit which have lowered the price of capital. The implication is that these policies are misguided or that they form the basis for extensive corruption.

What many critics often fail to take into account is that these measures constitute key mechanisms for maintaining and consolidating the highly centralized power structure. A prime example is the foreign Capital Investment Law of 1967 which had opened the economy to foreign investment and which was amended in 1974 so as to impose a number of new regulations. These new directives included stipulations on the share of Indonesian capital in manufacturing profits, and requirements that new ventures could only be undertaken together with the government, with pribumi or with pribumi-dominated corporate partnerships (Donges 1980: p. 394). Further, investment incentives were limited to certain "priority" projects and several activities were closed to foreign investors.

In practice, provisions of the amended law constituted bases for alliances between multinationals and senior bureaucrats or military officials in which access to markets and resources could be exchanged for a share of the product. Meticulous documentation of how these alliances evolved and operate through direct ties between particular centres of politico-bureaucratic power and multinationals rather than

through public policy channels is provided by Robison (1978). Precisely because the system is contingent upon the exercise of bureaucratic control over economic concessions, it generates highly interventionist policies. The concessions are important not only in extractive sectors, but also in spheres of manufacturing such as motor car assembly where value added often seems to be negative (Paauw, 1979).

Government relations with domestic capital assumed similar mechanisms over this period. Despite the rhetoric surrounding the development of pribumi enterprise, policy was, in effect, directed toward ensuring that domestic accumulation of capital took place under the auspices of state patronage. This strategy gave rise to a small group of what Robison calls asli (indigenous) client capitalists; an extremely, precariously positioned group of entrepreneurs who depended almost entirely on personal connections with government patrons. The inherent insecurity of these relationships tended to bias investment toward short-term speculative gain; indeed Robison found that many of the asli clients did not undertake any direct investment at all, but acted primarily as contract brokers (Robison, 1978: pp. 36-37).

In these and other ways the state moved to consolidate its position and restructure the use of foreign and domestic capital, and oil revenues played a major role in this

process. The chief consequence of this strategy, as we shall see later, was the concentration of aggregate resource allocation and little incremental employment generation.

1979–82: THE SECOND OIL BOOM

By the late 1970s these investment patterns had become a source of growing concern to the state. The third five-year plan (1979-84) contained rhetoric about the "equitable distribution of the fruits of development," and distributional issues which had been notable absent from earlier official discourse. These philosophic concerns were accompanied by major investment shifts in two key sectors: oil and rice. Although annual oil production declined from 580 to 577 million barrels between 1979 and 1982, sharply increasing oil prices resulted in a massive expansion of government revenues and expenditures during this period as Table 2.3 illustrates. On the face of it, the broad sectoral allocation of resources remained more or less unchanged after 1979 (McCawley, 1983). The huge absolute increases in government spending were, however, associated with efforts to channel resources into sectors and segments of the economy which had previously been relatively neglected.

The degree to which government mobilized resources for investment is shown in Table 2.4. Following the first oil boom in 1975 the share of investment in GDP rose above 20% and increased slowly over the following years to a level of

Table 2.4 Gross Investment and Sources of Finance, 1967-83 (% of GDP)

	Gross domestic investment	Oil company investment	Other foreign investment	Recorded commercial borrowing inflows	Foreign aid inflows	Total foreign inflows (2+3+4+5+)	Govern-ment savings	Private domestic savings	Total domestic savings (7+8)	as % of gross investment (9/1)
	1	2	3	4	5	6	7	8	9	10
1967	8.0	n.a.	0.0	0.0	3.0	3.0	-1.2	6.2	6.2	77.5
1968	8.8	n.a	0.0	0.0	2.8	2.8	0.0	6.0	6.0	68.2
1969	11.7	1.1	1.1	0.0	3.3	4.5	1.0	6.2	7.2	61.5
1970	13.6	1.3	1.4	0.0	3.6	6.3	1.7	5.6	7.3	53.7
1971	15.8	2.3	2.5	0.0	3.7	8.5	2.2	5.1	7.3	50.8
1972	18.8	2.2	3.1	0.0	3.5	8.8	3.4	6.6	10.0	53.2
1973	17.9	2.5	2.0	1.3	3.0	8.8	3.8	5.0	8.8	50.8
1974	16.7	3.1	0.8	0.9	2.2	7.0	6.9	2.8	9.7	58.0
1975	20.3	3.5	1.8	4.0	3.9	13.2	7.2	0.0	7.2	35.5
1976	20.7	3.0	1.1	2.4	5.1	11.6	8.3	0.8	9.1	44.0
1977	20.1	1.9	0.6	1.7	4.1	8.3	7.3	4.5	11.8	58.7
1978	20.5	1.9	0.9	1.2	4.6	8.6	6.8	5.4	12.2	58.6
1979	20.9	2.2	0.6	2.0	4.5	9.3	8.5	3.1	11.6	55.5
1980	20.9	3.0	0.5	1.2	3.4	8.1	10.1	2.7	12.8	61.2
1981	21.4	2.4	0.4	4.0	2.0	8.8	11.3	1.3	12.6	58.8
1982	22.6	1.9	0.5	4.6	2.2	9.2	8.6	4.8	13.4	59.3
1983	24.1	2.1	0.3	2.8	5.0	10.2	8.6	5.3	13.9	57.7

Note: Oil-company investment (2) is the sum of exploration and development investment. Private domestic savings *\(8) include savings of public enterprise

Source: Gillis (1984), updated by figures supplied by the Ministry of Finance for 1982 and 1983.

24% in 1983. The centrality of government in financing investment is clear from the table. Foreign aid, show in column 5, rose from a low of 2.2% of GDP in 1974 to a high of 5.0% in 1983. Government savings rose from under 4% of GDP in the early 1970s to a high of 11.3% in 1981. Government savings have accounted for between 60 and 95% of domestic savings during most of this period while private domestic savings have been generally low since 1974, rising above 5% of GDP only in 1978 and 1983. Taken together, foreign aid and government savings have accounted for between half and two-thirds of total investment in the years since 1974.

Decentralization of the development budget - at least in absolute terms - was one of the important changes which took place after 1979 (Daroesman, 1981). Table 2.5 gives information about the allocations of fiscal revenue to the various regional development programs. There was, for instance, a sharp increase in the volume of development expenditures channeled directly to provincial, regency, and village governments as opposed to central department branches in the region (Daroesman, 1981: Nota Keyangan, 1983-84). This program known as INPRES (an acronym for Presidential Instruction) also covers direct grants for the construction of primary school buildings, health infrastructure, road rehabilitation and regreening, all of which rose sharply. For example, in Java INPRES grants increased from Rp60 billion in 1974-75 to Rp173 billion in

TABLE 2.5

GOVERNMENT REVENUES AND EXPENDITURES
(Current Prices, In Billions Of Rupiah)

	1972/73	1973/74	1974/75	1975/76	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86
I.DOMESTIC REVENUES	585.1	968	1754	2242	2906	3536	4266	6697	10227	12213	12418	14433	15905	19252
II.DEVELOPMENT REVENUES	149.5	204	232	492	784	773	1035	1381	1494	1709	1940	3882	3478	3572
TOTAL REVENUE	734.6	1172	1986	2734	3690	4309	5301	8078	11721	13922	14358	18315	19383	22824
I.ROUTINE BUDGET	444.3	713.3	1016.1	1332.3	1629.8	2149	2744	4062	5800	6798	6996	8412	9429	11951
II.DEVELOPMENT BUDGET						2157	2555	4014	5858	6940	7360	9899	9952	10873
TOTAL BUDGET						4306	5299	8076	11658	13738	14356	18311	19381	22824
GENERAL INPRES PROGRAMS		45.7	101.3	129	143.7	167.7	181.6	218.8	336.8	448.1	535.3	538.8	540.4	594.5
SECTORAL INPRES PROGRAMS		19.2	25	65.1	94.1	137	176	252	377.2	584.5	444.2	771.2	824.4	872.8
TOTAL INPRES PROGRAMS		64.9	126.3	194.1	237.8	304.7	357.6	470.8	714	1032.6	979.5	1310	1364.8	1467.3
INPRES AS % OF DOMESTIC REVENUES		6.70%	7.20%	8.66%	8.18%	8.62%	8.38%	7.03%	6.98%	8.45%	7.89%	9.08%	8.58%	7.62%

SOURCE : INDONESIAN FINANCIAL STATISTICS, JULY 1986
MINISTRY OF FINANCE

1978-79, and then shot up to Rp392 billion in 1981-82 (Daroesman, 1981: p.14, Dick, 1982). In contrast with the previous period when resources were heavily concentrated in Jakarta, this decentralization occurred in small towns and cities and seems to have been the result of a major construction boom. This construction boom in the late 1970s and early 1980s coincided with several bumper years of rice production stimulated by extremely favorable weather conditions, the availability of pest-resistant, high-yielding rice varieties, and extensive fertilizer subsidies made possible by oil revenues.

For a number of reasons, then, 1978-79 was an important turning point in the Indonesian economy. Accordingly, in considering shifts in employment over the course of the New Order it is important to distinguish the period prior to 1978-79 from the post-1978 oil boom.

A second important change in policy was that of exchange rate management. Indonesia was becoming subject to "Dutch Disease" - a common phenomenon of mineral exporters in which a boom, through causing domestic inflation, gives rise to an appreciated real exchange rate. If attention is paid only to the balance of payments, there is no obvious need to prevent the exchange rate from so strengthening. However, this appreciation disadvantages traditional sectors of export and import competition, giving rise to declines in

these industries. [4] Therefore, in November 1978, the rupiah was devalued, not because of balance of payments problems but in order to restore competitiveness in non-oil export and import-competing sectors.[5] A principal reason for concern with these sectors was the implications for employment. Indonesia had begun to exploit comparative advantage in labor-intensive manufactured exports and import-competing goods which were threatened by these developments.

POST OIL BOOM AUSTERITY

Since 1982 Indonesia has been faced with rapidly declining oil revenues. The first effects, have been a sharp decline in growth as is shown in Table 2.1, higher unemployment, and an increasing debt-service ratio. In the absence of large windfalls from oil it has become clear that

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[4] The phenomenon was noted in connection with the Dutch response to North Sea Oil and similar affects caused by the decline of traditional industries in the United Kingdom as a result of oil and gas revenues. The strengthening of the dollar during the early 1980s had similar effects on the "rust belt", as any reader of the recent US press is aware. The "Dutch Disease" phenomenon is comprehensively treated in J. P. Neary and S. van Wijnbergen,(1986)

[5] An excellent discussion and analysis of the Indonesian policies with respect to exchange rate management is provided by Peter G. Warr, "Indonesia's Other Dutch Disease: Economic Effects of the Petroleum Boom," Chapter 9 in Neary and van Wijnbergen, Ibid., pp. 288-320. A more general analysis of Indonesia's policies for managing the trade and exchange systems is found in Malcolm Gillis and David Dapice, "Indonesia," Chapter 14 in Rudiger Dornbusch, F. Leslie C.H. Helmers (eds.), The Open Economy: tools for Policymakers in Developing Countries, (Washington: World Bank, 1986).

Indonesia has to plan how to mobilize and use other resources more efficiently.

The responses of policy makers have been to liberalize the economy, reduce the direct role of the State, and expand production in labor-intensive sectors. Controls on investment have been diminished and interest rates in banks have been liberalized in order to increase domestic private savings and investment. Adjustments of the exchange rates through devaluations in March 1983 and September 1986 together with increasing flexibility through use of a "crawling peg" have been employed to maintain competitiveness of labor-intensive sectors in trade. Other efforts Indonesia policy makers have tried to increase their trade advantage include: tariff reductions in a duty-back scheme for exports; the establishment of free trade zones; and port streamlining. Fiscal performance has been improved as well by tax reforms, and simplification, and administration, and the reduction of major subsidies. And the state has canceled over $10 billion of capital-intensive, public sector investment projects as additional proof of their seriousness about controlling government expenditures and concern about labor absorption. [6]

[6] Mr. Ramli Rizal, a doctoral student at Boston University, is writing a dissertation on Indonesia's macroeconomic management during this period and I am grateful to him for sharing information summaries from a draft.

CHANGING PATTERNS OF EMPLOYMENT: EVIDENCE, ISSUES, AND CONTROVERSIES

As is often the case, any effort to use national survey and census data to assess changes in the structure of employment is confounded in the first instance by problems of definition and measurement (See Appendix A: Indonesia Employment Data: Problems of Definition and Measurement). The chief criticism of these data is that the standard concepts of employment on which they are based fail to capture important aspects of work organization (Myrdal, 1968: Connell et al., 1977). In particular, considerable employment takes place outside of the wage structure and the definition of employment is vague and inconsistent. Furthermore, a key feature of work organization in this country is extreme occupational multiplicity; people derive their livelihood from a variety of different sources which not only vary seasonally, but on a daily basis (White, 1979). In principle it should be possible to use national-level employment data to trace changes over time. The main problem with using the Indonesian data for this purpose is that the reference period has varied substantial among surveys and censuses.

Despite wide ranging methodological problems, there are two consistent patterns which emerge from the national survey and census data. First, the proportion of the population in rural Java remained more or less constant through most of the 1970s at around 80%. This figure needs

to be tempered with the recognition that population densities on that island are such that rural-urban distinctions are rather meaningless. And since municipal definitions remained unchanged until the 1980 census, urban agglomeration was not adequately evaluated. Despite these and other caveats about the accuracy of macro data on population distribution, it appears that rural-urban migration on Java was comparatively low during the 1970s.[7]

Second, growth in rural nonagricultural employment for both males and females particularly prior to 1976, was significantly faster than employment in agriculture. This shift in the composition of rural employment was probably far more marked than any changes in the growth of employment over the first part of the 1970s.[8] Aggregate wage data suggest that the decline in the proportion of the work force in agriculture was accompanied by more or less constant agricultural wages.[9]

In fact, these data are subject to two entirely different interpretations. One possibility is that rural Javanese were being induced out of rice agriculture by activities stimulated by buoyant economic growth.

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[7] For a good summary of the recent literature see Riwanto Tirtosudarmo, "Migration Patterns and Development in Indonesia: A Review of the Literature," Masyarakat Indonesia, V. XII, No.3 (1985) pp. 303-317) .

[8] This is partly summarized in Gavin Jones, "Links Between Urbanization and Sectoral Shifts in Employment in Java," Bulletin of Indonesian Economic Studies, V.XX, No. 3, (December 1984).

[9] See Peter G. Warr, op. cit, p. 311, Fig. 9.5 and Footnotes 30-33 for partial evidence.

Alternatively, the data could reflect a process of marginalization whereby people were being driven into peripheral activities in order to survive. Because national survey and census data provide no information on the nature of these activities or the returns which they yield, all that can safely be concluded is that there are tremendous variations among sectors in average labor productivity and that the two lowest product sectors (trade and services) accounted for more than half the growth in employment (See Table 2.6).

The 1974-75 industrial census provides some additional information of the composition of the industrial work force. According to this census, large and medium firms accounted for 13% of industrial workers and 80% of value added, while the shares of cottage industries were precisely the reverse (McCawley, 1981: p. 68). Value added per worker ranged from Rp731,000 in medium-to-large firms, to Rp119,000 in small firms and to Rp19,000 in cottage industries. About 80% of the manufacturing work force was located in rural areas and half were women; a large proportion of these women were "own account workers" or "unpaid family workers". Most males were employed as wage laborers (McCawley, 1981: p. 69). These data reflect the dominance of cottage industry, over 50% of which consisted of bamboo weaving and coconut sugar production. As we shall see in the following section, these activities yield extremely low returns to labor, often below agricultural wages.

Table 2.6 Sectoral Shares in Employment

	Sectoral Shares		Annual % Share of Total Increase	% Annual Growth in Increase	Output per Worker	
	1961	1971	1980	1971-80	1971-80	1971-80
Agriculture	73.6	65.9	55.5	1.0	20.6	2.9
Mining		0.2	0.7	16.5	2.3	-13.8
Manufacturing		7.8	8.6	4.1	11.5	9.3
Utilities	7.8	0.1	0.2	8.9	0.4	4.2
Construction		2.0	3.1	8.4	7.0	6.6
Transport & Communications	8.9	2.4	2.9	5.0	4.5	6.9
Trade		10.9	12.1	5.0	20.4	1.3
Finance	9.7	0.3	0.	10.1	1.2	3.4
Services		10.4	15.4	7.5	32.1	1.7
Total	100	100	100	100	100	
Female		(33.2%)	(32.6%)	(2.7)	(30.6)	
Male		(66.8%)	(67.4%	(3.0)	(69.4%)	

Source: 1961: Dapice (1980a)
1971-80: Scherer (1982)

On the aggregate level, Dapice's (1980) comparison of sectoral snares in employment and output in the early 1970s indicates a pattern of large productivity gains in limited "modern" sector activities along with a hugh proportion of the work force crowding into very low productivity activities. These patterns are consistent with resource allocations during the first oil boom but they fail to provide a definitive answer to the question of whether labor was being pushed or pulled out of agriculture.

REAL WAGE MOVEMENTS

Very little consistent time-series data on real wages exist. We have already referred to the various conflicting observations of different researchers taken from fragmentary studies. Warr has attempted to collect the available data in a systematic fashion and argues that real wages in most sectors rose from 1973 to 1977, fell between 1977 and 1979, and rose again between 1979 and 1982. His principal purpose is to identify the relationships between exchange rate regimes and real wages. We will argue that the redirection of investment as well as maintenance of competitiveness of labor-using sectors has been important to the process. Further, movements in reported average real wages may not be informative if the dispersion of earnings is also increasing

at the same time.[10] Summarizing the evidence, Warr argues that:

> Two points are especially clear. First there is an overall trend of rising real wages over the period [1975-82]. Secondly, this trend was interrupted by the devaluation in late 1978. The devaluation caused consumer prices to rise faster than wages and it was roughly 2 years before real wages returned to their pre-devaluation levels. Over this 7-year interval average real wages in manufacturing rose by 68 per cent according to these data. Real GDP per capita rose by 37 per cent over this same period, so according to this crude calculation, both real manufacturing sector wages and the share of national income going to industrial sector labor rose over this period.
>
> Other sources of urban sector wage data are less satisfactory but point in roughly the same direction. Data on wages for construction workers in Jakarta are available ... we find total increases in real wages over the period 1975-82 of 95% for laborers, 21 per cent for foremen and 31 per cent of head carpenters. These data also reveal a dip in real wages following the 1978 devaluation, lasting for 2-3 years.
>
> The best data available for rural sector wages are a series of daily wage rates for three activities (hoeing, transplanting and weeding) collected since 1976 by the Bureau of Statistics. When these data are deflated by the price of rice ... we find increases in real wages for three regions of Java and a small decline in a fourth. Wage data for estate workers...indicate increases in real wages from 1976 to 1980 of between 3 and 39 per cent (Warr, 1986: pp. 311-12).

---

[10] Christopher Manning and Soedarsono ("Employment Structure, Labour Markets and Wages in Indonesia, "Yogyakarta Gadjah Mada University mimeo, 1983) argue that wage differentials grew rapidly during the 1970s.

FATE OF LOW INCOME GROUPS[11]

In the late 1970s there was a variety of evidence on what was happening to the socio-economic conditions of the low income groups. While it is at times conflicting, a reasonable and consistent picture which emerged at that time was that labor-displacing changes in agricultural technology and organization combined with increasing landlessness resulted in a growing proportion of the rural population relying on lower productivity nonagricultural employment. In part this was reflected in a rapid increase in circular migration between rural and urban areas which brought still closer the interaction between urban and rural poverty in Java. These increases dampened real wages of unskilled workers and the real earnings of those engaged in low productivity "informal" sector activities in both rural and urban areas. Given the close relationship between urban and rural labor markets it appeared highly unlikely that a discrepancy as large as that suggested by Meesook's analysis of Sussenas in the trend of the absolute improvement in incomes at the bottom end could have arisen (See Appendix A). In other words, there was reason to question data which showed a fairly dramatic improvement in low incomes in urban areas of Java but not in the rural areas.

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[11] This section is based on an unpublished study ofurban poverty in Indonesia done for the World Bank. John Harris was a member of the group.

Further, in urban areas, informal-sector real wages had not risen much through 1978, restrictions on activities of hawkers, becak drivers, etc., had increased, and such spotty bits of information that had been generated on incomes of these"informal" sector participants suggested that at best they had not risen in real terms in recent years and for some categories had probably declined. These findings are not inconsistent with Warr's evidence, since 1979 was late in the period which he indicated the real wages declined. However, there may have been underestimation of gains between 1973 and 1977.

These trends were consistent with important changes taking place in the agricultural sector. Rural and urban Java have never been precisely delineated, and it seems that they are coming closer together. The back and forth movement of the labor force is neither new nor unique to Java but its extent may be becoming quite extraordinary. For a long time there have been predictions of an impending surge in rural-urban migration as the pressure on land pushes large numbers of people to the cities on a permanent basis. It seems that what may be happening instead is a blurring of the rural-urban distinction.[12] This has important implications for the nature of the urbanization process.

As will be shown in detail in Chapter IV, there was widespread availability and adoption of improved strains of

[12] This point is developed at length by Graeme Hugo, (1978-1985).

pest-resistant rice after 1978 which caused substantial increases in rice yields. This semi-autonomous improvement in rice technology had direct imput on raising agricultureal incomes.

This agricultural improvement coincided with reforms in policy to improve international competitiveness of labor-intensive sectors. Furthermore, the second oil boom with the rechanneling of new revenues into decentralized labor-intensive rural infrastructure programs, reinforced labor demands in nonagricultural sectors. The evidence available shows that these changes in labor demand after 1978 caused real wages to rise in all sectors of the economy.

CONCLUSION

Indonesia's economic performance in the past two decades makes it a success story. Sustained rates of growth of per capita income have raised its standing from a low to a lower-middle income country according to the World Bank classification. Combining reasonable policy with oil booms, the country has demonstrated increased capacity to mobilize resources for investment. Nevertheless, its heartland, Java, is still a poor, agricultural, densely populated economy.

Given the central importance of foreign aid and oil revenues in expanding savings and fiscal resources, it is hardly surprising that the government budget has been crucial in channeling resources to productive use. Public

savings have increased absolutely and relative to GDP and increasing proportions of the budget have gone directly to investment in expenditures on human capital formation and infrastructure construction through a set of special labor-intensive rural work programs.

By taking explicit measures to avoid the appreciation of the exchange rate that makes traditional export and import-competing sectors uncompetitive in many mineral-rich economies (the "Dutch Disease" syndrome), Indonesia since 1978 has avoided this potential source of labor displacement. In general, labor costs have remained internationally competitive by the usual standards of measurement.

The aggregate statistics suggest a growth of employment throughout the 1970s of close to 3% per annum while the growth of the population (but not of the labor force) declined to approach 2% per year. Consistent with this kind of macro performance, real wages increased on average after the mid 1970s.

However, this rosy picture must be modified somewhat. A surprisingly disproportionate share of labor absorption has been in the service sectors while manufacturing and agriculture which received the bulk of investment showed productivity growth but minimal employment expansion. The economics of service sector growth are not well understood in Indonesia and there is unresolved controversy whether

this represents productive labor absorption or instead a modified form of poverty sharing that has been described historically as "Agricultural Involution" (Geertz, 1963).

In order to understand how these macroeconomic events and policies have impacted on employment and access to labor income, it is necessary to identify the ways in which these changing labor demands and resource flows were mediated by particular labor-market institutions. That is the task to which we turn in the following chapters.

III.

URBAN LABOR MARKETS

The postulates of theory and the findings of empirical research have verified that the initial phases of economic development involve a transfer of human, physical, and financial resources from the relatively sluggish rural areas and agricultural sectors, to the more dynamic urban regions and expanding secondary and tertiary activities. While such a transfer of resources has associated benefits and costs, there is a general consensus that the process results in a net positive effect of factor productivities and hence total production as well as regional and sectoral distribution.[1]

The continuing influx of persons into urban labor markets results in a proliferation of low-wage activities in self-employment and informal sector trading, cottage industry, and labor-intensive transport. At the same time, growth of a large, low-income population puts great pressure on housing, water, sewage, and other infrastructure and, in Indonesia, has been accompanied by a rapid growth of squatter settlements.

Indonesia is an example of a developing country where the rate of urbanization has outstripped the rate of employment creation in the expanding formal manufacturing

[1] For a recent challenge to this generalization, see Michael Lipton (1976)

and service sectors. In fact, urbanization is seen by most policy makers as a problem and several attempts have been made to stop or reduce rapid urbanization of major cities in Indonesia. For example, in 1971 Jakarta was declared a "closed city" to new migrants. As might be expected, the result was a failure, since the policy was adapted without an understanding of the fundamental underlying causes of population movements or urban employment trends.

However, relative to other developing nations, urban growth in Indonesia (and Java in particular) has been relatively modest. During the decade of the 1970s the Indonesian urban labor force grew at 5.8% per annum while the rural growth rate was lower, at 2.1%. [2] Measures of open unemployment remained relatively low estimated at 4.8% in urban areas in 1971 and 3.1% in 1980. The comparable rural figures from the same censuses were 1.7% in 1971 and 1.4% in 1980.[3] Having examined the various sources of data, Manning and Soedarsono concluded that unemployment in Indonesia is about 6% in urban areas and 1.5% in rural areas, suggesting relatively constant rural rates and a

[2] Indonesia, Central Bureau of Statistics , 1980 Population Census, Sub-sample Results (Series S-1) and Population Census 1971, Series D, reported in Table 2.7 in Chris Manning and Soedarsono, "Employment Structure, Labor Markets and Wages in Indonesia," Yogyakarta: Gadjah Mada University, mimeo, 1983.

[3] Reported in Manning and Soedarsono, Op. Cit., Table 2.9. See Appendix A for a further discussion of the conflicting evidence from different sources. Nevertheless, the highest reported urban rate was 7.6% from the National Social Economic Survey of 1979. We will discuss the nature and composition of unemployment later in this chapter.

slight increase in urban open unemployment during the 1970s (Manning and Soedarsono, 1982, p. 15).

What is striking about Indonesia is the degree to which differences in economic structure between rural and urban areas are minimal.[4] Table 3.1 shows the distribution of population by education in urban and rural areas. Not surprisingly the average level of education in urban areas is higher than in rural regions. The proportion of persons with primary education or less fell from 79% in 1971 to 73% in 1980 in urban areas and from 96% to 94% in rural areas in the same period.

Table 3.2 shows the relationships between employment and output growth by sector between 1961-71 and 1971-80, and demonstrates accelerating labor productivity growth rates in the two predominately urban sectors, manufacturing and construction. Manufacturing had actually shown declining average productivity in the 1960s with output growth of 3.8% being lower than employment growth of 5.&% per annum, while in the 1970s employment growth in the sector fell to a rate of 4.1% and output growth accelerated to 12.4%. In the same periods, employment growth in construction rose from 3.3% to 8.1% as output growth rose from 6.7% to 19.3%.

Three main questions need to be asked about the structure and growth of urban labor markets in Indonesia.

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[4] The most important work on this is by Hugo, Op. Cit.

Table 3.1 Education Attainment of Population Aged Ten and Over in Urban and Rural Areas, Indonesia, 1971-1980.[1]

Education Attainment	URBAN				RURAL			
	% Distribution		Increase 1971-80		% Distribution		Increase 1971-80	
	1971	1980	(000)	%	1971	1980	(000)	%
No Schooling	22	15	356	11	44	31	-4373	-15
Incomplete Primary	30	32	3577	84	34	43	12018	53
Primary	27	26	2459	63	18	20	3945	33
Lower Secondary:								
General	9	12	1438	106	2	3	1124	91
Vocational	3	2	100	24	1	1	111	21
Upper Secondary:								
General	4	6	851	130	-*	1	405	158
Vocational	3	5	761	189	1	1	851	258
Tertiary	4	2	167	77	-*	-*	112	224
TOTAL	100	100	9709	68	100	100	14193	21
N (000)	14364	24082			66123	80316		

* Less than 0.5 percent.
1 Excludes not stated.
Sources: CBS, 1980 Population Census, Sub-sample Results (Serie S-1) and Population Census 1971, Serie D.

Table 3.2 Output and Employment Growth and Employment Coefficients, 1961-1971 and 1971-1980

	Annual Growth of Employment		Annual Growth of Output[1]		Employment Coefficients	
	1961-1979	1971-1980	1961-1970	1971-1980	1961-1970	1971-1980
Agriculture	1.5	1.1	3.2	3.5	0.5	0.3
Mining	1.2	15.5	8.9	8.5	0.1	1.8
Manufacturing	5.7	4.1	3.8	12.4	1.5	0.3
Construction	3.3	8.1	6.7	19.3	0.5	0.5
Transport and Public Utilities	3.4	5.1	3.6	11.9	0.9	0.4
Trade	7.7	5.0	n.a.	n.a.	-	-
	5.1	6.1	5.7	8.5	0.9	0.7
Services	3.3	7.3	n.a.	n.a.	-	-
All Sectors	2.8	3.0	4.5	7.4	0.6	0.4

[1] 1973 prices.

Sources: See Table 2.11. Output growth data are taken from Lluch and Mazumdar, Wages and Employment in Indonesia, p. II.45.

1. Is the supply of labor responsive to increasing and changing demands for labor in growing sectors of the urban economy?

2. How efficiently is labor allocated in these markets?

3. What determines access to employment by different groups in the population. How does this affect the incidence of poverty?

The first question will be examined in more detail in Chapter V, but suffice it to say at this point, labor is very mobile geographically and between sectors. Furthermore, there is relatively little evidence that migration to expanding labor markets is "excessive."

The second and third questions boil down to issues about market segmentation. The first aspect is whether labor market segmentation precludes transfer of labor from low to high productivity uses and whether this in turn retards growth of employment and output in efficient sectors. The second aspect is whether labor market segmentation systematically denies to some groups access to high earnings opportunities and/or socio-economic mobility over time while providing disproportionate benefits to other groups.[5]

While the general dimensions of employment, unemployment, and earnings patterns in urban labor markets are revealed by the aggregate statistics, published data do not permit a fine-grained look at the determinants of these

[5] These are the issues addressed in the theoretical work of Harris and Todaro and Harris and Sabot, Op. Cit. among others.

patterns. In particular, data on individuals' labor market experience required in order to unravel the ways in which human capital variables, such as education and experience interact with structural differences between earnings in government, large-scale private, and informal sector employment are elusive.

To obtain a more detailed picture of the dynamics of the urban labor market micro data on the patterns of employment and earnings experienced by urban workers, both those who have recently arrived and those who are established, are needed. While such a broad-based data set is not available, we are fortunate in having a reasonable substitute in a major survey of migrants to 17 cities in Indonesia during 1973-74.

While these data are limited to migrants, it turns out that migrants are not significantly different from the urban laborforce as a whole with respect to variables such as age, education, and sectoral characteristics. Moreover, there is widespread agreement among knowledgeable observers of the Indonesian labor markets that there is little difference in employment, unemployment, and earnings of migrants relative to resident workers in urban labor markets (Bose, 1978; Leiserson et al., 1978; Lluch and Mazumdar, 1981).

The Survey of Migration was conducted in 1973 by the Indonesian National Institute of Economic and Social Research (LEKNAS). A major objective of the survey was to

examine urban formal and informal labor employment to get a better understanding of what skills and education were required for different jobs, how people entered the market, and how wages were determined. The reader is referred to Appendix B for an explanation of the sampling methodology.

Using this survey and other research, this chapter will discuss Indonesian urban employment trends, focusing on migrants from rural Java to urban areas. More specifically, the research set out to answer these questions:

1) What are the structures and patterns of employment in urban formal and informal sectors?

2) What are the major occupations migrants are engaged in, compared to their occupations before migration as well as their first occupations after migration, i.e., what is their occupational mobility?

3) How do laborforce participation rates and unemployment rates vary among migrants?

4) What are the determinants of earnings of migrants?

A PROFILE OF JAVANESE MIGRANTS TO URBAN AREAS

The age, sex, and educational characteristics of migrants are given in Table 3.3. As can be seen, migration is dominated by the young. About 70% of male and female migrants are under 25 years of age with the single majority in the 15-18 year age group. Less than 11% of the migrants of both sexes are over 36 years of age.

Table 3.3: Age, Sex and Education Characteristics of Migrants

Educational Level	MALE AGE						FEMALE AGE					
	15-18	19-21	22-25	26-35	36+	All Male	15-18	19-21	22-25	26-35	36+	All Female
	PERCENTAGE						PERCENTAGE					
No. Education	3.3	3.7	5.9	15.3	25.9	9.0	11.4	16.4	18.4	30.2	49.0	21.0
Primary Ed. no diploma	21.0	19.3	28.81	30.3	32.3	25.1	28.7	25.7	29.8	27.0	21.8	27.3
Primary Diploma	29.4	22.0	28.7	25.5	20.3	25.7	25.4	18.2	19.8	19.7	15.7	21.2
Junior High Diploma	32.1	10.6	12.0	10.6	10.6	17.0	26.2	13.7	14.2	10.9	8.8	16.8
Senior High Diploma	7.6	22.1	14.3	11.5	7.1	12.7	5.2	13.6	12.4	8.4	3.6	8.48
Academy, University	6.5	22.2	10.9	6.8	3.8	10.5	3.1	12.5	5.4	3.7	1.1	5.4
No. of Cases	3226	2518	1817	2310	1382	11307	2573	1421	945	1003	637	6582

The educational distribution of the migrants indicates a strong relationship between migration and education. Over one-third attained at least a junior high school diploma while about a fifth graduated from a senior high school. Compared to the adult population of either urban or rural areas in Indonesia, this group is better educated (as shown in Table 3.4). Surprisingly, the percentage distribution of the male sample in different educational levels is almost identical to the distribution of urban males except for academy and university education which was attained by 10% of the migrants compared to 3% of the population. The percentage of women migrants who attained diplomas is consistently lower than that of men migrants at all levels of education. This is also true for the adult Indonesian population in general. Migration to the cities of Java is dominated by the young and those with some education this is consistent with migration patterns in Africa and Latin America and generally accepted economic explanations of migration decisions (Barnum and Sabot, 1975; Schultz, 1971; Yap, 1976).

With respect to marital status, about half of the male migrants are single and a third of the females (See Table 3.5). About 42%, of migrants of both sexes are married. What is striking is the incidence of family break-up, either due to death or divorce, among female migrants. Ten percent of female migrants are widows and 12% divorcees, while less than 5% of male migrants are classified either as widowers

Table 3.4 Percentage Distribution of the Indonesian Population 15 Years and Over by Education Attainment

Educational Attainment	Urban		Rural	
	Male	Female	Male	Female
No School or less than Elementary Graduate	34.0	55.6	68.0	83.0
Elementary School	33.7	25.6	25.6	14.6
Junior High School	17.6	11.9	4.5	1.9
Senior High School	11.8	6.1	1.7	0.5
Academy and University	2.9	0.9	0.2	0.0
Total	100.0	100.0	100.0	100.0
Number of Cases	5,833,230	6,011,226	26,013,605	28,454,419

Source: BPS, Population of Indonesia, 1971 Census, Series D as reported in Rural-Urban Migration in Indonesia by Suharso et al., p.51.

Table 3.5 Percentage Distribution of Migrants' Marital Status in Java

Marital Status	Male	Female	Total
Single	52.8	36.5	46.8
Married	42.5	41.1	42.0
Widower/widow	2.7	9.8	5.3
divorced	2.0	12.0	5.9
Total	100.0	100.0	100.0
No. of Cases	11,392	6,627	18,019

or divorced. Given the regional complexities of and ethnic variations in the status of women, custom, inheritance, and law in the different parts of Java, it is hard to explain the meaning, causes, and implications of the apparent association of family break-up and migration for Indonesian women currently in Java.

Half of the male migrants and 36% of female migrants had visited their current urban residence at least once before making the decision to move. During these visits they were able to acquire information about the nature of the labor market, the status of previous migrants, and the conditions that await them. In short, these visits reduced some of the element of risk inherent in moving to a new situation.

Finally, it is instructive to look at the different occupations in which the migrants were engaged in before and after their move.[6] Tables 3.6 and 3.7 show the distribution of jobs for male and female migrants before and after migration. The most striking observation for both male and female migrants is the high rate of declared unemployment before migration, and the low rate after migration. The rate is 16 and 17% for males and females before migration while it falls dramatically to 3 and 3.6% after migration.

[6] More than 75 occupations were listed by the migrants. These occupations were grouped under 15 general categories. A list of the 75 occupations and the categories to which they are assigned is given in Appendix C.

Table 3.6 Occupation of Male Migrants Before and After Migration

	Previous Job		% of those who have it as present job	Present Job		% who had it as their first job in the city
	No.	% of Total		No.	% of Total	
Student	3163	28.9	69.4	2252	20.4	97.3
Housewife	-					-
Agriculture	2641	24.3	1.5	45	0.4	73.3
Trad. Transp.	175	1.6	80.6	1907	17.3	96.2
Motor Transp.	75	0.7	80.0	134	1.2	92.3
Domestic Serv.	250	2.3	12.0	134	1.2	92.3
Pedd. Serv. & Tr.	413	3.8	50.6	1399	12.7	90.3
Sett. Serv. & Tr.	876	8.0	63.0	1941	17.6	92.6
Daily Worker	289	2.6	25.3	480	4.3	71.6
Production/Manual	349	3.2	28.9	602	5.4	81.1
Lower Clerical	367	3.4	77.9	714	6.5	95.7
Manager-Admin.	263	2.4	66.5	386	3.5	95.2
Scavenger	69	0.6	94.2	436	3.9	90.3
Prostitute	-	-	-	-	-	
Unemployed	1763	16.1	7.3	336	3.0	93.2
Other	26	3.3	67.9	266	2.6	-
Total	10952	100.0	-	11052	100.0	-

Table 3.7 Occupation of Female Migrants Before and After Migration

	Previous Job		% of those who have it as present job	Present Job		% who had it as their first job in the city
	No.	% of Total		No.	% of Total	
Student	1490	22.7	66.9	1036	15.8	97.6
Housewife	1712	26.1	73.8	1943	29.6	96.4
Agriculture	921	14.0	0.2	3	-	-
Trad. Transp.	3	-	-	18	0.3	-
Motor Transp.	2	-	-	4	-	-
Domestic Serv.	558	8.5	39.2	657	10.0	84.1
Pedd. Serv. & Tr.	89	1.4	31.5	175	2.7	85.6
Sett. Serv. & Tr.	276	4.2	46.7	440	6.7	89.6
Daily Worker	19	.3	-	20	.3	80.0
Production/Manual	92	1.4	41.3	373	5.7	93.8
Lower Clerical	40	.6	47.5	119	1.8	93.6
Manager-Admin.	96	1.5	55.2	140	2.1	94.6
Scavenger	27	0.4	88.9	232	3.5	99.0
Prostitute	66	1.0	93.9	1124	17.1	99.0
Unemployed	1130	17.2	11.3	234	3.6	83.3
Other	42	0.6		46	.7	
Total	6563	100.0	-	65632	100.0	-

Agriculture is the single most important occupation before migration, accounting for 24 and 14% of the total male and female migrants, respectively. Other important occupations were services and trade and domestic service for female migrants. Having briefly described the characteristics of new entrants into the urban labor market, let us now turn to a discussion of the nature of that market.

NATURE OF THE URBAN LABOR MARKET

The Harris-Todaro model of migration focused on the role of the urban informal sector as easily absorbing recent migrants who are unable to get the so-called "prized" modern sector jobs. Since that hypothesis was conceived, others concerned with employment and unemployment in developing countries have attempted to clarify the nature and structure of the informal sector, and its relationship with the formal sector through the goods produced and services performed (Webb, 1975; Mazumdar, 1975; Sethuraman, 1974). There is little disagreement that the two labor markets are differentiated with respect to one or more of the following conditions: terms of employment; scale of operation, particularly in the use of capital; hours of work per day; conditions of entry and extent of labor turnover; and nature of wage determination. Nevertheless, there is a growing consensus that the distinction between the two sectors is not as sharp as earlier studies have suggested. This distinction is even fuzzier in Indonesia which does not have minimum wage legislation or strong labor unions that

differentiate and protect the interests of the laborforce in the modern sector.

To test some of the standard hypotheses we have categorized different occupations into formal and informal sectors using two criteria to determine the division between the formal and informal sector division. The first criterion used information about the employer as the determining factor. So, for example, individuals who are self-employed or employed by family, friends, or strangers were classified as belonging to the informal sector while those who worked for government or large private firms were classified into the formal sector. According to this criterion, 78% of the male and 80% of the female migrants were found to be in the informal sector.

The second criterion distinguished the two sectors on the basis of our information about the nature of the occupations listed in Appendix C. Clerical, manager-administrator, and manual production occupations were placed in the formal sector; all other occupations were classified as belonging to the informal sector. According to this criterion, 80% of the male and 81% of the female migrants worked in the informal sector. Whether one uses the first or second criterion, roughly the same percentage of migrants are found in the informal sector. Sector classifications hereafter used in this chapter are based on the second criterion.

Tables 3.8 and 3.9 show the labor force participation rates of migrants by education and age. Eighty percent of the male and 55% of the female migrants are in the laborforce. The participation rate is, however, much higher for migrants with less than an elementary diploma, with an average rate of 97% for males and 65% for females. The participation rate is also higher for migrants above the age of 22 for both sexes. This is to be expected since we have seen from Table 3.3 that the younger migrants, those between 15 and 21, have more education then older migrants. This is also seen in Table 3.9 since the percentage of migrants who are students falls sharply with age. For females, the relationship between age and laborforce participation is not as strong as for males; the percentage of housewives increases markedly for higher age groups.

The above interpretation of urban migrant laborforce participation should be taken with caution since it is quite likely that housewives work to supplement the family income in some service or trade activities. In the absence of solid information about the secondary occupations, housewives and students were assumed to be out of the laborforce.

As expected, the percentage of migrants in the formal sector increases with educational level. But the formal sector is a minor source of employment for migrants of both sexes. Only 15% of the males and 10% of the females are

Table 3.8 Labor Force Participation of Migrants by Sex and Education

	Male Education*							Female Education*						
	1	2	3	4	5	6	All Male	1	2	3	4	5	6	All Female
Formal Sector	5.6	6.9	9.4	15.6	42.3	22.9	15.1	4.6	9.0	10.8	7.3	20.9	8.3	9.5
Informal Sector	91.6	91.6	83.0	33.9	21.3	5.5	61.5	72.9	61.6	34.0	11.3	12.1	5.1	41.6
Unemployed	2.5	1.6	3.1	3.2	7.2	1.6	3.0	4.	3.2	4.1	3.5	2.9	2.0	3.6
Total Labor Force	99.7	99.7	95.5	52.7	70.8	30.0	79.6	71.8	73.8	48.9	22.1	35.9	15.4	54.7
Student	0.3	0.3	4.5	47.3	29.2	70.0	20.4	0.5	0.6	9.9	44.8	23.8	63.5	15.7
Housewife	-	-	-	-	-	-	-	17.7	25.6	41.2	33.1	40.3	21.1	29.6
Total Not In Labor Force	0.3	0.3	4.5	47.3	29.2	70.0	20.4	18.2	26.2	51.1	77.9	64.1	84.6	45.3
Unemployment As a % of Labor Force	2.5	1.6	3.2	6.1	10.1	5.4	3.8	5.2	4.3	8.4	16.0	8.2	12.0	6.5
Total Sample	1014	2783	2778	1868	1379	1170	10,992	1314	1790	1389	1162	546	351	6552

*1) No Education; 2) Less than Elementary Diploma; 3) Elementary Diploma; 4) Junior High Diploma; 5) Senior High Diploma; 6) Academy or University

Table 3.9 Labor Force Participation of Migrants by Sex and Age

	MALE AGE						FEMALE AGE					
	15-18	19-21	22-25	26-35	35+	All Male	15-18	19-21	22-25	26-35	35+	All Female
Formal Sector	8.8	13.1	20.1	21.1	19.2	15.4	12.1	9.2	6.9	8.3	6.8	9.6
Informal Sector	48.9	49.5	70.2	76.0	75.0	61.3	37.7	44.4	64.0	43.5	43.3	41.8
Unemployed	3.3	3.9	2.2	2.0	3.6	3.0	4.4	1.8	2.1	1.6	9.1	3.6
Total Labor Force	61.0	66.5	92.5	99.1	97.8	79.7	54.2	55.4	73.0	53.4	59.2	55.0
Student	39.0	33.5	7.5	0.9	2.2	20.3	29.1	16.9	2.1	1.2	1.9	15.7
Housewife	-	-	-	-	-	-	16.7	27.7	44.9	45.4	38.9	22.6
Total Not In Labor Force	39.0	33.5	7.5	0.9	2.2	20.3	45.8	44.6	27.0	46.6	40.8	45.3
Unemployment As a % of Labor Force	5.4	5.9	2.4	2.2	3.7	3.8	8.2	3.2	4.0	3.0	15.5	6.5
Total Sample	3168	2477	1825	2250	1346	11,066	2573	1422	944	1005	634	6578

engaged in it.[7] In fact, it is doubtful whether the conventional distinction between urban formal and informal sectors serves any purpose in the Indonesian context. Systematic institutional differentiation between the sectors as a result of legislation, organized union activity, and government labor practices is not extensive. Rather, Indonesian urban labor markets exhibit most of the characteristics of competitive markets with only small differentials being attributed to institutional factors.

URBAN UNEMPLOYMENT RATES

The meaning of unemployment in the Indonesian context is ambiguous. In the general literature there are at least two main ways of regarding unemployment. One is the conventional measure of persons willing to work and unable to find employment at the going wage as a result of structural rigidities or the failure of wages to adjust to clear markets. The other more "modern" view is to see

[7] This appears to very similar for long-term urban residents as well. Unfortunately, no systematic data exist distinguishing between formal and informal sector employment per se. However, data from the 1971 Census and 1976 Intercensal Survey reported in Table 1.6.3 of Dov Chernichovsky, "Labor Source and Employment in Indonesia, 1961-1976," World Bank, mimeo, 1978, show approximately 35% of the urban laborforce being own-account worker, employer, or unpaid family worker, all of which can be attributed to informal sector participation. Manning and Soedarsono report 87% of employment in manufacturing in 1974-75 to be in small or cottage firms. Only 1.3% of manufacturing employment was in foreign-owned firms and 2.6% in government firms. Since the proportion of informal sector activity in trade and services is even higher, it is clear that the importance of informal-sector employment for the urban population as a whole is comparable to its importance for migrants.

unemployment as a partial outcome of a "search for better-paying jobs in the face of wage dispersion and imperfect information (Harris and Sabot, 1976: p. 48). Thus, unemployment is regarded in part as an alternative "productive" activity whose output is accurate information about the different jobs that are available and their associated pay and working conditions.

Since unemployment in the Harris and Sabot model entails a financial cost to those engaged in it, and the benefits of engaging in extended search are uncertain, it is likely that individuals with higher levels of education will remain unemployed longer than those with less education. This is true for two reasons: first the better educated potentially face greater job options and will search longer for the best offer; and second, the empirical relation between family income and economic status and education make it more likely that the educated will be able to finance their subsistence longer. This proposition is supported by the Indonesian evidence. The last row of Table 3.10 shows unemployment rates for migrants with different levels of education. For both males and females unemployment rates increased with education. These data are fully consistent with data for all participants in urban sectors as shown in Tables 3.10 and 3.11.

The highest unemployment for males is for those with senior high school diplomas. That rate is 10.1% compared to

Table 3.10 Unemployment Rates by Educational Attainment in Urban Areas by Age

Age Group	1961			1971			1976		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
10 - 14	9.9%	15.1%	11.7%	5.4%	10.9%	6.8%	4.9%	8.9%	6.2
15 - 19	32.7	33.2	32.9	25.0	31.1	26.5	33.1	40.6	35.4
20 - 24	23.4	18.0	21.5	30.9	28.0	30.2	38.9	31.7	36.6
25+	34.0	34.0	34.0	38.6	30.0	36.4	23.1	18.8	21.7
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Total in absolute nos.	260,398	141,087	401,485	219,853	74,838	294,691	290,033	134,111	424,144
%	64.9	35.1	100.0	74.1	25.9	100.0	68.4	31.6	100.0

Sources: 1961 Population Census, Series S.P. II, Table 4.2.
1971 Population Census, Series C, Table 6.
1976 Intercensal Survey (Preliminary), Table 24.

Table 3.11 Unemployment Rates by Educational Attainment in Urban Areas

	1971			1976		
	Male	Female	Total	Male	Female	Total
No school	8.31	11.84	10.13	2.24	1.35	1.77
Not yet finished E.S.	10.62	19.21	12.90	4.00	4.90	4.26
Elementary school	10.36	23.03	12.62	4.86	7.72	5.49
Junior High School	12.42	22.88	14.34	6.59	10.48	7.42
Senior High School	13.71	18.43	14.72	10.24	14.19	11.18
Academy/University	10.52	22.22	12.34	4.65	8.52	5.35
Total	10.76	17.08	12.53	5.29	5.94	5.55

Source: 1971 Population Census, Series D, Tables 41 and 41.A
1976 Intercensal Survey (Preliminary), Table 25.

the average of 3.8% for all males in the sample. The highest rate of unemployment for females is for the junior high school diploma holders with 16% unemployment, followed by the academy or university graduates with 13% unemployed which is more than double the 6.5% average unemployment rate for all females.

The rate of unemployment also drops with age for both sexes. This again reflects our earlier finding that the percentage of migrants with higher education decreases with age. Furthermore, almost all of the unemployed are seeking their first job in the particular urban labor market. Therefore, younger migrants are also disproportionately recent arrivals and recent graduates or school leavers.

Finally, we should note that the average unemployment rate, for both sexes after migration is much lower than either the rate before migration or the urban or rural rate for all Java. The unemployment rate as a percentage of the laborforce, is 3.8% and 6.5% after migration for males and females, respectively, compared with the pre-migration rates of 23% and 32% (See Table 3.7). The corresponding figures

for all age groups in urban and rural Java are 12.2% and 7.6% (Sethuraman, 1974: p. 649).[8]

The policy implication of this finding is clear. Urban jobs are readily available to migrants. The problem is one of low salaries; poverty is the fundamental problem confronting migrants. This calls for measures to increase the productivity and hence the earnings of migrants. Undue attention should not be directed to the problems of the openly unemployed who are, for the most part, relatively well-educated and receive family support.

URBAN OCCUPATIONAL MOBILITY

Do migrants remain in the same occupation after migration, or do they move into occupations that provide either higher income and/or more security? Some answers, though tentative, may be derived from Tables 3.6 and 3.7. As expected, the striking change is for those who were engaged in agriculture. Only 1.5% of the male and 0.2% of the female migrants who were previously in agriculture remained in that occupation after migration. Naturally, this reflects the

[8] Unemployment data in Indonesia, as in many developing countries, are variable and difficult to interpret. The pre-migration rates observed in the survey are probably overstated although it is likely that inability to find an acceptable job is a condition that frequently triggers the migration decision. Overall estimates of Indonesian unemployment vary widely and are not supported by adequate statistical evidence. Nevertheless, it seems safe to conclude that rural-urban migrants manage to find some kind of employment rather quickly.

structure of employment opportunities in rural and urban areas.

The majority of the male migrants remained in the same occupation they were in prior to migrating with the exception of domestic servants, daily workers, and production workers. The majority of the female migrants in occupations other than prostitution and scavenging, changed their occupation after migration. This may be because women often migrate with a spouse or family and have to give up their previous occupation. They are thus forced to look for different jobs.

Tables 3.6 and 3.7 also show the structure of unemployment at the time of interview as well as the percentage of migrants whose current job is the same as the first job they obtained after moving to urban areas. For both males and females, there is very little occupational mobility after migration. This does not mean there is no occupational mobility after migration since we excluded, by definition, migrants who moved more than five years earlier to the time of the interview. Furthermore, there may be considerable mobility within these broad occupational categories. In short, the time span of five years may be too short to detect any sizable pattern of urban occupational mobility, although this is doubtful since most of the observed mobility occurred within the first two years.

DETERMINANTS OF EARNINGS

In determining earnings of individuals it is necessary to understand the relative importance of personal factors (human capital) and institutional features of labor markets. Therefore, earning functions were estimated for the sample of employed migrants using a multiple regression analysis. The logarithm of monthly earnings was regressed on sets of dummy variables representing education, age, year of migration, employment sector, pay period, occupation, and city of migration.[9] Details of the estimation procedures and results are contained in Appendix C.

The analysis shows that both human capital (education) and structure of the labor market (employer-occupation interaction, pay period) are important determinants of migrants earnings. But the importance of these variables differs for males and females. Each explanatory variable will be discussed briefly.

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[9] It is reasonable to question whether these variables can and should be entered as completely independent variables since there is likely to be significant interactions between variables such as age, education, occupation, and pay period. In fact, we experimented with several dimensions of interaction through an analysis-of-variance and concluded that little was to be gained by including specific interaction terms in the regression. The estimated coefficients have been relatively robust with respect to specification changes and furthermore, by estimating the regression in logarithmic form, the variables enter multiplicatively. The one form of interaction that was consistently important was between sex and all other variables. Therefore, we estimated separate equations for males and females which is equivalent to full interaction between sex and all other variables.

EDUCATION

Regression coefficients on the dummy variable represent the partial effect on income of being in a particular category relative to the omitted category - the highest education level, academy or university degree holders. The result of the education coefficients clearly shows the return to higher levels of education: the lower the migrant's educational attainment, the lower the earnings.

Table 3.12 shows the estimated earnings according to educational status of male and female migrants who were 26 to 35 years old and who migrated to Jakarta in 1973. We calibrate the estimates by calculating earnings for the group who were employed by a nonfamily member and were paid monthly. As can be seen, income increases with education. Given the log-linear specification of the model and noting the nonsignificance of the occupation variables in Appendix, Table D.1, it is implied that the same relative returns to education prevail for all categories of occupation. That is, other things being equal, a male with a primary school diploma will earn 11.3% more than one who attended school but did not obtain the diploma and 28% more than one who never attended school at all. While statistically, we can identify these marginal returns to education, the total returns are undoubtedly higher since education helps determine employment status and occupation. For instance, the probability of being a monthly-paid employee of a large

Table 3.12 Estimated Monthly Earnings of 26 to 35 Year Old Migrants who Migrated to Jakarta in 1973 and were Employed by a Stranger for a Monthly Wage by Educational Status.

	MALE			FEMALE		
Educational Level	RP	(Index Ei=100)	% change from lower education level	RP	(Index Ei=100)	%change from lower education level
Nor formal Education (E_1)	3959	1.00		3556	1.00	
Less than Primary Diploma (E_2)	4535	1.15	15.0	4140	1.16	16.0
Primary School Diploma (E_3)	5077	1.28	11.3	4592	1.29	11.2
Junior High Diploma (E_4)	5503	1.39	8.6	5649	1.59	23.2
Senior High Diploma (E_5)	6585	1.66	19.4	6668	1.88	18.2
Academy or University Diploma (E_6)	8426	2.13	28.3	6886	1.93	2.7

firm is much greater for a secondary school graduate than for one with no schooling. Yet, the correlation between education and those variables is not so high as to invalidate the measures we have estimated.

It is interesting to note the interaction between education and sex. On average, women earn less than men, but part of this is due to lower average educational attainment of women. Appendix, Table D.1 suggests that women receive lower wages than men regardless of educational attainment. With no formal education, being employed by a stranger and receiving a monthly wage, a 26-35 year old woman who migrated to Jakarta in 1973 would earn 12% less than a man in the same situation. Beginning at this lower base, the proportional increments to income occurring from some primary schooling and completion of primary school are the same for women as for men - their earnings remain approximately 12% lower than for men at each level. With a junior high school degree women earn slightly more than men, but not significantly so. And at the highest level of education women seem to experience no gain in salary. We do not have a good explanation of this; it may merely be that there were few observations for women with university diplomas.

How do our predicted monthly earnings of migrants compare to the observed wage rates in Jakarta? According to the INPRES program, which is a public works program in the

rural and urban areas in Indonesia, the average daily wage in Jakarta in 1971-72 was Rp. 200, Rp. 350, and Rp. 400 for unskilled, semi-skilled, and skilled workers, respectively. This implies a monthly wage of Rp. 5000, Rp. 8750, and Rp. 10,000, respectively, for 25 work days per month. Compared to these figures, our predicted earnings are a bit on the low side. However, when account is taken of the lower coefficient for daily-wage payment our estimates seem reasonable and are approximately in line with the estimates reported by Papanek and Kuntjoro-Jakti for comparable occupation groups (Papanek and Kuntjoro-Jakti, 1975).

YEAR OF ARRIVAL AND AGE

The year of arrival, which is a measure of the number of years the migrants have been in their new environment, should affect earnings because of gains in experience, better information, adaptation to and acquisition of skills needed in urban areas. Consequently, we expected a positive, but not necessarily a linear relationship between length of residence and income. While this was found to be true, particularly for males, the partial income gain due to experience is very small, and differences after one year of residence are negligible and even vary in sign. Similarly, the age coefficients, which also reflect experience and maturity, are found to be statistically different from each other.

EMPLOYER–OCCUPATION

The structural variable used in our study classifies the migrants by their relationship with their employer. These are self-employed, employed by family or friend, employed by a stranger, and employed by a large private firm or government. It should be recalled that the formal-informal sector classification was also based on relation to employer with the latter group being in the formal sector while all the rest were categorized as informal sector.

As explained earlier, given the fact that the informal sector is highly differentiated with numerous types of activities which result in a wide range of earnings, it was found useful to further disaggregate self-employed migrants. This category was reclassified into three groups: (1) self-employed engaged in peddling service and trade, (2) self-employed in settled service and trade, and (3) self-employed in other occupations.

The result shows that even after allowing for the human capital variables, the type of employer has a significant effect on earnings. Both male and female self-employed migrants in settled service or trade earned the highest income. The next highest income for males was in the formal sector: large private or government jobs, but for females in the informal sector: jobs employed by a stranger. Self-employment in peddling service or trade, which is presumably

the easiest job to enter into, provided the lowest income reflecting the high degree of competition in those sectors.

What is perhaps most noticeable is the relatively small difference in income arising from segmentation of the labor market. For males, earnings in small-scale, self-employment (peddling and other) and wage employment for strangers are not notably different. They are approximately 10% lower than earnings if employed by large-scale organizations or by family enterprises. Earnings in larger-scale, self-employment are 6% higher than large-scale organizations which reflects returns to capital. The results for females are only slightly different. Small-scale, self-employment and employment in large-scale enterprises pay similarly. Employment by strangers yields significantly higher earnings - 40% higher than the formal sector. Surprisingly, the formal sector does not provide better opportunities for females than easy-entry alternatives, but it is not clear why this is so. Finally, females who achieve entrepreneurial success do much better in relation to other alternatives open to them.

As expected, domestic service pays only half as much as other occupations but this is largely accounted for by unreported income in-kind. Scavengers are grossly disadvantaged - males earn about 40% of the level in wage employment, females about 70% of the wage alternative. But prostitutes earn more than two-and-a-half times what they

could otherwise earn. These differences are what one would expect. Daily paid workers, both male and female, apparently earn only slightly less than monthly paid workers. Although these differences are not statistically significant, it must be noted again that the margin of potential error is large in converting daily wages to monthly equivalents. Moreover, a daily paid worker is in a much less secure situation than his monthly paid counterpart.

SPECIFIC URBAN AREAS

Adding a set of dummy variables for specific cities improves the statistical fit of the regressions. However, no obvious systematic relationships between city characteristics and the coefficients emerge. It is perhaps interesting to note that Jakarta and Surabaya, the two largest and fastest growing cities, have coefficients which are not widely different from smaller cities in their regions. With some exceptions, earnings are highest in West Java and lowest in Central Java which is consistent with regional differences in income and reported wages in other surveys.

CONCLUSION

This analysis set out to answer questions about: 1) the structure and patterns of employment in the urban formal and informal sector; 2) the mobility of migrants; 3) variations in migrant laborforce participation and

unemployment in urban areas; and 4) determinants of migrant earnings.

The principal finding of this exploration of urban labor markets in Indonesia is that there is relatively little evidence of segmentation. It appears that earnings are not significantly affected by whether one finds employment in self-employment or wage employment, in formal or informal sectors. In contrast with the experience in many developing countries there appear to be few "high wage" enclaves offering markedly better conditions of employment. The other side of this lack of segmentation is that there is little reason to believe that certain groups are systematically excluded from employment in favored sectors.

The analysis then must shift to determinants of earnings aside from labor market segments. Here the evidence is clear: There are gains to education, and sex discrimination is present at low levels of education, but appears to subside at higher levels. There is a much more important question about intergenerational stratification of the labor markets. Individuals from poor families do not have the same access to education and the extended social networks that facilitate horizontal mobility do not provide for upward mobility over time.

The absence of improvement of earnings associated with time spent in the urban labor market is also striking. It appears that persons who arrive in urban labor markets

quickly find "going jobs" at the "going salaries" and there is little "learning" to be done. Again, this is in contrast with markets elsewhere in which over time one learns the ropes and finds differentiated opportunities for better earnings and security.

Finally, it is important to put the phenomenon of open unemployment in perspective. It appears to be a problem of the better educated and is best understood as a process of search for a good job by individuals with family resources facing differentiated opportunities. The problem of the masses is not unemployment but insufficient salaries. These low earnings are closely related to lack of opportunities in rural areas as well. Therefore, the emphasis of employment policy must be a growth in aggregate demand for labor which will in turn cause real wages to rise over time. We presented evidence in Chapter II that this has happened to some extent, particularly after 1978.

IV.

RURAL LABOR MARKET MECHANISMS

There has been a considerable debate over whether shifts in rural employment from agricultural to nonfarm work reflects the operation of competitive forces.

Those who assume that labor markets are relatively competitive maintain that the declining growth of agricultural employment was offset by expanding nonagricultural opportunities, and that the move of labor out of agriculture was a healthy process of inducement. The rationale for this conclusion derives from the observation that real agricultural wages appear to have remained more or less constant. Assuming that labor markets operate competitively, and therefore that returns of labor in nonagricultural activities must approximate the agricultural wage, proponents of this approach conclude that:

> despite the relative decline in the demand for labor in Javanese agriculture...the demand for labor in nonagricultural activities appears to have expanded sufficiently to avoid any general and substantial decline in real wages in Java", [and that] "the growth in overall employment levels must be interpreted as evidence of the widespread and substantial impact on the labor market of the rapid increases in output and investment in the first half of the decade. (Leiserson et al., 1978: p. 45,iii).

The alternative view is that there are mechanisms that shape the allocation of work among groups and that may prevent the availability of additional labor from bidding down wages. While analyses of the mechanisms responsible for segmentation differ, this approach provides a basis for a far more pessimistic interpretation of the macro data.

The key difference between these models lies in the explanation of expanding nonagricultural rural activities. In contrast to the competitive approach which presumes expansion is the consequence of outward shifts in the demand for labor, the segmentation model helps to explain how a rise in the proportion of the workforce engaged in nonagricultural activities when agricultural wages are constant is consistent with a process whereby people who are excluded from agricultural jobs move into inferior nonagricultural activities in order to survive. This explanation is reinforced by theoretical and empirical analyses suggesting that people close to the margin of subsistence often devote relatively long hours to activities that yield low returns. (White, 1976; Hart, 1978).

FURTHER EVIDENCE FROM SURVEY DATA

The immediate question posed by these two interpretations is how to distinguish between them. We have already seen how the paucity of disaggregated data on rural nonagricultural activities limits statistical tests of

competitiveness. There are, however, two sources of data that permit some examination of this issue.

The first draws on the 1973 migration survey data discussed in Chapter III. As indicated in Appendix B, part of the survey included stratified random samples of rural residents chosen in part because they were known to be significant sources of migration to urban areas. It is important to note that these data are a sample of all rural residents in this districts and were collected in order to provide information about individuals who did not migrate in order to understand better determinants of migration. While these data cannot claim to be a random sample of all rural residents of Java, they nevertheless provide the only detailed information available at a micro level on incomes, personal characteristics, labor market participation, and ownership of assets.

A regression analysis has been used on these rural data which is described in Appendix E. Some modification of the variables has been required to include the ownership of/or access to land, and the particular occupational and sectoral characterizations of rural labor markets.[1]

Rural income is related to four factors: age, education, land, and sector of employment. Twenty-nine percent of male income and 43% of female income are

[1] The full methodology and rationale of the rural earnings functions are contained in Speare and Harris (1986).

explained by three factors (see Table E.1) Rural residents with two or more hectares of land had incomes which were more than double the incomes of residents without land; residents with less than 0.2 hectares of land had lower incomes than those with no land.

Regarding occupation, the greatest distinction is between land owners and farm laborers. Among nonfarm workers, employees in small- scale businesses earned less than their self-employed counterparts. Male employees of large businesses or government had the highest incomes of any group, but this was not the case for females. Self-employed males and females with variable locations earned more than their counterparts with fixed locations.

Education appears to be as important a determinant of rural income as it was for urban income. This finding is somewhat surprising because rural areas do not generally provide many opportunities for the highly educated. Only 8% of the rural sample had a junior or senior high school education, and most of them were employed in professional or administrative positions such as school teachers, nurses, or government administrators. It is likely that many of these people were recruited elsewhere and assigned to the village.

Age has a small but significant effect on income in rural areas. For males, income rises with age; for females, it rises only to age 25 to 29 and then declines. This decline may represent the importance of physical strength in

rural areas and that child care responsibilities increase with age leaving women with less time for work.

The overwhelming importance of access to land in determining rural income is evident in Table F.1 as reported in Appendix F, in which a "reduced form" equation is estimated including only the same variables appropriate for estimating urban incomes: age, education, and sex. The reduction in explanatory power is greatest for rural females demonstrating further that their income appears to be determined primarily by land holdings while occupation, age, and education have relatively little effect. While the coefficients reported in the full model in Table E.1 show that earnings do vary with education in rural areas for both men and women, the vast majority of rural residents, particularly females, have very little education. As a result of the small variation in education levels, that variable cannot account for much of the observed variation in rural earnings.

The conclusion of this analysis is that in contrast with urban earnings, institutional features appear important in determining rural earnings. First and foremost is access to land. While the analysis is less than ideal because of an inadequate numbers of observations, there is suggestive evidence from these data that an important part of the increased earnings of individuals with larger land holdings

comes from their differential success in generating income in their nonagricultural activities.[2]

A second indirect test is based on inferences about trends in poverty. The segmentation model predicts increasing poverty, whereas the competitive model expects the standard of living of the poor to rise or remain constant. Using the Indonesian Central Bureau of Statistics national expenditure surveys of 1970 and 1976 one should, in principle, be able to test these theories. One interpretation of these data is that real per capita income of the poorest 40% in rural Java rose between 3% and 5% per annum between 1970 and 1976. Indeed, it was precisely these estimates which proponents of the competitive model used to bolster their case (Leiserson et al. 1978: p.ii). The data, however, can also be interpreted as showing that the real per capita income of the poorest 40% remained constant over

[2] Few land-holding individuals work only in agriculture, and experiments with interactive variables were suggestive of land holders having higher nonagricultural earnings after controlling for education. The tests were not statistically conclusive, however, because of insufficient numbers of observations in the large number of land-occupation-education cells involved in the analysis. There is a further problem, Individuals with more land are more likely to be in the higher-earning "variable location", self-employment category, and it is reasonable to assume that part of their earnings are related to capital used in self employment. This, of course, is consistent with individuals with more land having more assets in all sectors. The apparent anomaly of landless individuals having higher earnings than those with small amounts is explained by the interaction with education: teachers and bureaucrats with high rural earnings were more likely to be landless.

the first half of the 1970s and may even have declined somewhat (Dapice, 1980).

This additional ambiguity arises because the results depend on the price index used to correct for the effects of inflation as shown in Table 4.1. The optimistic interpretation is based on standard price indices applied uniformly across income groups. An implicit price index, which takes account of consumption of poor rural consumers, indicates that the real income gains of this group are considerably lower because prices of commodities consumed by the poor rose relatively rapidly.

In conclusion, these standard statistical tests fail to provide clear-cut support for either interpretation. While the real income figures deflated by the implicit price index are preferable to those derived from the standard price indices, they are in principle consistent with either view. More generally, it is simply impossible to distinguish between the two interpretations on the basis of survey and census data. Other sources of evidence are, therefore, necessary to resolve controversies posed by the macro data.

THE FINDINGS OF IN-DEPTH VILLAGE STUDIES

Village studies conducted in the early 1970s support the view that laborers were pushed rather than pulled out of agriculture activities (White, 1979). Most directly, these studies offer some import - albeit statistically

Table 4.1 Alternative Estimates of Real Per Capita Expenditure, 1970-76

	Per Capita Expenditure in Current Rp.		Alternative Price Indices*			Alternative Estimates of Changes in Real Expenditure, 1970-76		
	1970	1976	A	B	C	A	B	C
Total (Java)								
Urban	1714	7025	273	305	298	50.2%	34.4%	37.5%
Rural	1029	3468	284	304	329	18.7%	10.7%	2.4
Poorest 40% (Java)								
Urban	828	3058	273	305	299	31.2%	19.2%	23.4
Rural	541	1929	284	304	346	23.4%	16.2%	3.1%

* Definitions of price indices:
A - 9 essential commodities
B - Food price index
C - Implicit SUSENAS prices

Sources: Per capita nominal expenditure, 9 essential commodity index and food price index (Leiserson et al., 1978)

Implicit Susenas prices (Dapice, 1980a)

unrepresentative - evidence on the highly diverse structure of rural nonagricultural activities:

> Landless, near-landless, small-farm and large-farm households obtain significant proportions of their income from nonagricultural activities, but it must be remembered that they do so for different reasons. The landless and small-farm households, as "agricultural deficit" households, must supplement agricultural incomes with relatively open-access occupations requiring little or no capital and offering very low returns. On the other hand, the large-farm and landowning households, as "agricultural surplus" households, are able to invest this surplus in relatively high-capital, high-return activities from which the capital-starved, low-income groups are excluded - rice hullers, pickup trucks, cassava and other processing industries, shopkeeping, "armchair" trading with large amounts of capital, moneylending, etc., (White, 1979: p. 15-16).

These nonagricultural activities yielded lower returns than agricultural labor, and often amounted to little more than scavenging.

Cross-sectional evidence showing lower returns to labor in nonagricultural activities does not, in itself, constitute support for the hypothesis that laborers were forced out of the agricultural sector. Such activities could reflect limited employment opportunities in slack agricultural seasons. It is also possible that people

combine low productivity nonagricultural work with agricultural labor. For instance, people who work as agricultural wage laborers during the day may weave mats at night.

While the micro evidence on nonagricultural activities reflects both of these phenomena, village studies also document the rapid spread of labor arrangements tending to exclude workers from agriculture from the late 1960s onward. Statistics since 1978 are still quite limited, but there are indications that exclusionary labor arrangements tended to disappear in areas which experienced seasonal tightening in agricultural labor markets. These exclusionary arrangements are extremely important in interpreting the macro data. In order to understand both their internal logic and the forces which give rise to them, we need to examine the local-level evidence more closely.

EXCLUSIONARY LABOR ARRANGEMENTS

The rapid spread of exclusionary labor arrangements in the late 1960s in different parts of Java needs to be seen in the context of the relatively open system of access to agricultural work which seems to have prevailed in the first part of the decade. The open harvest, in which all who wish to participate are paid a share of the paddy they reap, is commonly regarded as the archetypical "poverty-sharing"

institution.[3] More careful analysis by Stoler (1977) has shown that superficially open harvests often mask a highly differentiated structure of arrangements. It seems generally to be the case, however, that restrictions on access to harvesting opportunities as well as to preharvest jobs increased dramatically from the late 1960s onward.

These restrictions have assumed a number of different forms. Possibly the most important is an arrangement known variously as kedokan, ceblokan, and ngepak-ngedok. The word kedok refers to a dyked-off section of a wet rice field (van der Kolff, 1936: p. 17). In entering into a kedokan contract, a worker agrees to perform certain preharvest tasks on a given kedok in return for a share of the output of that plot. Kedokan contracts thus vary according to the share of the harvest as well as the preharvest tasks. Occasionally the landowner will provide the worker with a meal at the time he or she performs the preharvest jobs, but in general workers do not receive payment until harvest time.

The significance of expanding kedokan arrangements is that, by conveying exclusive or semi-exclusive harvesting rights, they generally signify a process through which the number of people with access to harvesting opportunities as

[3] A substantial literature stimulated by Geertz (1963 has characterized the institutional structure of rural Java as geared to sharing poverty. Geertz further argued that while this put a floor under income and prevented radical change in the society, it also retarded productivity improvement.

well as to preharvest labor is restricted. In a survey of 589 villages in the Cimanuk basin area of West Java, Wiradi (1978) found that kedokan was practiced in two-thirds of the villages. A later study by Hayami and Hafic (1979) confirmed the rapid spread of kedokan in other areas of West Java. Although it is possible that the incidence of kedokan tends to be comparatively high in West Java, increases have also been reported in East and Central Java (Soentoro et al., 1982; Husken, 1979; Wiradi, 1978.

What is the rationale underlying kedokan contracts? As far as the worker is concerned, at any given level of pay, a kedokan contract has several clear disadvantages relative to daily wage labor. First, the worker has to bear part of the risk of yield failure. This is obviously advantageous to the employer, in that labor costs are scaled proportionately according to output. The second drawback from the viewpoint of the worker is that income is irregular. In order to enter into a kedokan contract, a worker must have access to other sources of income in the period preceding the harvest; this could require borrowing, which may or may not form part of the contract. In the event that funds are borrowed against the kedokan the worker's income would be reduced by the amount of interest payments. Counterposed against these drawbacks, the primary nonwage benefit which a kedokan contract provides the worker is job security. Within a given cropping cycle the worker has guaranteed access to work, even though the exact income is uncertain. There is

also the possibility that the contract will be renewed over successive cropping seasons.

In tight labor markets kedokan contracts are comparatively expensive to employers. Workers will attach relatively little value to job security per se, and employers will have to compensate them for the more negative features of kedokan. At the same time, as their opportunity costs rise, workers are likely to expend less effort on any given kedok. In contrast, limited employment opportunities together with large supplies of labor enhance the attractiveness of kedokan contracts both to workers and employers. In these conditions, workers attach substantially greater value to job security. To the extent that this outweighs the nonwage disadvantages, kedokan contracts will tend to become cheaper relative to short-term wage labor arrangements which offer no job security. By the same token, the more workers value job security, the greater the effort they are likely to expend on a particular kedok in an effort to ensure contract renewal. In order for the labor management mechanism to operate to maximum effect, available work opportunities must be concentrated within a particular group of workers, while simultaneously excluding others. By placing kedokan workers in a comparatively privileged position relative to a pool of underemployed workers, such a division enhances the value of job security and thereby encourages control over the labor process.

Another important characteristic of kedokan is that, by adding extra tasks to the contract with no corresponding increase in the harvest share, employers can readily lower wages. Moreover, in the process of requiring additional tasks the employer is likely to gain the labor of other household members. A "minimal" kedokan contract is one in which access to the harvest is confined to those who have transplanted without pay, and is almost always an exclusively female arrangement. If, however, land preparation tasks are added, then the contract comes to encompass the whole household (Hart, forthcoming: van der Kolff, 1936). Although adding extra tasks amounts to lowering wages, it also provides greater employment security for those households which participate. At the same time, by concentrating work opportunities it exacerbates the insecurity of those who are excluded.

While kedokan is one of the most common restrictions on access to agricultural jobs, there are a number of other institutional forms which function in similar ways. For instance, a study of employment patterns in the village of Sukodono in north Central Java revealed significant segmentation of the labor market between small-landowning workers and the landless, particularly in off-peak periods of labor demand (Hart, 1978). Paying small-landholders higher wages than the landless constituted the most obvious manifestation of this segmentation.

The reasons why Sukodono employers exhibited a systematic preference for small-landowning workers relative to the landless and, conversely, why the lower pay that landless laborers were willing to accept far less remunerative jobs outside the village did not exert a downward pressure on wages within the village, lie partly in a complex system of land-debt arrangements. Many small and medium landowners had become indebted to members of the large-landowning class. Repayment involved handing over two-thirds of the rice crop for a specified number of planting seasons and covering all costs of production. The small group of village moneylenders were also the dominant employers of hired labor in the village.

In assessing why it could be in the interests of the creditor-landlord to provide the indebted household with preferential access to employment, the key point is that the primary determinant of returns to the lender is yields. In principle, therefore, these arrangements are highly risky. The lender's risk lies in the possibility that the owner-borrower-sharecropper will undersupply labor (as well as other inputs) and thereby produce lower than optimum yields. It is this risk which provides an important clue as to why it could be in the interests of the lender to provide preferential access to employment.

By having to hand over two-thirds of production, the indebted household becomes heavily dependent on outside

sources of income, and tends to seek a stable source of employment. The possibility of this being successful poses a threat to the lender. However, the lender's ability to offer employment opportunities and to regulate the timing of such work provides a powerful means of ensuring that the undersupplying of labor which is likely to accompany the sharecropper-debtor's finding outside employment does not occur. By holding out the prospect of more favorable employment opportunities than the sharecropping household is likely to find elsewhere, the lender is able to influence the deployment and productivity of labor by the household, and thereby ensure returns to capital.

A defining characteristic of these arrangements is, of course, that landless workers are automatically excluded. The availability of sugar cane employment meant that the poorest groups did not, by and large, have to resort to scavenging on the scale which has been observed in other Javanese villages during the 1970s (White, 1979). Nonetheless, the low-wage and generally demeaning character of jobs outside the village, together with the large number of landless men, women, and children willing to accept them, formed an essential precondition for the hiring strategies of the major employers in Sukodono.

The underlying principle of labor control embodied in these arrangements and the kedokan system is that the employer is better able to manage the labor process by

providing the worker with job security. The effectiveness of these measures in contingent upon a pool of underemployed workers. This strategy in turn gives rise to a division between those who are incorporated into comparatively secure contractual arrangements, and those who have tenuous contractual agreements.

Another similarity between their labor arrangements is the way in which employers extract what amounts to an "employment fee" from workers in exchange for job security. In the case of kedokan, even if the worker does not take a loan from the employer, the receipt of payment only at harvest time amounts to a loan to the employer equivalent to the preharvest wages bill. The worker receives interest to the extent that the share exceeds the wages bill for an equivalent amount of day labor. Any discrepancy between that interest rate and the "prevailing" one could be regarded as an employment fee. Similarly, one could argue that the extremely high interest rates being paid by those involved in the land-credit arrangements in Sukodono were in part a fee for access to employment.

These exclusionary mechanisms offer an unequivocal answer to questions posed by the macro data on employment and wages over the first part of the 1970s. They illustrate how the existence of a reserve labor pool performed a disciplinary function for those who did gain access to agricultural employment, and also help explain how and why

the expansion of marginal nonagricultural activities failed to place a sharp downward pressure on agricultural wages.

EXCLUSIONARY ARRANGEMENTS IN SLACK AND TIGHT LABOR MARKETS

A widely held view, developed most fully by Bardhan (1979), is that rural labor market segmentation is primarily a reflection of seasonal tightness in the labor market. He argues that labor-tying arrangements reflect efforts by employers to minimize recruitment costs while ensuring an adequate labor force in the face of technological changes in agriculture that intensify seasonal peaks in demand. These arrangements segment the labor market because workers who are reluctant to commit themselves to work during peak periods present the employer with higher levels of unemployment than those who can offer a regular and assured supply of labor at the required times.

We contend that exclusionary mechanisms underlying labor market segmentation are part of a general phenomenon that can occur in slack labor market conditions as well as in tight ones. The basic principle underlying a wide range of contractual arrangements is that, by selectively extending "privileges" to particular workers, employers are better able to ensure not only an adequate labor force, but also a hard-working and docile one (Hart, 1985). This principle of selectivity is crucial. The worker perceives he is in the privileged position: fear of jeopardizing this position is the motivating force that drives the

worker, and encourages the employer to concentrate these privileges among a small group of workers.

The state of the labor market shapes the nature and costs of the privileges with which employers seek to influence workers' behavior, but the underlying logic remains essentially the same. The more limited and uncertain the income opportunities available to the worker, the more he is likely to have job security. Conversely, the cheapest and most effective way for the employer to create a committed and hard-working labor force is to provide a select group of workers with job security at wages somewhat above their opportunity cost although, as we have see, employers can in principle extract an employment fee from workers in exchange for job security.

As aggregate labor market conditions tighten, job security <u>per se</u> loses its value, and employers are obliged to extend more substantive benefits such as cheap credit housing allotments to acquire an adequate and committed labor force. In situations where the demand for agricultural labor is concentrated in brief periods and slack season income sources are limited, the types of labor-tying mechanisms analyzed by Bardhan are likely to emerge. Thus, Bardhan's model can be viewed as a special case of a general phenomenon.

Important questions remain, however, why exclusionary labor arrangements appear to have increased so rapidly in Java in the late 1960s.

THE SPREAD OF EXCLUSIONARY ARRANGEMENTS IN THE LATE 1960S

A vitally important clue as to why the relatively open harvesting system gave way to arrangements like kedokan in the late 1960s lies in the tensions which these arrangements generate.

The exclusive right to harvest is an expensive privilege, materially as well as spiritually. The holder may suffer from social isolation in his own village community by being condemned as greedy or anti-social by his fellow villagers, who are themselves fighting for their day-to-day livelihood from limited opportunities to work. Likewise although by maintaining a ceblok or ngawesi (i.e. kedokan) relationship a wealthy landowner may acquire greater material benefits, he is likely to lose popularity as a result. Sometimes he becomes the target (bulan-bulanan) of his fellow villagers, with the risk of greater loss or damage to his crops. (Boedhisantoso, 1976: p. 24).

Apparently kedokan was banned in the North Krawang area of West Java in 1969 "to prevent the social tensions which might arise out of such monopolistic privileges" (Boedhisantoso, 1976: p. 24). This area is one of the most fertile and productive in Java, but it is surrounded to the

south and east by poorer agricultural land. During harvesting and planting periods, huge numbers of itinerant workers pour into North Krawang. The banning of kedokan in North Krawang was clearly a response to the security threat posed by denying work to the volume of migrant labor surging into the area, and is in many ways a special case.

At the same time, by focusing on the tensions associated with exclusionary arrangements, the case of north Krawang points the way toward a more general understanding of why exclusionary arrangements increased so rapidly from the late 1960s onward. Agrarian unrest pervaded the Javanese countryside in the early 1960s when the Indonesian Communist Party (the PKI) pursued its strategy of mobilizing the poorer peasantry, and massive political and administrative changes were instituted by the New Order in 1967.

Even where this did not happen, the internal characteristics of kedokan-type arrangements are such that they are less likely to occur in conditions where political mobilization enhances the relative bargaining power of workers. When employers are subject to organized pressure from below, exclusionary strategies based on job security are less feasible. In these circumstances, the open harvests which prevailed through the first part of the 1960s can be seen as a defensive effort on the part of large landowners to maintain social stability and not simply as a

"traditional" poverty-sharing institution. As one respondent in a village in north Central Java observed:

> Previously in the zaman abang (i.e. the "red era" between 1955 and 1965 when the communist peasant union and the women's movement had a big following in the village) the women received far too much. Then we couldn't do anything about it. But now everything is back to normal (Husken, 1979: p. 146).

Viewing labor arrangements in this way offers a clear explanation of why clamping down on agrarian organization by the New Order regime was accompanied by a sudden rise in exclusionary arrangements. The militarization of the bureaucracy together with depoliticization at the village level contained any threat of organized reaction from below, thereby facilitating the emergence of arrangements which enhance labor productivity by extending job security to some workers while deliberately excluding others. Subsequent shifts in the position of dominant rural groups over the course of the New Order helped perpetuate these types of arrangements. At the same time, concentrated resource allocation and limited new employment opportunities in the early 1970s sustained slack labor market conditions necessary for exclusionary arrangements based on job security.

RURAL EMPLOYMENT CHANGES AFTER 1978

Earlier we discussed a number of important changes in the Indonesian economy that took place after 1978. These included a second oil boom and associated policy changes

which together generated major construction projects in many parts of Java. Due partly to a fortuitous set of circumstances, Javanese rice production expanded at the same time increasing the demand for labor and shifting seasonal labor patterns. Probably the demand for additional agricultural labor can be attributed to intensified cropping rather than higher labor input on a per crop basis. Aggregate patterns of labor demand probably became much more seasonal due to the synchronization of planting schedules which was part of a program of pest control.

By interpolating national survey and census data, Strout (1983) suggests that the oil-cum-rice boom in late 1979 was accompanied by a significant shift in the structure of employment which was shown Table 2.6. In contrast with the first part of the 1970s, agricultural employment (especially for women) increased rapidly while the growth of nonagricultural employment of both men and women declined substantially. These rough estimates suggest that the overall growth in employment may have slowed somewhat but, as in the earlier period, it is extremely difficult to arrive at any definitive conclusions about employment trends. Aggregate agricultural wage data indicate that real wages measured in terms of rice rose after 1978. If, however, a more comprehensive deflation is used, the rise in real wages after 1978 is much lower, and in some areas disappears altogether (Scherer, 1982).

The first point to note about these patterns is that they support the segmented rather than the competitive interpretation of employment trends over the first part of the 1970s and, indeed, illustrate an important inconsistency in the competitive model. More specifically, the decline in the growth of nonagricultural employment during the boom period of the late 1970s and early 1980s is inconsistent with the neoclassical argument that the expansion of nonagricultural activities in the early 1970s was primarily a reflection of labor being drawn into activities stimulated by rapid economic growth.

This inconsistency reflects the inadequacy of simply assuming that rural labor markets approximate the competitive norm and hence that returns to labor in nonagricultural activities approximate the agricultural wage. By the same token, it lends credence to the argument that much of the growth in nonagricultural employment over the first part of the 1970s was in marginal nonagricultural activities.

As in the first period, we have very little direct information on the changing patterns of nonagricultural employment. It is clear, however, that new construction jobs were springing up in cities and towns all over Java rather than being concentrated in Jakarta as was the case in the past. Industrial expansion also generated new demand for labor, although this was much more regionally

concentrated than in the construction field. A third area in which employment seems to have expanded rapidly is transport which in turn has been associated with a rapid increase in spatial mobility (Dick, 1982).

An important feature of these new patterns of employment is that they seem to have been differentiated along gender and age lines. Jobs in construction and transport are predominantly male. Also, many of the workers in industry seem to be very young men and women. Consequently, most of those staying behind in the villages were probably older women and those with children. The effect of growing spatial mobility of men and younger people on the internal structure of the household economy is a crucial issue about which very little is known. To the extent that such mobility has been associated with an abrogation of domestic responsibilities - a possibility which seems greater in the case of landless households - the economic position of rural women may have become increasingly precarious.

The need to take account of these gender-specific patterns is illustrated by Scherer's suggestion that the expansion of construction and transport jobs "drew labor away from the inefficient and unproductive cottage industry sector" (Scherer, 1962: p. 29). The problem with this interpretation is that construction and transport laborers are generally males, whereas most workers in cottage

industry are females. To the extent that the decline in the growth on nonagricultural employment in the late 1970s and early 1980s reflects the falling away of some of the more marginal activities which expanded so rapidly over the first part of the 1970s, this process seems to have occurred somewhat differently for men and women. While the growth of transport and construction jobs may have brought about important shifts in the composition of male nonagricultural employment, the move of women out of marginal nonagricultural activities seems to have come about primarily as a consequence of changes in agriculture.

The analysis of exclusionary labor arrangements in the previous section sheds light on this process. As mentioned earlier, the synchronization of rice planting from about 1978 onward was responsible for a sharp seasonal profile of labor demand. As the peaks of labor demand become sharper and thinner, one is far less likely to observe exclusionary arrangements like kedokan.

From the viewpoint of the worker, the ready availability of jobs at certain periods undermines the primary advantage of a kedokan contract - job security. Since the worker's opportunity cost is high and rising at precisely the time that the employer requires maximum labor input, kedokan is likely to become increasingly ineffective and unattractive as a labor management mechanism. One would therefore expect kedokan to vanish as the seasonality of

labor demand becomes more marked, and this is precisely what seems to have happened in some villages (White and Makali, 1979; Kasryno et al., 1982).

Such shifts do not necessarily imply an unequivocal improvement in the position of labor, however. With intensifying seasonality a shift from kedokan to daily contracts could well show up in the aggregate data as rising wages especially for preharvest tasks. Also, more people will have access to these higher wages. The key point, however, is that the period during which these wages prevail becomes increasingly shorter and the time during which little or no work is available correspondingly longer. Over the course of a year the total time when there is virtually no agricultural work available will be shortened to the extent that cropping intensity is increasing, but there is a technological limit to such increases in labor demand. Whether and to what extent the economic position of rural laborers improved thus depends critically on the slack season opportunities available to them - an area about which we still know very little.

CONCLUSION

This chapter sought to interpret shifts in the structure of employment in rural Java since the late 1960s in terms of exclusionary labor arrangements. Given limitations in the data base, the most reasonable and

consistent interpretation of the rapid growth in nonagricultural rural employment prior to 1978 is that it was in part a process of marginalization brought about by the spread of exclusionary arrangements based on job security. These arrangements reflected macroeconomic conditions and the political and administrative changes initiated by the New Order regime. In addition, demand for agricultural labor, nominal agricultural wages, and jobs in more productive nonagricultural sectors, all seem to have risen in the late 1970s, but these aggregate indices probably mask a significant degree of differentiation within the workforce in access to agricultural and nonagricultural income.

The analysis of exclusionary labor arrangements also illustrates the limitations of viewing rural labor markets in static, microeconomics terms. It appears that employers use exclusionary arrangements not only to recruit and discipline labor but also to exercise social control. Accordingly, the nature of power relations at both the national and local levels is central to understanding variations and changes in the institutional arrangements governing labor deployment.

V.

RURAL–URBAN MIGRATION IN INDONESIA

While people move their residences for political, social, and highly idiosyncratic reasons, under organized duress or individual desire, a high proportion of observed rural to urban migration within developing countries is caused by individuals and families seeking better economic opportunities. In this respect Indonesia is no exception, and the relatively high growth of major cities with accompanying policy problems of unemployment, widespread poverty, and infrastructure requirements for maintenance of basic standards have been widely recognized. Policy makers have generally considered urbanization as a problem and have tried to devise strategies to slow the pace of urban growth in Indonesia.

On the other hand, we have already pointed out that the transfer of labor from low to high productivity activities is a necessary element of economic development and that historically high productivity has been associated with urban location. Much of the discussion of urbanization as a problem has centered on migration continuing in the face of unemployment and underemployment in the cities resulting in a perverse shift of labor from high to low productivity.[1]

[1] This is the problem that motivated the original Harris and Todaro analysis and has continued to dominate much of the migration and urbanization literature.

Most development programs and strategies directed toward labor market performance have targeted urban and rural labor markets as though they are disconnected. So far in this study, we have analyzed separately the functioning of urban and rural labor markets. We have identified the importance of institutional features in rural labor markets that play a large role in determining earnings of different groups. In particular, the importance of differential access to land in determining earnings in rural labor markets has been pointed out, and we have argued that the emergence of exclusionary employment arrangements in agricultural employment may well be reinforcing the institutional structuring of these markets to favor individuals with some access to land. On the other hand, we presented evidence to suggest that institutional structuring of urban labor markets is less pronounced.

An important question to ask is whether the structuring of rural labor markets affects transfer to urban labor markets. In this chapter, we will turn directly to the questions of connectedness of geographically separate labor markets in Java.

In order to carry out this analysis, we will draw on the reported estimates of earnings in rural and urban labor markets and use them to test statistically determinants of migration (labor transfer). A first set of basic questions which will be investigated are: (1) How do the earnings of

rural to urban migrants compare with those who remained in rural areas? (2) What specific characteristics made migrants most likely to succeed in cities relative to similar persons who remained in rural areas? (3) Were there higher migration rates for those who could be expected, on the basis of their characteristics, to benefit most from moving to the city?

More specifically the study deals with two major problems ignored in earlier work: the dispersion of wages within a sector, and the search for information which is available imperfectly and can be obtained only through considerable time and effort. The second issue is important for understanding the roles that extended family networks play in the migration process.

THEORY AND EMPIRICAL TESTS

Migration theory depicts flows as responding to differential conditions in spatially separated labor markets. In other words, the decision to migrate is dependent on differences in expected incomes available in different labor markets, expected incomes being a function of wages offered and the probability of obtaining a job at a particular wage. The model predicts movement of individuals with specific characteristics from markets where the earnings are low to where they are high. Thus, observed earning levels are taken as being exogenous to the decisions to migrate and the model predicts a positive correlation between earnings and movements.

However, at the "systems" level, it is observed that migration flows change demand-supply balances in each market and, if markets are "perfect", migration flows will cause earnings differential to be eliminated. The prediction of an equilibrium model is that no earnings differential will appear even though there is migration; the amount of migration that is observed is the quantity that is required to prevent earnings differential from emerging.

Yet as mentioned in Chapter III, the Harris-Todaro model introduces an alternative adjustment mechanism whereby instead of wages falling in response to increased labor supply, unemployment varies and the equilibrium of the system is found when expected earnings are equalized. The model predicts that in equilibrium there will be a positive correlation between earnings and unemployment, although expected incomes will be uncorrelated with migration flows. In disequilibrium flows will be observed in response to differential expected incomes.

This fundamental problem of empirically testing migration models has been largely ignored by most of the literature which has implicitly been based on disequilibrium models of migration flows responding to earnings differential: The estimated coefficients of such models are best interpreted as speed-of-adjustment parameters. In Indonesia in the early 1970s, however, there were few systematic institutional differentiations preventing wage

adjustments. Nor were there large differences between rural and urban wages for persons with similar characteristics. Yet there were continuing migration flows. This chapter argues that Java is best characterized as an equilibrium system in which migration flows are sufficiently responsive to differential geographic emergence of opportunities to prevent large earnings differential from becoming established. In order to argue this point, we must first examine the functions of rural and urban labor markets in Java.

CHARACTERISTICS OF MIGRANTS AND RURAL RESIDENTS

The 1973 surveys, described in Appendices B and C, which have been used for estimating the earnings functions reported in Appendices D and E, were designed specifically for analyzing rural-urban migration in Java. In this chapter we will analyze these data further in order to explain the ways in which these spatially separated labor markets are connected through migration flows.

Rural to urban migration in Indonesia appears to consist of young adults: about 70% of male and female migrants are under 25 years of age with the majority being between 15 and 18 years. Most have a higher average level of education than the other rural residents (See Table 5.1). This finding is consistent with most other studies of rural to urban migration in less developed countries (Browning, 1971; Findley, 1977; Shaw, 1975). The proportion of migrants

Table 5.1 Summary Characteristics of Migrants and Rural Residents

	Migrants to Cities			
	Household Sample	Quota Samples	Total Migrants	Rural Residents
Proportion Male	59.8	71.1	64.4	54.2
Proportion Aged 15-29				
Males	74.2	64.1	69.7	28.8
Females	79.1	81.2	79.8	35.9
Proportion who Completed Junior School or Higher				
Males	44.0	5.0	26.4	10.5
Females	25.9	1.5	17.8	4.8
Proportion in Labor Force				
Males	72.9	98.8	84.5	87.8
Females	45.7	95.8	62.2	58.5
Sample Size	6834	4686	11520	3522

who are males is higher than that in the areas of origin, but this may be due to a reluctance of females in a Moslem country to be interviewed. The 1971 Census shows a more balanced sex ratio for migrants in urban areas.[2] A bias in the sex ratio of the survey respondents however will have little effect on this study because the analysis is separate for males and females.

There are considerable differences between the characteristics of migrants in the household sample and migrants in the quota sample. Males in the quota sample are somewhat older than males in the household sample, although females have roughly the same proportion aged 15 to 29 in both samples. However, even for males in the quota sample, the proportion aged 15 to 29 is more than double that in the sample of rural residents.

The differences in education are much greater. The proportion of migrants in the household sample who have completed junior high school is more than four times that of the rural sample; the proportion of migrants in the quota sample who have completed junior high school is significantly lower than the proportion of the rural sample.

These differences in education are reflected in the labor force participation rates. Many of the migrants who

[2] This also may be the result of methodological problems: the Census might have missed males who were temporary urban residents because the definition they used for residence was a minimum of six months. See Speare, (1975)

have completed junior high school moved to the city in order to continue their education and were still in school at the time of interview. Out of the total migrant household sample, 23.4% of the males and 16.4% of the females were enrolled in school at the time of the interview. In contrast, 98.8% of the males and 95.8% of the females in the quota sample were working.

We can distinguish three types of migrants in these samples. The largest group is comprised of employed migrants who are living in households in the cities. A significant second group is comprised of students who are finishing their education in the cities and are likely to remain and seek work since there are few highly educated persons in rural areas. The third group consists of migrants who are less likely to be found in households and who work in easy entry occupations such as pedicab drivers, peddlers and prostitutes. It has often been argued that these are short-term migrants who will return to the rural areas when they have saved some money or jobs are available (Textor, 1961). In Indonesia, it appears that many of them actually do stay a long time. Papanek found that pedicab drivers stayed an average 8.3 years in Jakarta and petty traders stayed 7.4 years (Papanek and Kuntjoro-Jakti, 1975). These migrants may, however, have reported the date when they first came to the city and actually moved back and forth between the city and their home village frequently.

In our study, which was restricted to migrants who had moved within 5.2 years of the survey, the migrants in the quota sample stayed 2.13 years on average in the city, those from the household sample remained on average 2.09 years. Assuming in-migration was constant during the survey period and all migrants remained in the city, the average duration would be 2.6 years. While it is unreasonable to assume a constant volume of migration for a period when there were considerable fluctuations in crop yields and government restrictions on migration to the largest city, Jakarta, these calculations still suggest that the proportion of migrants who returned to rural areas during this period was not large.

Approximately one-half of the male migrants in the household sample had worked in their area of origin prior to moving (See Table 5.2). These migrants were fairly equally divided between those who worked on farms and those who had nonfarm occupations. Over one-third of them had been in school prior to moving, and most of the remainder (or "other" group about 16%) were either unemployed or not in the labor force.

After moving to the city, the proportion employed increased to over 70% and the "other" group dropped to 4%. However, about one in four male migrants continued their education in the city: that was the main reason for moving there. A separate analysis of economic activities of

Table 5.2 Economic Activity of Migrants Before and After Migration

Economic	MALES		FEMALES	
	Before Move	After Move	Before Move	After Move
Working: Farm	24.9	1.0	14.8	0.1
Non-farm	23.2	68.9	17.4	42.9
Housekeeping	0.3	.2	26.5	35.7
Student	35.3	25.4	23.6	17.4
Unemployed	16.2	4.2	17.8	3.7
Not Ascertained	.0	.3	.0	.2
Total	100.0	100.0	100.0	100.0
Sample Size	4395	4395	2932	2932

migrants by city showed that the proportion of students was highest among migrants to the smaller cities and lowest among migrants to the larger cities. For example, 88% of the male migrants to Jakarta were working and only 5% were students (Suharso and Speare, 1981). This does not mean that the educational opportunities were located mainly in smaller cities. Rather it indicates that many of the smaller cities had little else to attract migrants, while the larger cities held most of the urban employment opportunities.

Female migrants were far less likely to be working either prior to moving or after moving. About one-third of the female migrants were housewives. The proportion of women who were working increased with migration from about 32% to about 43%, and there was a significant decline in those who had been unemployed. While the proportion of women who were going to school in the city is lower than the proportion of men going to school, education was an important reason for female migration and about one in six female migrants were students at the time of the interview. The proportion of female migrants who were students was considerably higher among migrants to the smaller cities, as was true for the males. However, the proportion of women who were working did not vary much by city size, indicating that smaller cities offered employment opportunities for women which were not available to men.

RURAL LAND HOLDINGS AND MIGRATION

We have already pointed out that Java is characterized by extremely high rural population densities. The process of agricultural involution - a form of social organization which has enabled growing rural populations to share meager agricultural production - has been pushed to its limit.[3] Under such circumstances, one might expect to find a large volume of migration from landless rural families and families with holdings too small to feed all members of the family, but that was not the case.

Rural to urban migration in Indonesia and in Java in particular has not been large by international standards. Between 1961 and 1971, Javanese cities grew by an average annual rate of 3.3%. Of this growth, an estimated 2.3% was due to natural increase, 0.3 % was due to incorporation of adjacent previously defined rural areas, and only about 0.7% was due to migration (Suharso and Speare, 1981). In comparison, the United Nations has estimated that urban growth from migration and reclassification averaged 1.8% per year for developing countries in this decade (United Nations, 1980). For the first half of the 1970s the corresponding rate of urbanization was 2.7% per year with

[3] Geertz, Clifford, (1963). For a description of how this has influenced one agricultural product - wet-rice cultivation - see Collier, William L.. "Agricultural Evolution in Java." in Gary E. Hansen (ed.), Agricultural and Rural Development in Indonesia. Boulder, Colorado: Westview Press, 1981.

natural increase accounting for 1.3% and migration the remaining 1.4%. [4]

Higher levels of education among migrants than rural residents are not consistent with the expectation that there are large numbers of migrants from poor households. A more detailed examination of migration to each of the 14 cities in this study found that the average level of education of migrants who were sampled in households was high in cities. In fact, the average level of education of migrants to smaller cities was slightly higher than that of migrants to larger cites (Suharso and Speare, 1981).

As was discussed earlier, those landless, rural residents who had difficulty finding regular employment at home, may also have lacked the skills needed to succeed in the cities. While Indonesia has made significant efforts toward providing public elementary school education for all children, many children from poor rural families do not attend school regularly because they lack money for clothing and supplies. Education beyond the elementary level,

[4] These estimates are based on the 1976 intercensal survey reported in Suharso, et al. "Rural-Urban Migration in Indonesia," (Jakarta: LEKNAS-LIPI, April 1976). There remains considerable controversy about the urban growth rate as revealed by the 1980 census because of the problem on non-revision of urban boundaries. The two best attempts to analyze these data are by Gavin Jones, Op. Cit. and Graeme Hugo, Op Cit. Both argue that urbanization has been slower than anticipated and Hugo in particular demonstrates the blurring of urban boundaries as a result of vastly extended commuting areas made possible by transport improvements in the 1970s. Much of this long-distance commuting can be analyzed as repetitive circular migration.

requires a considerable investment: frequently junior high schools are not available within commuting distances so children must board in order to continue their education. This means that access to education is strongly correlated with family income. Thus, if education is required for many urban jobs or enhances the probability of success for those who become self-employed, then migration may be more likely from families which have sufficient land for their subsistence than from marginal farm families.

The relationship between the level of education of migrants in the urban household sample and the land holdings of their families is shown in Table 5.3. As can be seen, the proportion of males with senior high school or college education increases from 15.7% to 46.3% as the amount of family land increases from less than 0.2 hectares to more than 2 hectares. There is a similar increase in the proportion who have completed junior high school. There are slightly more migrants whose families own no farm land than migrants from small farm families with junior and senior high school education.[5] The educational levels of females are lower than those of males, but display similar patterns of family land holdings. It would appear that since migrants have considerably higher levels of education than rural residents and education is strongly related to land

[5] This is a heterogeneous group which includes both the landless farm laborer families and the nonfarm families such as school teachers, government officials, and rural shopkeepers.

Table 5.3 Level of Education by Family Land Ownership for Migrants

Family Land Ownership in Hectares	None	Less Than Elem.	Elem. Grad.	Junior High Grad.	Senior High Grad.	Total %	N
				M A L E S			
None	10.0	27.1	26.6	17.8	18.6	100.0	173
Less than .2	7.2	30.1	30.9	16.2	15.7	100.0	90
.2 to .49	5.2	26.7	23.9	26.0	18.3	100.0	42
.5 to .99	4.4	14.7	23.0	33.6	24.3	100.0	38
1.0 to 1.99	3.4	12.4	13.8	36.3	33.8	100.0	32
2.0 or more	1.4	5.3	11.6	35.4	46.3	100.0	28
TOTAL	7.2	23.8	24.8	22.5	21.6	100.0	403
				F E M A L E S			
None	21.2	33.0	23.3	15.7	6.9	100.0	145
Less than .2	20.0	33.9	28.4	11.6	6.0	100.0	53
.2 to .49	16.1	26.4	27.7	22.3	7.4	100.0	24
.5 to .99	13.2	27.9	17.9	24.2	16.8	100.0	17
1.0 to 1.99	9.7	20.2	21.0	31.5	17.7	100.0	18
2.0 or more	7.5	15.0	27.1	36.1	14.3	100.0	16
TOTAL	18.7	30.8	24.5	17.7	8.3	100.0	273

NOTE: Land holdings refer to land which is held either by the respondents or their parents. Land is expressed in hectares of irrigated sawah or equivalents measured as: dry sawah = .65; garden plots = .8; tree crops - .65; dry land = .4: and fish ponds = .65.

holdings among farm families, that migration rates increase with the size of family land holdings.

Unfortunately, it is not possible to find complete data comparing the differences in land holdings between the families of migrants and the families which remained in rural areas. However, the distribution of land by farm is available from the 1973 Agricultural Census, and these data provide a crude basis for comparison. As Table 5.4 indicates, they are not as large as might be expected. A higher proportion of migrants did come from landless families (6% more for male migrants and 17% more for female migrants). Migrants were also more likely to have come from families which had less than 0.2 hectares of land. However, these results may be misleading due to differences in data collecting processes. The Agricultural Census includes all land operated by the family, whereas the migration survey was less precise and may have been interpreted by some migrants as referring only to land which was owned by the family and not to land operated as a tenant.

The results of Table 5.4 suggest that migrants are selected from all levels of the rural population. While there may be a tendency for migrants to come from landless families, this is nowhere near as strong a relation as would be predicted from either the theory or the description of the deterioration of land holdings during this period. The fact that a significant proportion of migrants came from

Table 5.4 Distribution of farm Size for Rural Households and for Families of Rural to Urban Migrants - Prior to Move

Farm Size	Rural Households 1973 Agricultural Census	Families of Urban Migrants - Prior to Move	
		Males	Females
None	36.6	42.6	53.3
less than .2 hectares	13.4	22.3	21.4
.2 to .49 hectares	23.0	10.5	8.9
.5 to .99 hectares	15.7	9.5	7.0
1.0 to 1.99 hectares	8.2	8.0	4.5
2.0 or more	3.0	7.0	4.9
Total	100.0	100.0	100.0

families with above average land holdings suggests that they either sought the amenities of urban life which they could afford to enjoy because of the relatively high family income or that they possessed skills which made them more likely to succeed in the cities than those from poorer rural families.

DETERMINANTS OF EARNINGS OF MIGRANTS AND NON-MIGRANTS

Earnings can be expected to vary with the age, sex, education, specific skills of the worker, land and other income producing assets. In addition, there may be a period of time or training before appropriate work is found. Moreover, if there is labor market segmentation, income may vary by employment category. All of these various factors were analyzed in Chapter III.

We have reestimated these equations in Appendix E to include comparable observations on urban migrants and on rural residents who did not migrate. The main difference between these estimates for urban migrants and those presented in Appendix D is the inclusion of access to land as a possible determinant of urban earnings. These estimates yield similar conclusions about effects of human capital in that education has the greatest positive effect on urban income for both males and females. Migrants who are senior graduates have average incomes more than 50% higher than migrants with nc education. Earnings increase monotonically

with education and even a few years of primary school makes a significant difference.

Age had a small but significant influence on income for males and females. Both sexes receive the highest income in the age range from 30 to 59 years. Males under 20 have the lowest income while females over age 60 have the lowest income.

Land ownership also had an affect on urban income even though this land is almost always in rural areas. In some cases this is simply additional income. However, in many cases the land is owned by family members and the migrant does not receive any direct income from it. In the latter case land ownership may enhance urban earnings through facilitating the purchase of capital equipment to set up one's own business, or special training to enter a particular trade, or connections with urban employers to enter some of the better paying jobs within occupational groups.[6] One cannot reject the hypothesis that the very segmentation of rural labor markets described in Chapter IV gives individuals from landed families access to social networks that confer privileged access to labor markets in both urban and rural sectors.

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[6] Note that to the extent that land ownership affects education or occupation, that is already captured in those variables. There are insufficient degrees of freedom to test conclusively interaction between land and these other variables. Therefore, the effects reported are the additional independent effect of land ownership on urban success.

There are significant differences in income by type of occupation, and they are not the same for males and females. Both self-employed and salaried males earned more income than those who worked for relatives. Peddlers, pedicab drivers, and other mobile self-employed males earn about as much as employees in small-scale or large-scale businesses. Small shopkeepers and other self-employed persons with fixed locations earn more than employees. A test of the difference between the regression coefficients for self-employed persons with fixed locations and employees of large businesses or the government showed this difference to be statistically significant. This is a surprising finding since much of the literature on labor markets in less developed countries suggests that higher incomes are to be found in the formal sector which consists of government and large-scale businesses.

Duration of residence seems to make a small difference in income levels. Males who moved between 1968 and 1971 have higher incomes than those who moved in 1972 or prior to the interview in 1973. For females, these differences are smaller and not always significant. It appears that whatever training period, job search period, or other adjustments are needed occur relatively quickly and that after one year most migrants are earning as much as migrants who had been there longer.

The five factors which were used in these regressions explain almost 10% of the variance for male migrants and 18% of the variance for female migrants. This means that there is a considerable amount of variance in urban income which is not related to age, education, land, sector of employment, or duration of residence in the city. Some of this variance is undoubtedly due to measurement error in income.

In contrast, rural income is more strongly related to these five factors with 29% of male income and 43% of female income explained by the regressions in Table E.1. Rural residents with two or more hectares of land had incomes which were more than double the incomes of residents without land; residents with less than 0.2 hectares of land had lower incomes than those with no land.

Occupation is also an important determinant of rural income. The greatest distinction is between land owners and farm laborers. Among nonfarm workers, employees in small-scale businesses earned less than their self-employed counterparts. Male employees of large businesses or government had the highest incomes of any group, but this was not the case for females. Self-employed males and females with variable locations earned more than their counterparts with fixed locations.

Education appears to be as important a determinant of rural income as it was for urban income. This finding is

somewhat surprising because rural areas do not generally provide many opportunities for the highly educated. Only 8% of the rural sample had a junior or senior high school education, and most of them were employed in professional or administrative positions such as school teachers, nurses, or government administrators. It is likely that many of these people were recruited elsewhere and assigned to the village.

Age has a small but significant effect on income in rural areas. For males, income rises with age, for females, it rises only to age 25 to 29 and then declines. This decline may represent the importance of physical strength in rural areas and that child care responsibilities increase with age leaving women with less time for work.

In Table E.2, earnings functions are shown based on age, education, sex, and year of migration. For male migrants, these reduced equations account for most of the variance in earnings which could be explained by the full equation in Table E.1. However, for the other groups, there is a substantial reduction in the explained variance as indicated by the multiple correlation squared.[7]

The overall difference in earnings between male migrants to cities and males who remained in rural areas is substantial (See Table E.3). Three-quarters of the differences exceed 0.5 on the log scale, which is roughly

[7] In Chapter IV we argued that this is evidence for the importance of institutional segmentation in rural labor markets.

equivalent to a percentage difference of 65%. Out of 44 comparisons shown in Table E.3, there is only one in which the rural income exceeds the urban income.

Measurement of income included a question on income in-kind, but it was probably under reported and, if so, the effect would have been to understate rural income relative to urban income. Differences in costs of living between urban and rural areas were not taken into account. If adjustments could be made for these, the differences between urban and rural incomes would be smaller. It is these two areas that may account for the relatively large differences between urban and rural incomes for 15 to 19 year olds. In rural areas many workers in this age group were unpaid family members who lived at home and received income in-kind. Their urban counterparts were probably paid a wage and had to pay for housing.

Surprisingly, there is no clear relationship between education and the difference between rural and urban incomes. The relative advantage of urban residence over rural residence remains about the same regardless of educational level. This is probably because people with higher levels of education in rural areas are either self-employed or occupy appointed posts based on their qualifications. The first group may contain large landowners who can afford the time and cost of obtaining

higher levels of education while the latter group may consist of civil servants and school teachers.

Differences in earnings vary significantly with age, with the greatest differences occurring for the youngest people. This implies that the incentive to migrate to the city should decrease with age because the expected annual returns to migration decrease in addition to the decrease in the expected number of years over which they can receive these returns.

MIGRATION PROPENSITIES BY AGE AND EDUCATION

If migration were a simple response to earnings differentials, we would expect to find that the rates of migration would be greatest for those groups which experienced the greatest gains from moving. We calculated two sets of migration propensities, one for the total population and one for only those who are in the labor force as reported in Appendix F. The propensities for the total household population, shown in Table F.1, vary inversely with age and directly with education. They range from a low of .11 for men over the age of 40 who have no education to 15.4 for men 20 to 24 who are senior school graduates. These can be interpreted as implying that the migration rates of men in the first group are only 11% of the average for all men, while those in the latter group are 15 times the average. These large ranges are also observed for females.

The extremely high rates for those in the highest education groups are due in large part to the significant numbers of migrants who are continuing to further their education in the city. Since primary school education is available in rural areas and is generally completed before the age of 15, migrants who moved to further their education would be likely to be at least primary school graduates and many would be junior or senior school graduates. In some cases the last degree which we have recorded was obtained in the city following the move since the study included migrants who had moved up to five years prior to the interview. For these reasons, it is best to focus attention on Table F.2 which is restricted to those persons in the labor force.

The propensities to move of those in the labor force also vary inversely with age and directly with education. In the 15 to 19 year age group, the rates are typically two to five times the averages for males and females as a whole. These rates decline rapidly with age for those with low levels of education suggesting that people with little education tend to either move to the city at a young age or remain in the rural areas. For those who have completed junior or senior high school, the migration propensities remain above average at all ages.

DETERMINANTS OF MIGRATION

A test of the hypothesis that migration flows are responsive to earnings opportunities, would be to correlate the migration propensities identified in Table F.2 with the corresponding income differentials estimated for comparable groups in Table E.3. Given the absence of systematic variation in earnings differential in that table, it will come as no surprise that a strong relationship between the two was not found. This absence of a relationship requires further explanation. First, one might want to adjust the reported earnings, which apply only to those who have found work, for employment probabilities in order to examine expected income differentials as suggested by Harris and Todaro. However, in the Indonesian case, this will make the relationship even weaker since Simanjuntak (1982) has shown quite clearly that unemployment rates increase significantly with educational level. He reports figures from the 1971 Census that show urban males with no education to have unemployment rates of 8.3% while those with a senior high school education have rates of 13.7%. For females the comparable rates are 11.8% and 22.3%, respectively. Comparable figures were also reported from the National Labor Force Survey (SUPAS) in 1976 (Simanjuntak, 1982). Therefore, expected earnings differentials would be lower for those with more education while migration propensities are higher.

A serious bias in the earnings differentials is that the reported figures relate to actual earnings of employed recent migrants who are disproportionately young. It may well be that these entry-level earnings are poor proxies for lifetime earnings. Simanjuntak reports that over 90% of his educated respondents expressed a strong preference for government employment even though entry-level salaries were lower in government than in private sectors. However, his data also show that earnings increase more rapidly in government with years of service so that the discounted present value of a government career was greater than the comparable measure of private sector earnings. The fact that there is some systematic increase in earnings differentials with age in our survey give some credence to this argument.

Still another point that should be made is that migration propensities may be more related to absolute than to relative income differentials. Since earnings increase with education, it follows that constant proportional differences, which are measured as differences in the logarithmic values, imply increasing absolute income differentials with education. Utility maximization implies that real earnings differentials in excess of moving costs will call forth migration as a response. However, while such adjustment will make some difference, and increase the correlation coefficient, it only offsets the unemployment differences which work in the opposite direction.

But rather than search further for adjustments in the data that might "save" the standard hypothesis, it is more fruitful to reconsider Indonesian migration in a context of approximate equilibrium. In an equilibrium situation, one would expect to see constant (or zero) earnings differentials simultaneously with positive migration flows of magnitudes required to prevent earnings differentials from widening. In such a system, migration would be driven by differential rates of job creation rather than by earnings differentials. Between 1971-76 Simanjuntak (1982, p.38) reported a 63% increment of employment in the service sectors for workers with a post-primary education and only a 7.4% employment increase in those sector for people with less education. Conversely, 85.6% of the employment gain in agriculture, manufacturing, and commerce was for workers with less than a primary education, while only 30.1% of the more educated found employment in those sectors. The vast majority of job opportunities in the service sectors are located in urban areas, and educated people will have a tendency to migrate to where they are located.

This observation is further reinforced by noting that a large portion of the more educated who are employed in rural areas are in government service, teaching, and other service activities. Many of these persons are assigned temporarily to these rural locations. Even those, such as teachers, who reside relatively permanently in a single area, are subject to recruitment by ministry headquarters located in urban

areas. Simanjuntak reports reluctance of educated young persons to take employment in a temporary scheme in rural areas because they would lose the opportunity to search for desirable permanent jobs by not being near ministry headquarters (Simanjuntak, 1982). However, once a person is hired by government or a large private organization, their salaries will be similar whether they are posted to a rural or urban area. Thus, measured earnings differentials between rural and urban areas for such persons are meaningless for explaining migration. There is migration at the beginning of a career to urban areas where recruitment of educated workers takes place, and possible posting to rural or other urban locations over the span of the career.

The key to understanding migration patterns in Indonesia would seem to be understanding the location of new job opportunities. That there is a heavy urban bias in the location of those kinds of jobs which require workers with more education is unquestioned. Whether that is efficient or appropriate is unknown; the determinants of employment location is a subject which requires further research.

CONCLUSION

In Indonesia, measured monetary earnings have been higher in urban than in rural areas although the magnitude of the real difference is hard to assess. In both urban and rural labor markets, earnings increase with education and age. However, the proportional differences in earnings do

not vary substantially with these variables. And compared with many developing countries, there seems to be relatively little segmentation between modern and informal sectors although people with differing formal education and skills compete in differentiated labor markets. In the early 1970s neither legislated minimum wages nor organized trade unions played an important role in wage determination.

However, there are sharp differences in propensities for rural-urban migration by age, sex, and education. Most pronounced are the high propensities of young people with post-primary education to go to cities. Despite the obvious selectivity of the migration streams, these cannot be explained statistically in terms of systematic variation in relative earnings levels between rural and urban areas. It was argued that a correlation between migration rates and earnings differentials is based on a model in which adjustment is taking place to disequilibrium. On the other hand, if earnings are in equilibrium between different geographically defined labor markets, one will not observe systematic earnings differences even though migration flows may persist. That is because, in such a system, migration will be driven by the location of job opportunities requiring differential skills and training, and extremely elastic responses to job creation rates are sufficient to prevent disequilibrium differentials from emerging.

Another possible explanation for the much higher rates of migration among those with higher levels of education is that these migrants are responding to positive aspects of urban jobs and urban residence which are not reflected in current salaries. Urban white collar jobs offer greater job security, more comfortable surroundings, and higher social status than rural jobs available to people with the same level of education. While it is difficult to place a monetary value on these aspects of work, they likely enter into the decision to migrate.

Thus, if policy makers are desirous of changing rural-urban migration flows in a country like Indonesia, the key variable that can influence the flows are locations of job creation with specific education and/or skill requirements.

VI

CONCLUDING REMARKS

Following the collapse of the populist Sukarno regime, the "New Order" of General (later President) Suharto was faced with a population approaching 90 million growing at an annual rate of approximately 3%; life expectancy of only 41 years; per capita income level under $150 with a high proportion of the population suffering extreme poverty; a densely populated Java with over one-third of the rural population being landless; with gross investment and savings rates well below 10% of GDP; and with a demoralized and virtually defunct public administrative apparatus.

In the past twenty years Indonesia has made considerable economic progress with the help of oil booms and reasonably good policy. Yet, despite effective mobilization of internal and external resources, substantial increases in investment, effective family planning programs reducing gross fertility rates, substantial expansion of educational opportunities, and success in adopting new high-yielding varieties of rice, Indonesia is still a poor country. Per Capita income has approximately doubled, estimated at $560 in 1983 dollars; life expectancy has risen to 54 years in 1983 from 44 in 1965; while average daily calorie consumption has risen from 1900 in 1960 to 2100 in

1974 and to almost 2400 in 1982. Still some 51% of the rural and 17% of the urban population of Java was estimated to be below a poverty line in mid 1978 (Chernichorsky and Mesook, 1984).

While the data on employment are poor and often conflicting, evidence marshaled in Chapter II concludes that employment has grown at approximately 3% per annum. A somewhat surprising finding, however, is that the vast majority of new jobs have been in the services sector. Despite considerable technological advance, investment and growth of output in agriculture and large-scale manufacturing, relatively little direct expansion of employment has occurred in those sectors.

Thus, a slightly rising proportion of the population has been drawn into the labor force while measured unemployment rates have remained low. The partial evidence that is available suggests that average real wages rose during the period, particularly after the second oil boom in 1979.

While average real wages appear to have risen in most industries and in both rural and urban labor markets, it appears that a significant number of persons in the lower end of the income distribution have become absolutely poorer in recent years. It is also necessary to recall that despite apparent increases in real wages the base is still

very low: Indonesia is still an economy with abundant low-wage labor.

THE IMPORTANCE OF MACROECONOMIC POLICY FOR EMPLOYMENT

A necessary condition for effective labor absorption is appropriate macroeconomic management for mobilizing internal and external resources for investment. Indonesia has been very successful in this regard. Investment rose steadily as a share of GDP over the past two decades, fueled largely by oil and foreign aid.

However, it is one thing to increase gross fixed capital formation and another thing to ensure that it is used efficiently both for enhancing output and absorbing complementary factors. This is evident from the Indonesian experience. During the first oil boom from 1974-78, there was much waste and labor absorption was less than might have been possible.

It is also evident that an important lesson was learned from this experience and in the second oil boom, 1979-82, resources were used more efficiently. Control over public enterprise expenditures was imposed by strengthening the oversight capacity of the Ministry of Finance and the Planning Board following the financial collapse of Pertamina, the National Oil Company, in 1977. Public enterprises, particularly Pertamina, could no longer allocate a significant share of oil revenues without review. The oversight that was put in place was guided by an

understanding of the temporary nature of oil wealth and the need to use investment to strengthen labor-intensive production.

This action was reinforced by effective management of the exchange rate after 1978 in which the target used for establishing the rate was the maintenance of competitiveness of labor-intensive exports and import substitutes. A third policy measure that assisted in the development process was the redirection of expenditures to labor-intensive rural works schemes through the various regional development programs (INPRES).

While appropriate macroeconomic policies are necessary, they are not sufficient without other measures. One has to know in some detail how labor markets function in order to identify the ways in which macro policies affect employment and earnings.

THE FUNCTIONING OF INDONESIAN LABOR MARKETS

Students of labor markets in developing countries categorize them into three areas: rural, urban informal, and urban formal sectors. Although this rough tricotimization is serviceable for many purposes, the available body of evidence suggests that the lines between the three are, at best, blurred. While the "stylized facts" have these three sectors arrayed in increasing order of average wage levels and security of tenure, facts that remain to be explained are the considerable variability of

wages and conditions within each sector, the mobility of workers among sectors and the substantial overlap of the wage distributions among them.

Explaining this variability may require a theory of why employment is offered on different terms to workers with similar characteristics. Although a reasonably satisfactory theory of workers' strategies for searching among varied opportunities is available,[1] the framework within which intertemporal choices are made, particularly choices among jobs associated with different paths of expected subsequent wages and conditions, is still poorly developed. We need models that incorporate imperfect information, partial nonclearing of markets, diverse forms of credit, and the effects of social, and institutional variables that serve to segment markets.

Nevertheless, it is possible to detect some systematic patterns in the labor market data using relatively straightforward economic models. In Chapter IV we estimated earnings of recent migrants to Indonesian towns which show expected positive returns to education for both men and women; positive returns to own capital in larger-scale self employment; and no significant differentiation in wage levels between large-scale private and governmental firms, small-scale private firms, and petty self employment, once sex and education affects have been controlled (Aklilu and

[1] Harris and Sabor, 1976.

Harris, 1980)· These data suggest that while poorly educated migrants find work very quickly after arrival in town, and remain employed indefinitely, very little progress in earnings is made after the first job is found. These findings are consistent with other surveys of Indonesian labor markets.

Our research on rural labor markets concluded that these markets are segmented according to land owning status and must be examined in terms of interconnected labor, land, and credit arrangements. Although substantial seasonal variations occur in agricultural labor requirements, giving rise to large temporary movements into the towns, there is little information on how the urban labor markets adapt to these seasonal migrations. Similarly, there is evidence of urban labor market segmentations. Simanjuntak, for example, argues that segmentation has increased between government and nongovernment labor markets, particularly for the more educated workers: Manning argues that segmentation in Indonesian manufacturing labor markets has been on the upsurge in the late 1970s (Simanjuntak, 1982; Manning, 1979). While some of these different interpretations may reflect contradictory data or divergent theoretical models it seems most likely that rural and urban labor markets differ according to social positions of landowners and entrepreneurs in the two spheres.

Major changes in the rural labor markets since the Sukarno era have provided a large source of migration from rural Java. Some people were resettled in the outer islands, but this program was costly and only 50,000 to 100,000 families per year were able to participate in the so-called "transmigration" movement. Others who were displaced had to either find new niches in the rural areas of Java or move to the cities. Job opportunities in the cities, however, were not growing as fast as the demand for jobs and this had an impact on the type of people who migrated. Because opportunities in urban areas were limited, migrants needed capital or skills or both to succeed and many of the poorly skilled rural residents who were displaced from traditional agriculture had neither.

SPATIAL INTEGRATION OF INDONESIAN LABOR MARKETS

We have summarized a substantial body of research in Indonesia all suggesting that rural and urban labor markets in Java are well linked. As such, the distinction between labor market policies aimed at rural or urban markets is not well founded. Individuals with similar characteristics earn similar incomes whether they are in urban or rural areas, in large cities or small ones. While urban growth in Indonesia is difficult to manage and the manifestations of poverty are more readily visible in cities than in the countryside, the rates of growth have been relatively modest and rates of open unemployment among unskilled persons remain quite low.

Questions about urbanization and changes in spatial relationships need to be addressed in terms of desirable and efficient location of economic activity rather than in terms of exogenous labor supply changes (migration flows). Answers to these questions must revolve around the relative efficiency of activity in different sectors and whether such activity is better located in urban concentrations or in more scattered rural locations.

Having argued that the macro evidence suggests no serious problems of efficiency with respect to urbanization, some issues regarding poverty and equity remain. The evidence we have on poverty is that its incidence is higher in rural than urban sectors and is most closely related to access to land and education. However, the gross differences reflect the differential average educational attainment of urban dwellers and we have argued that this arises from the fact that a disproportionate volume of the economic activities requiring and rewarding educational attainment are located in urban areas. The evidence we have been able to marshall suggests that individuals with similar education receive roughly comparable incomes in rural and urban areas once cost-of-living differences are accounted for. In particular, there is no proof that rural-urban proportional differentials are related positively to education.

THE SIGNIFICANCE OF RURAL SEGMENTATION

We have developed evidence that groups of the population with access to land are relatively privileged in both rural and urban nonagricultural labor markets. These families with more wealth in land are able to afford more education for their children and to use some of their wealth to invest in capital used in self-employment. Without fully understanding the mechanisms that generate these differences, it is reasonable to conclude that access to particular social and political networks that confer advantage in employment is facilitated by land ownership.

In the short run, the degree of segmentation appears not to be significant for affecting overall efficiency of labor use. While a significant segment of the rural labor force does not have ready access to agricultural employment, it is not clear that this causes agricultural output to be restrained by failure to employ enough labor. The reason is that a major cause of "privileged" employment is the result of technical change in the rice cycle which has dampened the seasonal nature of labor input and put a premium on self-monitored workers.

However, the implications for inequality and perpetuation of poverty are profound. In the longer run, there is an intergenerational transmission of poverty made worse by these arrangements that raise important questions

about how macro strategies can effectively incorporate a larger part of the population into economic progress.

CHALLENGES FOR IMPLEMENTING LABOR-INTENSIVE STRATEGIES

The presence of a large, low-wage population calls for a strategy of adopting and reinforcing labor-intensive production processes. Whereas most investment has been directed towards the agricultural and manufacturing sectors, the data from the 1970s shows slow increases in employment in these sectors. The pattern of investment appears therefore to have been "capital deepening" rather than "capital widening." Although real wages have risen in Indonesian manufacturing over this decade, their level remains quite low by comparative international standards. And unlike many developing countries, particularly the semi-industrialized economies of Latin America, trade union power and legislated protection of working conditions and security of job tenure are conspicuously absent in Indonesia. Following the collapse of the Sukarno economy, policy makers deliberately avoided reinstituting labor legislation and institutions that would raise costs or restrict employer's capacity to rationalize productivity. Thus, it is hard to argue that in Indonesia wages are too high.

While wages may have been "right," it can be argued that attempts to channel credit to entrepreneurs at low cost may have given the wrong signals to entrepreneurs about appropriate technology to be embodied in new investment. As

reviewed, there is a body of evidence suggesting that "engineering man" frequently dominates "economic man" so that factors other than cost minimization affect entrepreneurs' decisions about technology. That industry and agriculture may have inherently anti-labor bias in technical change is another proposition that cannot be rejected out of hand on the basis of the data we have available.

We have observed disproportionate increases in average labor productivity between manufacturing and agriculture and the other sectors of the economy. The vast bulk of employment increases have taken place in the trade and services sectors as well as the very small-scale rural industrial sector. While it is clear that these sectors have acted as a "sponge" to absorb labor, it is not clear whether this is a means of sharing income among the underemployed or a productive vehicle for using labor. Whether workers are pulled into these sectors or pushed out of other sectors remain questions to which there is distressingly little evidence.

However, it is clear that there are difficulties in channeling resources to absorb the nonagricultural, low-wage labor force. The principal vehicle to facilitate this in Indonesia has been the labor-intensive rural works program which has a two-pronged strategy. The first objective is to absorb labor directly on a seasonal basis and to inject

income into the economy. The second element of the strategy is to construct economically useful infrastructure that will contribute indirectly to effective labor absorption. Whether this strategy is sufficient to spawn self-sustaining growth in the labor-intensive sectors must be questioned. While notable progress has been made in institutionalizing these programs, they may well be reaching the limit of their effectiveness.

The difficulties of stimulating labor-intensive, small-scale manufacturing has been confirmed by the destruction of the hand-loom weaving and hand-pounding rice industries under partly subsidized investment in labor-displacing industry. Small informal sector household-based enterprises such as these can be productive, but their requirements of small amounts of readily available working credits and, reliable access to materials at predictable prices are not easily met by the existing commercial and financial infrastructure. Marketing problems coupled with difficulties in establishing quality control and delivery schedules challenge existing institutions that attempt to aid the labor-intensive manufacturing sector. While there have been some notable successes in Central Java with credit and marketing programs for labor-intensive, small-scale industries, requirements for successful transfer of these programs into sustainable systems of supportive commercial infrastructure are formidable.

Letting unfettered markets work has been partially successful in the Indonesian situation. Overall growth has been impressive and the benefits have filtered down the income distribution to some extent. However, the principal impetus to this growth has been mobilization of oil and foreign aid funds by the government. Using these resources effectively has been a challenge which has been met with increasing success. But given the dismal outlook for future oil prices and the relatively limited reserves possessed by Indonesia, the oil booms are quite properly seen as temporary windfalls that cannot be counted on. The future of foreign assistance revenues is also not terribly bright.

Indonesia has not yet demonstrated that the private sector is capable of mobilizing savings at rates required for sustained growth. Furthermore, it has not fully demonstrated an ability to adapt and adopt technology in ways that use its abundant labor resources most effectively. Finally, it is also not clear that access to income-generating opportunities will be available to all groups. Part of the historic success of Indonesian society has been the maintenance of social consensus based on poverty sharing. The challenge of maintaining rapid growth while preventing worsening of the incidence of poverty in face of declining external resources available to government is still to be met.

To their credit, Indonesian policy makers have recognized the need to adapt programs to these emerging realities. Bold steps have been taken recently in reducing public investment, rationalizing the trade regime, and reforming credit institutions. Whether these steps will be sufficient to ensure growth with equity remains to be seen. The key to future adjustment will be the ability of the private sector to provide productive employment to the growing numbers of better educated labor force entrants.

This exploration of labor market institutions can only point out that they must be better understood in order to identify potential points of strain in the system and to identify how policy interventions are most likely to be effective.

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APPENDIX A

INDONESIAN EMPLOYMENT DATA: PROBLEMS OF DEFINITION AND MEASUREMENT

One of the main problems with using Indonesian data is that the definition of employment has changed frequently. The 1961 census counted as employed those who had worked for two months during the receding six months, whereas in the 1971 census this definition was changed to include all those who had worked at least one hour in two days during the preceding week. The 1976 Intercensal Survey (SUPAS) and the labor force surveys, (SAKERNAS) which have been conducted every quarter since 1976, modified the 1971 census definition to include anyone who had worked at least one hour during the preceding week.

This definitional problem pervades even the most apparently straightforward issues. Take, for example, the decline in the proportion of the work force in agriculture as illustrated in Table 2.4. It is possible that this decline of nearly 10% between 1961 and 1971 could reflect the much longer reference period used in the 1960 census particularly if nonagricultural activities are considered inferior to agricultural pursuits in personal identification of employment (Jones, 1981). Other researchers also argued that the continuing decline in the proportion of the work

force in agriculture indicated by the intercensal surveys since 1971 may be illusory, given that these surveys used even shorter reference periods than the 1971 census (Abey, Booth, and Sundrum, 1981). Preliminary analysis of the 1980 census suggests, however, that the falling share of agriculture in total employment over the 1970s is not simply a distortion caused by definitional changes. Bringing the 1980 estimates into line with the 1971 census by eliminating those who worked only one day a week has virtually no effect (Scherer, 1982).

The question of whether economic growth has been accompanied by growing employment is also dependent on definitional criteria. When intercensal survey data (SUPAS) became available in 1976, they seemed to show increases in employment of about 4.7% per year since the 1971 census, accounted for largely by substantial increases in labor force participation rates among women. Subsequent labor force surveys (SAKERNAS) suggest that the SUPAS measures of labor force participation rates are inflated relative to other measures. One explanation is that SUPAS data included unpaid family workers as labor force participants which other surveys and censuses did not (Arndt and Sundrum, 1980). In addition, the SUPAS survey was conducted at the peak of the main rice harvest in 1976 (Strout, 1983). According to the census data, employment in Indonesia increased by 2.9% a year over the 1970s, considerably below the 4.7% suggested by the intercensal data. On the basis of

interpolations of the census and SAKERNAS data, Strout (1983) argues that the census estimate of employment growth is too low, and that the correct figure is probably closer to 3.5%.

APPENDIX B: SURVEY METHODOLOGY

To gain a better understanding of the causes and affects of population movements, the Indonesian National Institute of Economics and Social Research (LEKNAS, LIPI) conducted a large migration survey in 1973 of migrants who had moved to cities within the preceding five years and residents within selected rural areas. The major objective was to compare recent migrants to cities with similar persons who had remained in rural villages.

The survey was undertaken in 24 cities of various sizes in all of Java, North, West, and South Sumatra, and South Sulawesi. These cities are of different sizes, are spatially distributed, and have different economic structures. The urban sample included all cities on Java with populations over 200,000, and 5 of the 9 cities with populations of 100,000 to 200,000, plus two smaller cities, and is fairly representative of the urban populations of Java as it was defined by the census in 1971.[1]

The urban sample of 11,502 people consisted of 6,834 migrants selected from representative households in the cities.

In the course of the household survey, the above sampling method was found to exclude the more recent and

[1] In 1971, 74% of the urban population resided in cities of 100,000 or over.

lowest income migrants. The sampling bias was a result of the administrative system of Indonesian cities that at times fails to "officially recognize" the dwellings of the very poor - those living as squatters, in cardboard shelters, under bridges, etc. In some cities like Jakarta, in order to be officially acknowledged as belonging to a Rukun Tetangga (RT) - the smallest administrative unit in Indonesia and the basic unit used in this survey and the 1971 census - a household must obtain an identity card, the costs of which is prohibitive to recent and poor migrants.[2]

In an attempt to correct the upward bias of the household sample and capture the excluded migrants, a purposive cluster sample of 4,686 people was taken of those occupations and in those areas likely to be frequented by migrants. These cluster samples included 1,471 pedicab drivers, 1,552 peddlers, 910 prostitutes, and 753 homeless people. Both the household and the quota sample were restricted to people 15 years of age or older who had migrated between 1968 and the time of interview in late 1972 or 1973. Although an attempt was made to devise the sample size for each city so that it would be proportional to the number of migrants to that city, there was little available data other than population sizes and growth rates upon which to base these calculations. There is, therefore, no way of telling how representative the sample actually is with

[2] Temple has estimated the cost as equivalent to 15 days of urban labor (Temple, 1975: p. 57).

regard to the distribution of migrants by city or the relative proportions of migrants in the household and quota samples. Estimates based on census data indicate that there were approximately 1,153,000 migrants who moved from rural Java between 1966 and 1971 and who were still in these cities in 1971 (Suharso et al., 1976). If the flow was about the same for the period from 1969 to 1973, then the sample contains about 1% of all migrants.

The rural sample included 3,522 residents of 13 villages, or clusters of villages. These villages were selected from rural districts near the sample cities and thought to be major sources of migration to these cities. Approximately 22% of the migrants to the sample cities came from the districts represented by the sample villages. An examination of the results for the urban sample showed that there were no significant differences between migrants from the districts of the rural sample and those from other rural districts.

Table B.1 Javanese Cities of the Survey

City	1971 Pop. (000)	Household	Squatter	Petty	Trisha	Prostitutes	Total
Jakarta	4576.0	3080	213	322	238	356	4209
Central Java							
Surakarta (Solo)	414.3	845	45	194	147	50	1281
Purwokerto	658.9	373	48	102	48	25	596
Semerang	646.6	910	94	168	193	99	1464
Tegal	106.0	342	74	50	73	72	611
West Java							
Bandung	1200.4	1124	97	194	166	100	1681
Sukabumi	96.2	421	30	91	128	36	706
Cirebon	178.5	411	-	105	95	-	611
East Java							
Surabaja	1566.3	2003	185	408	198	195	2989
Malang	422.4	721	49	46	97	49	962
Jember	122.7	405	24	49	75	25	578
Kidiri	178.9	288	24	25	24	25	386
Madiun	136.2	392	23	49	76	22	562
Jogjakarta	342.3	947	47	195	144	50	1383
Total	10645.7	12,292	953	1998	1702	1104	18049

APPENDIX C

CLASSIFICATION OF OCCUPATIONS IN INDONESIA USED FOR ANALYSIS OF SURVEYS

1. Student
2. Housewife
3. Agriculture
   - Landowners
   - Sharecroppers
   - Seasonal laborer
   - Plantation worker
   - Fisherman
   - Shepherd
4. Traditional transport
   - Trishaw (betjak) driver
   - Cart/Carriage driver (drawn by horse or bullock)
5. Motor Transport
   - Drivers of taxis, buses, trucks, locomotives, ships, airplanes
   - Bemo, Helicak drivers
6. Domestic servant
   - House-helper
   - Children-helper (governess)
7. Peddling services/trade
   - Junk sellers
   - Non-food sellers
     - water,
     - fuel,
     - household items,
     - cloth, etc.
   - Food sellers
     - cooked
     - uncooked
   - Barbers
   - Laundrymen, carwashers
   - Bootblacks
   - Photographers
   - Knife sharpeners
8. Settled Services/trade
   - Salesperson
   - Waiter/Waitress
   - Junk seller
   - Non-food seller
     - water
     - fuel
     - household items
     - books
     - cloth, etc.
   - Food seller
     - cooked
     - uncooked
     - restaurant
   - Barbers/Beauticians
   - Repairmen
   - Dressmaker/shoemaker
   - Maintenance worker in workshop
   - Traditional medicines
   - Go-betweens for selling goods
   - Handicraft worker
   - Photographer
   - Butcher
9. Daily Worker
   - Construction, road projects
   - Stevedore at harbor or railway
   - Business companies
10. Production/Manual
    - Janitor, office guards, etc., in private or government offices
    - Production workers
    - Postal and Telecommunications clerks
    - Transportation company worker
    - Graveyard doorkeeper
11. Lower clerical (private and government)
    - Trainees
    - Administrative worker

(managers
not included)
Cashier, Bookkeeper, etc.
Clerks in Banks,
insurances, business
Plumbers

12. Manager/Administrator

Extension worker in
agriculture, family
planning, etc.
Physician
Pharmacist
Teacher - religious and
public
schools
Translator
Managerial staff of
Private or
government office
Researcher
Contractor
Foreman/Supervisor
Editor/Reporter
Consultant
Teacher of private courses
(language, cooking,
etc.)
Salesman/Detailman
Irrigation/Waterpump
supervisor
Designer/Architect
Lawyer/Judge

13. Prostitute

Call girl
Brothel
Streetwalker

14. Scavenger

Paper collectors
Cigarette butt collectors
Collector of metal, glass,
etc.
Beggar

15. Other

Actor
Military
Retired civil servant
Athlete
Betjak (trishaw) owners
Cook
Brothel keeper

16. Unemployed

APPENDIX D

A REGRESSION OF URBAN EARNINGS

Using data from the 1973-74 migration survey described in Appendix B, the following regression model has been estimated to test statistically the various determinants of urban earnings in Indonesia. Note that the model attempts to distinguish between human capital features, length of experience in specific urban labor markets, and measures of market segmentation.

The logarithm of monthly earnings was regressed on sets of dummy variables representing education, age, year of migration, employment sector, pay period, occupation, and city of migration. The general model used is of the following form:

$$LnI_j = A_o + \sum_i b_i E_{ij} + \sum_i c_i A_{ij} + \sum_i d_i Y_{ij} + \sum_i c_i M_{ij} + \sum_i f_i P_{ij} + \sum_i c_i O_{ij} + \sum_i h_i C_{ij}$$

where:

I_j+=Monthly income of migrant j

Eij=Education level i of migrant j. [i-1, no formal education; 2, less than elementary diploma; 3, elementary diploma; 4, junior high school diploma; 5, senior high school diploma; 6, academy or university diploma (omitted).]

Aij=Age group i of migrant j [i-1, 15-18; 2, 19-21; 3, 22-25; 4, 26-35; 5, 36-65 and over (omitted)].

Yij=arrival Year i of migrant j [i-1, 1968; 2, 1969; 3, 1970; 4, 1971; 5, 1972; 6, 1973 (omitted)].

Mij=employer-occupation i of migrant j [i-1, self-employed peddler; 2, self-employed in trade or service; 3, self-employed in other occupation; 4, wage employed by stranger; 5, employed by large private firm or government; 6, working for family (omitted)].

Pij=Pay period i of migrant j [i=, daily; 2, monthly; 3, weekly or biweekly (omitted)].

Oij=Occupation i of migrant j [i=, domestic servant; 2, scavenger; 3, prostitute; 4, other (omitted)].

Lij=City i of migrant j [i=1,Jakarta; 2, Surabaya; 3, Malang; 4, Jember; 5, Kediri; 6, Madiun; 7, Jogjakarta; 8, Solo; 9, Semerang; 10, Tegal; 11, Bandund; 12, Sukabumi; 13, Cirebon; 14, Purwokerto (omitted)].

The reported monthly income, which is our dependent variable, merits some comment, particularly with respect to its measurement. The Survey of Migrants asked each person his/her pay period and the amount of cash and/or the cash value of income received in-kind from the primary occupation per pay period. Depending on the pay period, the migrants were further asked to state the average number of days worked in a week and the average number of hours worked in a day. The cash and in-kind payments were added and daily and weekly pay were converted to a monthly equivalent using the number of days or weeks worked per month. Major difficulties

were encountered when these data were first analyzed since some of the reported wage figures were unrealistic for the reported pay period. An almost case by case study of reported wages of extreme outliers was undertaken and in most cases the mistakes were clearly identified and subsequently corrected. The final distribution of wages compared to wages paid workers in other published documents. In summary, our measure of income is the monthly income, cash and in-kind, from the migrant's primary occupation.

Pay period was included as a separate set of variables for two reasons. First, as mentioned earlier, there may be consistent statistical bias in converting daily wages to monthly incomes - most likely this bias is upward as a result of overestimating the number of days worked per month and the average income per day. Second, daily wages include self-employed and casual workers while monthly wage contracts characterize the "formal sector" and include both substantial measures of job security as well as income. Furthermore, monthly contracts more often include a substantial amount of income-in-kind such as rice allowances.

The education variables are used to capture one major element of human capital that higher education will lead to higher income. It was decided to characterize education by a series of discrete dummy variables rather than as a continuous variable such as number of years of school

attended. Earlier analysis of the data and observation of the ways in which educational requirements for jobs are set, suggested that attainment of specific certificates of completion or diplomas were the most appropriate measures of educational attainment since they combine with attendance and achievement levels.

Age is included to capture a number of effects - maturity, commitment to the labor force, experience, etc. - which are probably non-linear. The year of migration can be taken as a proxy for experience in the particular labor market allowing the migrant to learn about and find better opportunities.

The employer-occupation categories represent the effect of institutional and structural factors in determining income. Self-employment includes both returns to labor and to capital. Therefore, it is divided into those in trades and services, with little capital, (peddling), and those with more substantial capital (settled stalls or shops), and all self-employment activities which also require little capital. The other category of employment closely related to self-employment is working for family. In this category, income in-kind and cash are very difficult to disentangle but there were few members in this group. Finally, there are two main divisions in wage earning employment - employment by a "stranger", which in the Indonesian context corresponds roughly to informal sector employment or employment by a

large private firm or government which is usually characterized as the formal sector. Various types of self-employment and participation in family-run businesses are fairly straight-forward. Employment by a "stranger" is less clear cut. The dividing line between this category and employment by a large private firm is fuzzy at best, and the classification used is that offered by respondents. In general, this category consists of small-scale entrepreneurs who employ workers they know. The exact nature of the personal relationship between these employers and their workers, in the absence of direct family connections, can vary widely. It is our impression that most often such entrepreneurs hire workers who are known to them through networks of friends coming from the same geographic or ethnic origin and that such an employment relationship is determined by both social and contractual arrangements.

Finally, three occupational categories represent special institutional arrangements that should be controlled for in any analysis of earnings. Domestic servants are often hired on the basis of family relationship and frequently receive nonreported income in-kind since they live and eat as part of the household unit. For these reasons, their reported income is probably considerably lower than their real income. The second group consists of scavengers, self-employed individuals who do not participate in any of the regular or informal labor markets but manage to eke out an existence through collecting and selling scraps. They

generally squat in temporary hovels, occupy abandoned railroad cars, or camp under bridges. Most of their income is income in-kind which was converted to an income equivalent by the interviewers. A final separate occupational category is prostitution. Mostly self-employed, they occupy a position where some amount of social stigma is attached. Furthermore, their effective earning years are very limited. One would expect their reported earnings to be higher than they could earn in other occupations.

The final set of variables represents different urban markets. Differences in earnings among cities will vary, ceterus paribus, by differences in the economic structure of the area, the supply of labor to that area via migration, costs of living, and differences in amenities. In a world with good information, mobile populations, and efficient, cheap transportation, migration should serve to make small, if not entirely eliminate, disparities in real earning opportunities among labor markets. Hence, in a perfectly integrated spatial economy, coefficients on specific cities would not be significantly different from each other.[1]

Since all of the independent variables have been entered in the form of dummy variables, one category from each set has to be eliminated in order to prevent

[1] These surveys were done by different teams in different cities and that may cause coefficients to reflect interviewer bias in recording incomes.

singularity in the matrix to be inverted. The regression coefficient for each dummy variable represents the partial effect of that variable on income. As such, it is differences between coefficients in the same set that is significant more than whether each or all is significantly different from zero which is the basis of the reported "t" statistic. The estimated regression coefficients are shown in Table D.1.

Table D.1 Earnings Functions for Migrants in 14 Cities of Java, 1973

Independent Variables	Male		Female	
	b	t	b	t
Education				
E_1 (no education)	-0.328*	18.04	-0.287*	6.82
E_2 (primary)	-0.269*	16.32	-0.221*	5.07
E_3 (primary)	-0.220*	13.53	-0.176*	3.99
E_4 (junior)	-0.185*	11.12	-0.086	1.87
E_5 (senior)	-0.107*	6.57	-0.014	0.29
Year of Migration				
Y_1 (1968)	0.099*	7.49	0.041	1.58
Y_2 (1969)	0.079*	6.03	0.025	1.04
Y_3 (1970)	0.094*	7.32	0.026	1.15
Y_4 (1971)	0.094*	7.03	0.020	0.92
Y_5 (1972)	0.062*	5.01	0.007	0.37
Age				
A_1 (15-18)	-0.025	0.568	-0.088	0.99
A_2 (19-21)	-0.014	0.325	-0.068	0.75
A_3 (22-25)	-0.014	0.311	-0.077	0.86
A_4 (26-35)	0.032	0.072	-0.041	0.45
A_5 (36-65)	0.077	1.746	-0.026	0.29
Employer/Occupation				
M1 (self-employed peddling)	-0.049	3.789	-0.043	1.27
M2 (self-employed settled)	0.028	2.302	0.146*	5.43
M3 (self-employed other)	-0.052	3.229	-0.024	0.30
M4 (stranger)	-0.041	3.815	0.051	3.04
M5 (govt./large private)	-0.008	0.694	-0.005	0.20
Pay Period				
P_1 (daily)	0.050*	4.74	-0.116*	6.07
P_2 (monthly)	0.064*	5.10	0.147*	6.42
Occupation				
O_1 (domestic service)	-0.316	11.263	-0.287*	10.59
O_2 (scavenging)	-0.400	24.064	-0.098*	3.42
O_3 (prostitution)	-- --	0.416*	18.43	

Table D.1 Earnings Functions for Migrants in 14 Cities of Java, 1973 continued

City				
C_1 (Jakarta)	-0.051	0.00	0.181*	5.36
C_2 (Surabaya)	0.016*	2.725	0.042	1.22
C_3 (Malang)	-0.014	0.722	0.112*	2.84
C_4 (Jember)	-0.123	0.611	0.191*	3.75
C_5 (Kediri)	-0.162*	4.844	0.120*	2.91
C_6 (Madiun)	-0.162*	6.76	0.037	0.88
C_7 (Jogy)	-0.098*	4.71	0.057	1.32
C_8 (Solo)	-0.053*	2.54	0.124*	3.35
C_9 (Semerang)	-0.097*	4.87	0.074*	2.03
C_{10} (Tegal)	-0.032	1.41	0.057	1.38
C_{11} (Bandung)	-0.011	0.53	0.203*	5.06
C_{12} (Sukabumi)	-0.050*	2.27	0.155*	3.22
C_{13} (Cerebon)	-0.102*	4.59	0.247*	4.16
Constant $(E_6, Y_6, A_6, M_6, P_3, 0_4, C)$	3.9326	3.575		
R^2	0.26	0.43		
S E E	0.25	0.29		
N	8303.	3040.		

* Statistically significant at the 5% level

The selected independent variables used in the regression model explain 26% and 43% of the variation in the log of monthly earnings of males and females respectively.

APPENDIX E

A REGRESSION MODEL OF RURAL EARNINGS

Following the methodology outlined in Appendix D, data collected from the rural surveys described in Appendix B were used to estimate earnings function for rural non-migrants. Since these estimates are designed to serve two purposes - analysis of the functioning of rural labor markets and the formation for estimating migration relationships - the urban migrant earnings functions were reestimated in slightly modified forms to ensure comparability with the two sets of estimates.

The general form of the regression function is the same as that outlined in Appendix D with the exception that individual city dummy variables were omitted and variables measuring access to land were added. The equations were estimated using Ordinary Least Squares (OLS) with the log of earnings as the dependent variables and the various independent variables entered as dummy variables.

The results of three different experiments are shown in Tables E.1 - E.3. The first, Table E.1, reports the estimates from four equations - one each for males and female urban migrants and male and female rural residents.

Table E.2 reports four similarly defined equations but with a reduced set of explanatory variables. The reason for

the reduced set is to provide demographic "cells" comparable to data generated by the Census. This is required for the analysis of migration propensities reported in Appendix F.

Table E.3 reports the estimated earnings in log form, calculated for various demographic cells using the regression coefficients from Table E.2.

Table E.1 Regression Coefficients for Urban and Rural Earnings Functions - Full Model

		MALES		FEMALES	
		Urban Migrants	Rural Residents	Urban Migrants	Rural Residents
AGE					
20-24		.068*	.257	.088	.073
25-29		.099*	.287	.102	.799
30-39		.166*	.249	.195*	-.124
40-59		.198*	.337*	.200*	-.102
60+		.100	.373*	-0.242	.476*
EDUCATION					
Some Primary		.155*	.031	.207*	.114
Primary Grad.		.283*	.055	.257*	.157
Junior Grad.		.354*	.554*	.378*	
Senior Grad.		.509*	.598*	.595*	.601*
LAND (in hectares)					
.01 to .19		-.004	-.315*	.107*	-.342
.20 to .49		.020	.147	.108	.389
.50 to .99		.086*	.515*	.287*	1.057*
1.00 to 1.99		.100*	.935*	.391*	.686*
2.00 or More		.165*	1.168*	.468*	1.377*
OCCUPATION					
Self-emp:	Variable Loc	.211*	.541*	-.110	.838*
	Fixed Loc	.433*	.423*	.414*	.301*
Employee:	Small Scale	.227	.284*	-.295*	-.420
	Large Business or Gov't	.214*	.609*	-.080	.216
Farmer:	Owner		.460*	-	1.368*
	Tenant	-.029	.173	-	1.098*
	Laborer	-.054	-.608	-.490	-.283*
	Other	-	-.630*	-	-.339*
YEAR MOVED TO CITY					
1971		.080*	-	.044	-
1970		.107*	-	.128*	-
1969		.080*	-	.078	-
1968		.107*	-	.096	-
	Constant	7.976	7.387	7.641	6.881
	R^2	.096	.287	.180	.426
	Number of Cases	6016	1315	1474	657

Table E.1 (Continued)

NOTES:

* Statistically significant at p less than .05.

1. Age at time of survey.
   Omitted category: Ages 15-19

2. Omitted category: No Education

3. For migrants, land refers to land owned by respondent or his or her parents. For rural residents, land refers only to land owned by the respondent.

4. Omitted category: People who work for family or relative in a non-farm occuption. In the rural sample, many respondents have both a farm and a non-farm job. In such case, both jobs are included.

5. Omitted category: Migrants who moved in 1972 or 1973. The Survey was conducted between December 1972 and August 1973.

Table E.2 Regression Coefficients for Urban and Rural Earnings Functions - Reduced Model

	MALES			
	Urban Migrants	Rural Residents	Urban Migrants	Rural Residents
AGE				
20-24	.052	.254	.094	.198
25-29	.120*	.491*	.135*	.157
30-39	.244*	.572*	.368*	.359
40-59	.290*	.816*	.187*	.383*
60+	.145	1.027*	-.129	.116
EDUCATION				
Some Primary	.154*	.153*	.088	.228*
Primary Grad.	.299*	.318*	.168*	.348*
Junior Grad.	.385*	.971*	.395*	.673
Senior Grad.	.529*	1.101*	.591*	
YEAR MOVED TO CITY				
1971	.092*	-	.011	-
1970	.103*	-	.087	-
1969	.092*	-	.192*	-
1968	.080*	-	.141	-
Constant	8.195	7.198	7.646	6.798
R^2	.076	.070	.075	.018
Number of Cases	2794	1338	1114	666

Table E.3 Mean Log Income by Age, Education and Sex for Urban Migrants and Rural Residents

		MALES			FEMALES		
Age	Education	Urban Migrants	Rural Residents	Difference	Urban Migrants	Rural Residents	Difference
15-19	None	8.43	7.35	1.08**	7.73	7.03	.70***
	Less Than Primary	8.42	7.42	1.00***	7.74	7.05	.69***
	Primary Grad.	8.54	7.31	1.23***	7.87	7.01	.86***
	Junior Grad.	8.38	7.55	.83***	8.28	7.15	1.15
	Senior Grad.	8.68	-	-	8.32	-	-
20-24	None	8.33	7.67	.66	7.82	7.30	.52
	Less Than Primary	8.55	7.49	1.06***	8.08	7.00	1.08***
	Primary Grad.	8.65	7.81	.84***	7.89	7.34	.55*
	Junior Grad.	8.74	8.71	.03	7.87	-	-
	Senior Grad.	8.78	8.15	.63	8.27	7.74	.53
25-29	None	8.32	8.32	.09	7.79	7.03	.76***
	Less Than Primary	8.49	7.86	.63***	7.92	7.18	.74***
	Primary Grad.	8.70	8.01	.69***	7.98	7.06	.92*
	Junior Grad.	8.78	8.40	.38	8.43	7.33	1.10
	Senior Grad	8.98	8.50	.48	8.63	7.60	1.03
30-39	None	8.50	7.79	.71***	8.09	7.11	.98***
	Less Than Primary	8.66	7.96	.70***	8.17	7.43	.74***
	Primary Grad.	8.75	7.93	.82***	8.27	7.66	.61
	Junior Grad.	9.01	8.88	.13	8.48	7.62	.86
	Senior Grad	9.05	8.80	.25			

		MALES			FEMALES		
Age	Education	Urban Migrants	Rural Residents	Difference	Urban Migrants	Rural Residents	Diff-erence
40+	None	8.50	8.04	.46***	7.90	7.12	.78***
	Less Than Primary	8.65	8.18	.47***	8.02	7.46	.56
	Primary Grad.	8.83	8.51	.32	7.86	7.58	.28
	Junior or Senior Grad	9.18	9.41	-.23	-	8.64	-

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* Significant at p = .05, two tailed t-test

** Significant at p = .01, two tailed t-test

*** Significant at p = .001, two tailed t-test

APPENDIX F

ESTIMATION OF MIGRATION PROPENSITIES IN JAVA

While the theory of calculating migration propensities of specific demographic groups seems simple, the measurement is not. One observes the flows of migrants (categorized by age, sex, education, and landholding) from rural to urban areas in a period of time, and then calculates the migrants as a proportion of their comparable demographic rural group in the base (pre-migration) period.

One immediate problem raised by these surveys is that it is impossible to determine the precise sampling fractions represented in the surveys because the total sampling frame is unknown. There is good reason to believe that the actual observations are random within the respective rural and urban areas selected for sampling, but the proportion of migrants who are sampled is also subject to unknown random effect since migrants are unlikely to be evenly distributed spatially within urban areas. In order to calculate migration rates, we estimated relative propensities to move by age and education by taking the ratio of urban migrants to the total as 1.0 . This method is sufficient for our purposes since we are interested in comparing migration propensities between different groups and not absolute rates of migration. The quota sample of migrants not living in

households was excluded as we had no way of determining their sampling fractions relative to the household sample. By limiting the sample to migrants who were found living in urban households, we have underestimated the propensity to migrate for those with lower than average education.

As mentioned previously, these findings are potentially biased because the sample was restricted to the household population. Many migrants with lower levels of education were found in group quarters and among the homeless. Unfortunately, we have no estimates of how numerous these groups are. If we could obtain a proper count of these migrants, it might be that migration propensities did not vary as much by education as estimated, but it is unlikely that the rankings would be altered given the magnitude of the differences.

The resulting estimates of migration propensities from the total household sample are presented in Table F.1. There are two problems with this sample. First, by restricting the estimates to the household samples only, the flows accounted for by the purposive samples reported in Appendix B are probably underestimated. We also know that those low-income groups are deliberately overrepresented if they are included in the estimates. Therefore, the household sample, which was an appropriate random sample of regular housing areas, is the only one than can be used reliably.

The second problem is that a substantial number of the urban migrants are still in school and have moved to urban areas for schooling, thereby inflating the proportion of migrants having high educational achievement. Table F.2 revises the estimated propensities using only observations of persons in the labor force from the household samples. This is likely to be a more appropriate set of measures for estimating employment-related migration.

Table F.1 Migration Propensities by Age, Sex and Education
Total Household Sample

	Level of Education					
	None	Some Primary	Primary Grad	Junior Grad.	Senior Grad.	Total
MALES						
15-19	.62	1.46	1.61	4.67	9.91	2.36
20-24	1.02	2.77	2.24	4.03	15.42	3.78
25-29	1.82	1.06	1.72	2.20	5.06	1.76
30-39	.67	.53	1.08	1.67	2.27	.84
40 +	.11	.14	.39	1.20	(1.29)	.18
	.26	.56	1.32	3.25	6.04	1.00
FEMALES						
15-19	1.81	2.83	2.16	6.50	14.41	3.01
20-24	1.58	1.44	2.93	8.54	7.06	2.57
25-29	.75	.74	1.92	2.23	4.24	1.11
30-39	.38	.47	.87	(1.84)	(2.65)	.51
40 +	.19	.18	.62	(.98)	(.88)	.21
	.38	.93	1.85	5.07	6.34	1.00

NOTES: Propensities are calculated as the ratio of urban migrants to rural residents. They are scaled to equal 1.00 for the total for each sex. Figures in parentheses are based on fewer than 10 cases for numerator or demoninator.

Table F.2 Migration Propensities by Age, Sex and Education for Those in Labor Force

	Level of Education					
	None	Some Primary	Primary Grad.	Junior Grad.	Senior Grad.	*Total
MALES						
15-19	(.93)	2.15	2.55	1.47	-	2.16
20-24	1.16	3.82	3.08	5.64	(16.8)	4.04
25-29	1.64	1.38	2.17	3.16	5.52	2.16
30-39	.81	.65	1.32	2.05	3.17	1.02
40 +	.13	.17	.45	1.49	1.68	.22
TOTAL	.32	.70	1.17	2.61	5.44	1.00
					Junior or Senior Grad.	
FEMALES						
15-19	3.38	5.71	3.52	(11.02)	4.78	
20-24	1.47	1.78	2.15	(12.03)	2.22	
25-29	.87	.68	1.39	(3.51)	.97	
30-39	.46	.53	.46	(1.50)	.50	
40 +	.26	.18	(.48)	(.75)	.25	
TOTAL	.49	1.28	1.83	5.56	1.00	

NOTES: Propensities are calculated as the ratio of urban migrants to rural residents. they are scaled to equal 1.00 for the total for each sex. Figures in parentheses are based on fewer than 10 cases for numberator or demoninator. Because of the small number of cases of females with Junior or Senior secondary schooling, the final column combines Junior and Senior graduates.