

Income Insecurity and Underemployment in Indonesia's Informal Sector

Franck Wiebe

How serious are the problems of income insecurity and underemployment in Indonesia? And do they require a policy response?

This researcher concludes that employment data do not provide compelling evidence of the need for a new income security scheme.

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Summary findings

Recent legislation to provide income security to workers in Indonesia covers only those in the formal sector, initially. But workers in the informal sector are at even greater risk of income loss and are more vulnerable to shocks because of lower average incomes.

Wiebe addresses the question of whether there is a rationale for income security schemes for Indonesia's informal sector. His research suggests that, through a range of existing public programs, Indonesia's government already provides important security mechanisms for informal sector workers, and must continue to do so. He finds no compelling evidence of the need for a nationwide income security scheme for such workers.

He bases his argument against a new income security scheme on three main conclusions:

First, contrary to popular belief in Indonesia, only about 12 percent of the workforce in the informal sector (not 40 percent) — and even less in the formal sector — is underemployed.

Second, this level of underemployment does not represent compelling empirical evidence of income

insecurity in Indonesia. The connection between underemployment and income insecurity is problematic in theory and remains unsubstantiated by national survey data.

Third, many mechanisms already exist in Indonesia to mitigate the disruption caused by income insecurity. Households and communities use private strategies to smooth consumption and investment, and the government is already active in providing additional income security.

Not only does empirical evidence fail to justify a major new policy response, says Wiebe, but most evidence suggests that such a response is not necessary at this time.

Wiebe suggests that any new initiative directed at income insecurity should probably be limited in scope and should focus on Eastern Indonesia and on remote or isolated areas of Java, areas with low average incomes. If concerns about income insecurity persist, money should be spent finding out where it actually is before implementing a nationwide scheme to deal with it.

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Introduction

With the recent enactment of *JAMSOSTEK*, the Government of Indonesia created an important mechanism to provide income security to workers. Although the law is intended to cover everyone eventually, in its initial stages of implementation the law will cover only those workers in the formal sector. Workers in the informal sector, however, face not only much greater risk of income loss, but also are more vulnerable to these shocks due to their lower average incomes.¹ While other countries have found that public works programs, when well designed, can provide a measure of income security to workers in the informal sector, Indonesia does not have such a scheme at this time, and it may be years before *JAMSOSTEK* is able to provide an adequate safety net for these workers. In this context, this paper considers whether a need for such a new income security program for workers in the informal sector exists in Indonesia today.

The remainder of this paper is divided into three sections. The first section examines the state of the Indonesian labor market in the informal sector. Because income insecurity may be strongly connected with high levels of underemployment, this section explores the nature of underemployment in the informal sector in Indonesia, disaggregating the data by season, age, gender and region. Data from the 1993 National Labor Survey (*SAKERNAS*) reflect high underemployment in all categories, but the highest incidence of underemployment can be found among women, in rural areas, and in eastern Indonesia. In absolute numbers, however, there are more underemployed men than women (because men comprise a disproportionate share of the workforce), and more are found on Java than elsewhere. Somewhat surprisingly, the data show no real pattern of seasonality in the level of underemployment, even in rural areas.

The second section of the paper discusses existing mechanisms that generate security for workers in the informal sector. While *JAMSOSTEK* may not cover these workers yet, the Government of Indonesia has an impressive array of other programs that, at least indirectly, may provide a safety net to some members of the informal sector. While *Inpres Desa Tertinggal* has received considerable renown for generating new income-earning activities in backward areas, there are many other programs with less visibility that represent real safety nets, including efforts by the Department of Social Welfare (*DEPSOS*) and the Department of Manpower (*DEPNAKER*). Moreover, households are not ignorant of the vagaries of the informal sector; living in this environment, many workers develop their own private schemes for generating some level of security. One of the most common of these schemes is the diversification of income sources to reduce household vulnerability to drops in income from any single source.

The final section of the paper will return to the original question: is there a rationale for income security schemes for the informal sector in Indonesia? This research suggests that, through a range of existing public programs, the Government of Indonesia already plays an important role in providing security mechanisms to workers in the

¹ For the purpose of this study, the informal sector includes all workers except those paid regular wages in the non-agricultural sectors.

informal sector, and continued involvement will remain necessary in the immediate future. To the extent that isolated segments of the labor market continue to face problems of income insecurity, there may be opportunities for the government to expand upon its current efforts. However, there is no compelling evidence indicating the need for a nationwide income security scheme for workers in the informal sector.

The argument against a new income security scheme is based on three conclusions of this study. First, contrary to the belief, widely held in Indonesia, that underemployment exceeds 40 percent of the workforce, data from a 1993 survey of Indonesian workers indicate that only about 12 percent of those in the informal sector (and even less in the formal sector) can be characterized as working too few hours.² Second, although this research yields evidence of underemployment, no empirical evidence of income insecurity in Indonesia exists to date; indeed, the connection between underemployment and income insecurity is dubious on theoretical grounds and remains unsubstantiated by national survey data. Third, many mechanisms already exist in Indonesia to mitigate the disruption caused by income insecurity. Households and communities employ private strategies to smooth consumption and investment patterns, and the Government of Indonesia already is very active in providing additional income security. Taken together, these three conclusions indicate that not only does empirical evidence fail to justify a major new policy response, but most of the evidence available suggests that such a response is not necessary at this time.

I. The State of the Labor Market in the Informal Sector

The informal sector in Indonesia accounts for a large share of the total working population. As recently as 1993, the formal sector accounted for just under one-third of the workforce, leaving approximately 68 percent in the informal sector.³ Of course, not everyone in the informal sector experiences income insecurity; an adequate household income levels (which permits savings), the possession of assets (which represents a form of insurance), and steady productive employment (which implies a stable source of income) all provide protection from unexpected fluctuations in household income levels.

Vulnerability in the informal sector is produced by a combination of low income levels and unstable income sources. When the poor and the near poor are forced to rely on infrequent and unpredictable employment, they are susceptible to unforeseen external shocks.⁴ Uncertain incomes adversely affect household welfare levels, as they can distort

² Current trends in the labor market suggest that underemployment will decline over time. Labor flows from agricultural to non-agricultural activities and from the informal sector to the formal sector both imply higher employment rates and declining levels of underemployment.

³ Author's calculations using data from the 1993 SAKERNAS survey. Respondents who described their primary form of work as either permanent workers (*buruh tetap*) or workers (*buruh/karyawan*) were considered members of the formal sector, and these accounted for 31.8 percent of all workers in 1993.

⁴ In addition to the roughly 15 percent of the population living below the official poverty line, there are many additional households living near the poverty line whose status as "non-poor" is probably better understood as "near poor," as a significant economic shock would likely push them below the poverty line.

both consumption and investment decisions. In this context, underemployment can be seen as an indicator of (or proxy for) income insecurity in the informal sector. Although some Indonesian workers certainly have adequate incomes and others may possess some family assets, neither of these forms of security are likely to be prevalent among workers in the informal sector. Moreover, there is likely to be a strong positive correlation between the three forms of protection listed above; households without steady sources of employment are less likely to have either assets or adequate income levels. As a result, workers with infrequent and/or irregular work opportunities (i.e., the underemployed) probably live in households that are most vulnerable to external shocks that affect their earnings.

It is important to note, however, that the connection drawn here between underemployment and income insecurity is problematic, at best. The most serious concern is the fact that, while underemployment is a phenomenon that affects individuals, income vulnerability occurs at the household level; because fluctuations are likely to decline at higher levels of aggregation, looking at statistics on underemployment almost certainly overstates the incidence of income insecurity. For example, a household with many insecure sources of income may be far less vulnerable than another household with the same (or even higher) income that comes from only one source. Access to other forms of insurance may vary across households, further complicating the connection between underemployment and income insecurity. Thus, even as one considers the description of the informal labor market which follows, it is important to keep in mind the fact that underemployment is an imperfect (and biased) proxy for income insecurity.

A Working Definition of "Underemployment" for Indonesia

Underemployment is widespread in Indonesia. The 1993 National Labor Force Survey (SAKERNAS) provides ample evidence of the magnitude of the problem. Using the traditional standard (less than 35 hours per week), nearly two-fifths of the total Indonesian labor force (39.7 percent) are underemployed. Even a stricter standard defined as "severe underemployment" (less than 25 hours per week) identifies almost one-quarter (23.1 percent) as working too few hours.⁵ In the informal sector, the incidence of underemployment is far higher. Almost half of the workers in the informal sector (48.6 percent) work less than 35 hours, and 29.8 percent could be categorized as severely underemployed.

The traditional standard of underemployment (less than 35 hours per week) is of limited value to this study for three reasons. First, this standard captures too large a portion of the labor market; any definition that identifies nearly one out of every two Indonesian workers in the informal sector as needing additional security assistance is too

Although establishing any definitional cutoff for the near poor would be arbitrary, an example from 1993 demonstrates the magnitude of the group living just above the poverty line; while about 25 million Indonesians (or 13.5 percent of the population) had monthly expenditures below Rp. 20,000, another 52.7 million (or 28 percent of the total population) lived on between Rp. 20,000 and Rp. 30,000 per month.

⁵ Kenneth Chomitz, 1991.

broad to be useful for policy guidance. Second, such figures of underemployment are not consistent with the reality of intensive activity observed in informal labor markets throughout Indonesia. Third, using only the hours worked as an indicator of the need for more work ignores the choices made by some individuals not to work more hours at the prevailing wage rate. Underemployment is likely to be a problem for workers only if they would like to work more hours and cannot.

Fortunately, the *SAKERNAS* data also include information concerning whether the workers would like to work more hours. While there clearly are problems with using this information (for example, willingness to work more hours must be related to some concept of the wage level, but the survey is silent on this issue), it still seems more reasonable to use this information than to ignore it. Moreover, the proportion of the population that both works less than 35 hours each week and wants to work more (12.5 percent) is both more meaningful and more useful for policy purposes. For the rest of the paper, these two conditions will be used to define the underemployed in Indonesia's informal sector.⁶

The Structural Nature of Underemployment in Indonesia

Using this definition, several striking patterns emerge in the data (see Table 1). First, women experience a higher rate of underemployment (13.0 percent) than do men (11.7 percent). Second, rural workers in the informal sector experience a higher rate of underemployment (13.1 percent) than do their urban counterparts (8.3 percent). Interestingly, the urban-rural distinction is stronger than the gender distinction, as rural men are more likely to be underemployed than are urban women. This feature, combined with the fact that more than four-fifths of the labor force (81.9 percent) is located in rural areas, demonstrates that underemployment in the informal sector remains overwhelmingly a rural phenomenon. Seven out of eight, or nearly 88 percent of the underemployed, are found in rural areas.

⁶ Several readers of earlier drafts of this paper have questioned the appropriateness of using 35-hour standard for all types of work in the informal sector; the traditional norm for a "standard" work weeks for an agricultural laborer, for example, may be very different from that expected from a street vendor. Although the cut-off of 35 hours admittedly is arbitrary (albeit conventional), the second part of the definition of underemployment (wanting more work) introduces considerable flexibility across types of work. For example, if an agricultural laborer is satisfied with a shorter (but "standard") work week, he or she would be counted among the fully employed. Were such a worker to desire more work, despite completing a "standard" work week, it seems reasonable to consider the person underemployed. Given the low hourly returns to employment in the informal sector, one might argue that the weekly cut-off be raised from 35 hours to 40 hours or more, but once one departs from convention, the selection of any other line would appear even more arbitrary unless it is connected to another standard, such as the poverty line or the minimum wage.

Table 1. Percent Underemployed by Gender and Location

	Male	Female	Total	Pop. Share
Urban	7.9	8.9	8.3	18.1
Rural	12.6	13.8	13.1	81.9
Total	11.7	13.0	12.2	100
Pop. Share	58.3	41.7	100	

Note: Unless otherwise indicated, figures in tables are based on the population of workers in the informal sector, excluding both those with formal sector jobs and those not wanting more work. The source for all data described in this paper is the 1993 SAKERNAS survey.

A breakdown of the underemployed by gender and age describes a similar pattern for men and women, with the highest rates of underemployment occur among young workers (see Table 2). For both men and women, workers under 35 years of age experience higher than average rates of underemployment. The rate of underemployment for women is above that for men except among the very youngest and the two oldest age categories.

Table 2. Percent Underemployed by Gender and Age

Age Range	Male	Female	Total
10-14	17.8	16.5	18.3
15-19	26.4	27.0	26.7
20-24	20.7	22.1	21.3
25-29	13.7	16.5	14.9
30-34	11.5	13.4	12.4
35-39	9.8	12.2	10.8
40-44	8.5	8.7	8.6
45-49	7.2	8.6	7.8
50-54	6.0	6.2	6.1
55-59	5.9	5.2	5.6
60 +	3.6	3.6	3.6
Total	11.7	13.0	12.2

The concentration of younger workers among the underemployed is displayed graphically in Figure 1 below. Workers under the age of 30 account for more than half of

the underemployed, despite the fact that they account for less than one-third of all workers in the informal sector. Workers under the age of 40 account for nearly four out of five the underemployed, despite the fact that they represent fewer than three out of five in the working population. These data strongly reject the notion that the underemployed are made up of individuals are too old to work; the vast majority of the underemployed appear to be physically suited for additional employment.

Figure 1. Underemployment by Age

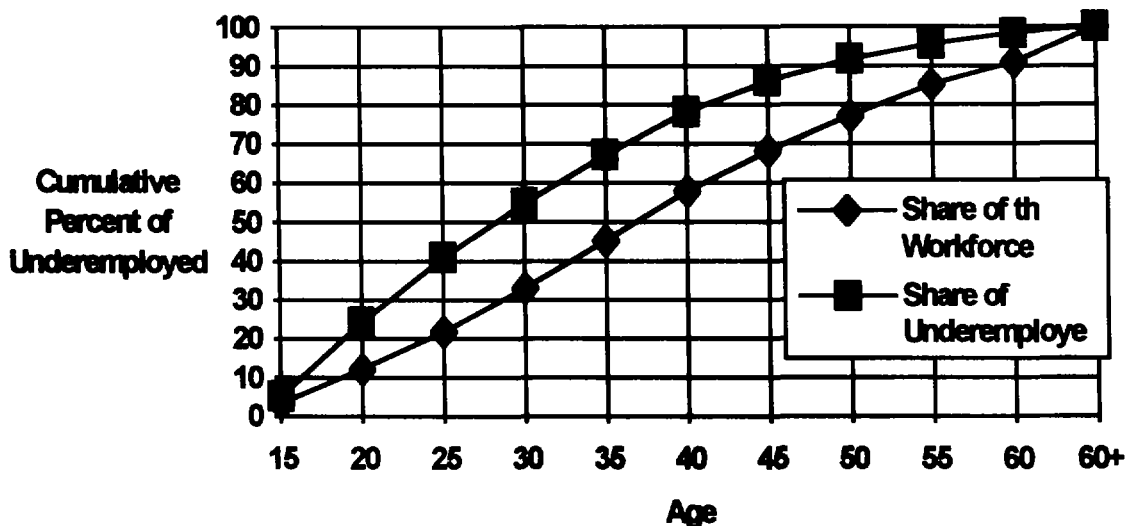


Table 3 below disaggregates the labor force by level of education. Again, there is a discernible pattern that is consistent for both men and women. While workers who have never completed primary school have lower than average rates of underemployment, SD, SMP and SMA graduates appear to have difficulty finding sufficient employment that is suitable given their level of education. However, only about 15 percent of the labor force in the informal sector has education beyond the primary school (SD) level; as a result, even though underemployment rates are higher among most categories of junior high (SMP), senior high school (SMA) and academy graduates, these groups represent very small portions of the underemployed work force. In fact, more than four out of five (80.9 percent) underemployed workers are characterized by low levels of educational attainment (no higher than SD graduate).

Table 3. Percent Underemployed by Gender and Education

Education	Male	Female	Total	Share of Population
None	8.4	10.1	9.4	15.1
Some SD	10.3	11.6	10.9	28.7
SD Graduate	12.6	14.2	13.2	40.5
SMP General	14.2	16.6	14.9	8.5
SMP Vocational	11.5	13.9	12.3	1.3
SMA General	15.6	19.9	16.8	3.6
SMA Vocational	11.5	24.2	15.2	2.0
Diploma I/II	10.5	19.8	14.1	0.1
Academy	13.2	17.9	14.6	0.2
University	11.2	14.0	11.9	0.2
Total	11.7	13.0	12.2	100

Given the fact that rural workers experience higher rates of underemployment, it is not too surprising to find that agriculture-related sectors of the economy are characterized by above average rates of underemployment. Table 4 below presents the incidence of underemployment by primary sector of employment. The first four categories are what would typically be considered to be agricultural activities and account for nearly two-thirds (64.5 percent) of the work force in the informal sector; all four categories have higher than average rates of underemployment. The only other category that represents an important share of the population is trade and retail, and this category is characterized by very low rates of underemployment. While there are differences across gender, it is interesting to note how similar the pattern is for both men and women.

A breakdown of underemployment by primary sector and location (not shown) demonstrates that these workers in the first four categories account for most (81.9 percent) of the underemployment in rural areas, as would be expected. A somewhat more surprising result, however, is that 16.9 percent of urban workers claim agricultural activities as their primary form of employment, and these workers account for 30.8 percent of urban underemployment. In other words, almost one-third of urban underemployment in the informal sector can be accounted for by workers who are employed in sectors that are normally considered rural activities.

Table 4. Percent Underemployed by Gender and Primary Sector of Employment

Sector	Male	Male Population	Female	Female Population	Total	Total Population
Farming	12.8	46.3	14.1	45.1	13.3	45.8
Plantations	12.3	10.9	12.0	8.5	12.3	9.9
Livestock & Fisheries	20.0	9.3	26.7	6.2	22.1	8.0
Forestry & Hunting	21.1	1.1	25.3	0.8	22.5	1.0
Mining & Oil	13.4	0.8	17.9	0.4	14.6	0.6
Food & Tobacco	9.7	1.1	13.9	3.1	12.5	1.9
Textiles & Leather	8.5	0.4	12.7	1.7	11.7	0.9
Wood Products	10.5	1.3	15.2	1.9	12.8	1.6
Other Industries	8.9	1.6	14.5	3.0	12.2	2.2
Electric, Gas & Water	13.0	0.1	43.2	0.0	15.7	0.0
Construction	10.3	1.7	20.7	0.1	10.7	1.1
Trade & Retail	5.7	15.9	6.2	25.8	6.0	20.0
Transportation	5.4	5.3	9.3	0.2	5.4	3.1
Finance, Insurance	7.9	0.1	0.9	0.1	5.7	0.1
Civil Service	14.6	0.1	0.0	0.0	11.8	0.0
Private Social Work	9.8	1.7	19.3	1.3	13.2	1.5
Others	12.6	2.4	19.9	1.8	15.2	2.1
Unclear Activities	23.4	0.1	23.5	0.3	23.5	0.2
Total	11.7	100	13.0	100	12.2	100

The Seasonality of Underemployment in Indonesia

Underemployment is generally believed to fluctuate with the agricultural seasons for two reasons. First, because most of the underemployed are located in rural areas and are engaged in agriculture-related tasks, the swings in local labor demand may have an immediate and direct effect on underemployment. Second, seasonal agricultural employment may not only affect overall employment levels directly, but also indirectly, as fluctuating rural incomes would affect the demand for other rural products and services. Table 5 presents a breakdown of underemployment by quarter and by gender. Surprisingly, there is no discernible pattern of seasonality in the national underemployment statistics.

Table 5. Percent Underemployed by Quarter and Gender

	1st	2nd	3rd	4th	Total
Male	12.4	11.6	11.7	11.3	11.7
Female	12.5	12.9	13.3	13.2	13.0
Total	12.4	12.1	12.4	12.1	12.2

There are two possible reasons why the data would not show seasonality if, in fact, such variation exists.⁷ First, while the data are broken up by quarter, the seasons may not actually follow this pattern, and peaks or troughs in labor demand may straddle quarters, confounding this distinction. Second, seasons may vary across regions in Indonesia, and so a peak demand in Sumatra, for example, might be counterbalanced by weak labor demand elsewhere.

Although the first problem cannot be corrected given the SAKERNAS data, it is possible to disaggregate to the regional and provincial level to see if seasonality emerges at these levels. Table 6 shows both the province and regional rates of underemployment. Although the data obviously show variation across provinces and regions, this variation shows no obvious seasonal pattern. In fact, the variation observed in levels of underemployment in adjacent provinces on any given island, where relevant conditions should be similar, seems more likely to be a statistical artifact than the result of any seasonal phenomenon.

The data in Table 6 identify several provinces with higher than average rates of underemployment. Underemployment in West Nusa Tenggara (NTB) averages almost 33 percent, fifty percent higher than the second highest rate recorded by Bali with 21.1 percent. While NTB's rate is not unexpected, the figure for Bali is certainly surprising and difficult to interpret; at the very least, the high underemployment rate reported for Bali reinforces some of the doubts expressed earlier in this paper about the assumed connection between underemployment and income insecurity. With its productive agricultural sector, thriving traditional industrial sector and booming tourist sector, Bali residents might be expected to have among the most diversified and stable income streams. The evidence from the SAKERNAS data raises fewer doubts about popular preconceptions of the Balinese economy than about the reliability of the data and the underlying connection between underemployment and income insecurity.

⁷ Of course, another possibility is that labor demand does not experience significant changes across the seasons. This alternative explanation certainly would be consistent with the data in Table 5 and with agricultural wage data published by BPS, which show no seasonal fluctuations; Kenneth Chomitz, among others, has suggested that widespread irrigation on Java may explain the absence of seasonality in labor demand there. Even so, the widespread perception of seasonality in labor demand is based on evidence provided by rural workers who describe seasonality in their work patterns.

Table 6. Percent Underemployed in the Informal Sector by Quarter and Province

Province	1st	2nd	3rd	4th	Total
Aceh	9.3	13.1	10.9	11.9	11.3
N. Sumatra	12.1	10.6	10.6	11.0	11.1
W. Sumatra	16.8	15.9	14.5	14.9	15.6
Riau	9.2	6.7	13.3	10.5	10.0
Jambi	7.8	4.2	10.3	8.3	7.6
S. Sumatra	9.7	9.3	7.5	9.4	9.0
Bengkulu	3.3	4.5	4.7	4.9	4.4
Lampung	10.0	8.6	6.7	5.4	7.8
Sumatra	10.7	9.7	9.7	9.7	10.0
Jakarta	1.1	1.3	3.3	2.4	2.0
W. Java	11.7	12.8	11.6	11.2	11.8
C. Java	10.6	10.2	9.5	8.7	9.8
Yogyakarta	9.1	13.8	16.2	15.0	13.4
E. Java	14.7	14.7	17.1	17.2	15.9
Java	12.0	12.3	12.8	12.4	12.4
Bali	26.4	19.2	17.2	21.4	21.1
NTB	33.6	32.0	33.4	31.9	32.7
NTT	7.4	9.0	10.1	7.6	8.5
E. Timor	14.2	11.0	21.0	8.7	13.8
W. Kalimantan	5.4	6.2	5.3	5.2	5.5
C. Kalimantan	13.1	12.3	7.3	9.9	10.7
S. Kalimantan	14.0	13.8	15.9	16.6	15.1
E. Kalimantan	12.0	15.3	12.9	12.1	13.0
N. Sulawesi	16.2	12.7	9.7	8.3	11.9
C. Sulawesi	13.5	14.6	18.5	19.5	16.5
S. Sulawesi	11.4	10.0	12.4	12.7	11.6
SE. Sulawesi	16.1	14.6	14.4	15.2	15.1
Maluku	15.4	9.3	10.0	10.3	11.2
Irian Jaya	12.0	11.6	7.6	6.3	9.6
East Indonesia	14.9	13.9	13.7	13.7	14.1
Total	12.4	12.1	12.3	12.1	12.2

Several other provinces in Eastern Indonesia have rates at or around 15 percent, a level reached only by West Sumatra and East Java in the western part of Indonesia. Table

6 clearly demonstrates that the highest rates of underemployment are found off Java (and largely off Sumatra), but because of the population density there, approximately two-thirds of the underemployed are found on Java.

Because the *SAKERNAS* data were not collected with the intention of estimating statistics at the kabupaten level, any disaggregation at this level must be treated with considerable caution. Such estimates of kabupaten underemployment rates (not shown here) describe a pattern similar to that seen at the province level; while it is possible to identify the kabupatens with higher than average rates, these statistics demonstrate no discernible pattern of seasonality.

There is another possible explanation for the lack of seasonality in underemployment in the informal sector as measured using *SAKERNAS* data. Recalling that demand for agricultural labor has both a direct and an indirect effect on the local labor market, if the direct effect of seasonal labor demand on underemployment is immediate while the indirect effect (via consumer demand) on rural non-agricultural demand for labor operates with a lag, real seasonal fluctuations in underemployment for agricultural labor might remain hidden from the simple statistical searches given in Tables 5 and 6. The figures provided below in Table 7 track quarterly variation in underemployment only among farm workers.⁸

Table 7. Percent of Farm Workers Underemployed by Quarter and Gender

	1st	2nd	3rd	4th	Total
Male	13.1	13.6	12.8	11.7	12.8
Female	13.6	14.7	14.3	13.9	14.1
Total	13.3	14.0	13.4	12.6	13.3

Compared to the underemployment figures of all workers in the informal sector shown in Table 5, the numbers in Table 7 indicate that agricultural workers do face greater fluctuations from quarter to quarter than are shown in the aggregate statistics. Full employment rates for male farm workers decline by 14 percent from the peak quarter of labor demand to the quarter of weakest demand, while rates for female farm workers drop by 7.5 percent; for all workers in the informal sector, such quarterly fluctuations are only 8.9 and 6 percent, respectively.

⁸ This group represents 45.8 percent of the total workforce in the informal sector. Other agricultural occupations, such as livestock, fisheries and plantations, were not included, because these activities either have no obvious seasonality or have seasonal patterns that differ from those seen in crop-based farming activities.

The seasonality of underemployment among farm workers is only part of the story. Non-farm workers represent more than half of the workforce in the informal sector, and the pattern of labor demand they face differs from that of farm workers. The data in Table 8 show that during the second quarter, when underemployment among farm workers is highest, non-farm workers are experiencing their lowest rates of underemployment.⁹ This phenomenon explains why the aggregate SAKERNAS data display no seasonality; while both farm and non-farm sectors experience seasonality, these peaks and troughs occur during different quarters. As a result, although aggregate demand in the informal sector appears relatively stable across quarters, vulnerability at the household level is probably higher than these aggregate statistics suggests.

Table 8. Percent of Non-Farm Workers Underemployed by Quarter and Gender

	1st	2nd	3rd	4th	Total
Male	11.7	10.1	10.8	10.8	10.9
Female	11.4	11.5	12.5	12.7	12.0
Total	11.6	10.7	11.5	11.6	11.4

The figures provided in Tables 7 and 8 have two important implications. First, aggregated underemployment statistics almost certainly understate the magnitude of the problem of underemployment as experienced at the household level. While approximately 12 percent of the informal sector may be underemployed at any given time, a far higher percentage is probably underemployed at some time during the year. If the average duration of underemployment for any single worker were three months (and experienced only once a year), for example, the 12 percent underemployment rate would imply that nearly half of the workers in the informal sector experience underemployment at some time during the year. Even such short periods of underemployment (indeed, perhaps even the possibility of underemployment) may be a sufficient source of uncertainty to lower household welfare levels significantly, especially if these periods are unpredictable occurrences.

Second, although different sub-groups of the population experience patterns of seasonality, with higher vulnerability during certain times of the year, in aggregate, the informal sector (both in urban and rural areas) has a fairly stable degree of need. In thinking about the parameters of a policy response to income insecurity, the stability of need is probably more important than the shifting description of those who are vulnerable at any given time.

⁹ Non-farm workers in the informal sector experience lower levels of underemployment than their farm-based counterparts, but they experience the same (for men) or higher (for women) seasonal fluctuation in employment demand.

Policy makers often are concerned with responding to seasonal fluctuations in the labor market, as the perception is that large segments of the labor market may be affected at a regular time every year. Policy responses to such phenomena not only often have a broad popular appeal, but also are relatively easy to manage, with obvious start-up and completion dates. Interestingly, regular fluctuations in the labor market may be the phenomena that least require policy interventions, as households can prepare private responses for the downturns in advance (for example, shifting from agricultural labor to other types of employment during the off-season, or simply saving earnings for the anticipated periods of underemployment). Although seasonality of underemployment is an interesting phenomenon, unanticipated economic shocks probably generate far higher levels of welfare loss.

A General Description of Underemployment in Indonesia

The *SAKERNAS* data provide a useful description of underemployed workers in the informal sector. More than 12 percent of the population work less than 35 hours and would like additional employment. Although many are women, a larger number are men. The vast majority of the underemployed workers are found in rural areas, and even many of the urban unemployed are active in agricultural economic activities. Both farm and non-farm workers experience seasonality in their employment opportunities, but these patterns tend to balance each other out, providing a misleadingly stable appearance to the aggregate labor market in the informal sector. While education appears to make underemployment more likely, most of the underemployed have little or no education (at most, they have passed primary school). And while rates of underemployment are higher in Eastern Indonesia, most of the underemployed can be found on Java.

The Seasonality of Earnings

The use of underemployment as a proxy for income insecurity is necessitated by the paucity of reliable information concerning the fluctuations in household incomes in Indonesia. The *SUSENAS* expenditure survey provides important insights into expenditure levels in Indonesia, how those levels vary across regions within Indonesia, and how they change over time. Unfortunately, none of this information helps answer the question of how variable household income levels are over time. Consequently, while *SUSENAS* data can be used to identify the households with low income levels who are more vulnerable to income fluctuations, the data cannot identify those households (or their location) which have actually suffered from income fluctuations.

While the *SAKERNAS* Labor Survey is not designed to generate the same wealth of information about expenditures and incomes as that provided by *SUSENAS*, the labor survey does collect information on both weekly and monthly earnings. While these data do not track specific households throughout the year, they can be used to look at how average levels of individual earnings fluctuate across quarters. Significant variation in the mean values of all workers' earnings would suggest that at least some workers are experiencing fluctuations in their personal income levels. Unfortunately, many workers in

the informal sector do not report weekly or monthly earnings; only workers in the agricultural sector both qualify as informal sector workers and produce earnings data in the SAKERNAS survey. Table 9 below describes the quarterly fluctuations of agricultural workers' earnings.

Table 9. Seasonal Fluctuations in Earnings Among Farm Workers

	1st	2nd	3rd	4th	Total
Farm Laborers					
Weekly Earnings	12,054	11,878	12,508	12,191	12,127
Monthly Earnings	51,660	50,904	53,605	52,246	51,975
All Farm Workers					
Weekly Earnings	14,311	14,371	15,965	15,248	14,908
Monthly Earnings	61,332	61,589	68,423	65,350	63,893

Note: All farm workers include farm laborers and workers on plantations, in livestock and fishing, and in forestry and hunting. Farm laborers account for about 2.9 million workers, while all farm workers account for approximately 4.9 million workers.

Somewhat surprisingly, earnings for farm laborers display very little fluctuation across quarters. Both weekly and monthly wages drop only 5 percent from the peak quarter (3) to the lowest quarter (2), declines which are smaller than those shown in full employment levels; recall that the figures in Table 7 demonstrated that underemployment among farm workers declined 10 percent from the peak quarter to the lowest quarter.¹⁰

Including in the analysis other workers in the agricultural sector produces a rather different picture, as both weekly and monthly earnings fluctuate by over 10 percent from the peak quarter (3) to the lowest quarter (1). The fluctuations are even more striking if only non-farm workers in the agricultural sector are considered; mean earnings for workers on plantations and in livestock, fishery and forestry activities fluctuate by more than 15 percent from peak to low quarters, and variation in individual earnings across quarters may be considerably higher. Moreover, unless variations in earnings across quarters are perfectly correlated, aggregation of data and examination of mean earning levels will understate the amount of variation experienced by agricultural workers.

Looking the data by region demonstrates how lower levels of aggregation reveal higher levels of fluctuation in earnings. Sumatra and Java are characterized by the least seasonality while Kalimantan, Sulawesi and the rest of Eastern Indonesia experience

¹⁰ These findings are consistent with data provided by BPS concerning average wage rates for farm workers. The BPS Publication, "Statistik Upah Buruh Tani di Pedesaan 1988-1994" reports a steady linear increase in nominal wages (reported monthly) throughout the archipelago with no evidence of seasonality in wages for planting, hoeing, and weeding.

significantly higher levels of fluctuation in monthly earnings. The figures in Table 10 demonstrate another interesting pattern: variability in income does not appear to be correlated with the level of earnings. Java and Eastern Indonesia have similarly low income levels but have very different drops from peak to low quarters, with Java earnings reflecting far more stability than do earnings in Eastern Indonesia; Sumatra and Sulawesi have similarly high levels of earnings but experience very different fluctuations in earnings across seasons.

Table 10. Seasonal Fluctuations in Earnings Among Farm Workers By Region

All Farm Workers	1st	2nd	3rd	4th	Total
Sumatra	94,916	93,191	97,686	101,291	96,590
Java	52,525	52,256	60,014	57,140	55,156
Kalimantan	105,988	129,873	97,290	136,866	116,624
Sulawesi	69,378	82,930	134,374	71,525	90,596
Eastern Indonesia	43,956	49,008	56,433	42,840	46,576
Bali	96,850	76,504	87,078	78,231	83,266

Note: Jakarta data have been omitted, as there are very few observations, and these observations are very different from the rest of Java. The figures for Bali are distinguished from both Java and Eastern Indonesia (its two most common regional placements), as Bali's labor market appears very different from both. Eastern Indonesia includes West and East Nusa Tenggara and East Timor. Both Maluku and Irian Jaya were omitted because of the small number of observations.

Recalling that income insecurity comes from a combination of low income levels and fluctuations in income levels, the data in Table 10 suggest that Eastern Indonesia may be characterized by the greatest extent of insecurity. The three provinces have the lowest income level of any region, but are still characterized by considerable fluctuation in earnings across quarters. Earning levels on Java also appear to be very low, but exhibit less fluctuation in earnings. Nonetheless, where these low earnings are combined with variability, a combination that almost certainly occurs in some parts of Java, income insecurity may be a real problem.¹¹ Unfortunately, the earnings data provided by SAKERNAS do not allow this analysis to be disaggregated to a level that would help identify such regions.

¹¹ See A. Mason (1996) for a description of rural poverty on Java. Although Mason finds that poverty is not really localized in pockets of poverty, his framework for studying the distribution of poverty across zones defined by their physical and economic characteristics may be useful in the context of identifying regions that have many who suffer from income insecurity (i.e., places that are both poor and cut off from neighboring markets).

II. Existing Income Security Mechanisms in Indonesia

The *SAKERNAS* data illustrate clearly the dimensions of the problem of underemployment, and suggest that workers in the informal sector face not only low, but also uncertain, incomes. Many households in Indonesia, however, do not have to face the problem of income insecurity without any protection. Private household strategies to spread income uncertainty over time are the first line of defense. Even when these fail, the Government of Indonesia provides a second line of protection through an array of income and welfare programs. While these programs may not protect everyone from suffering the effects of income fluctuations, the problem of underemployment as described above cannot be understood without looking at the context of existing private and public income security mechanisms.

Private Income Security Mechanisms

The danger to household welfare of income loss is not a new concern in Indonesia. Thirty years ago, before the introduction of modern irrigation and high-yielding varieties, incomes were much lower on average and, as a result, households were far more vulnerable to seasonal fluctuations. The Indonesian government, moreover, had far fewer resources than it does today to provide income insurance. In this context, households and communities were forced to develop their own forms of income security. Two strategies that are still seen in Indonesia today involve households diversifying income sources and communities provide a minimal levels of income security.

The household strategy of diversifying income sources may have been used in the past, but the booming urban and modern sector provides rural households with countless new opportunities. In fact, it may be wrong to look at many workers in the informal sector in isolation, as their income stream may be closely connected with extended families that remain in the rural sector; uncertain incomes in urban areas (even if they are more uncertain than incomes in rural areas) may increase the level of income security at the household level.

There is some evidence that this security mechanism is important in Indonesia. One study of urban poverty in Jakarta found that almost all poor households, including those living in extremely destitute conditions, remit significant portions of their urban incomes to family members remaining in rural areas.¹² These transfers, moreover, flow not only from urban to rural areas. Nearly three-fourths of rural households in Java, for example, made private transfers to other households.¹³ The important implication of these transfers is that, even if income security for a given individual were to fall as that worker leaves agriculture for employment in the urban sector, overall income security for the household may improve through the diversification of income sources.¹⁴ In fact, the rural

¹² M. J. Breinholt, 1992.

¹³ World Development Report, The World Bank, 1995, p. 87.

¹⁴ In a recent paper on the connection between labor markets and poverty, A. Mason and J. Baptist provide strong evidence of income diversification, even as they describe a much less important role for

and agricultural nature of underemployment suggests that the problem of income security *improves* as workers leave largely agricultural employment for work in urban areas (even if their work remains within the informal sector).

It is important to note that urban workers in the informal sector may not have the same household strategies for insurance as their rural counterparts. Because workers in rural areas may pay little or no rent and may incur very small monetary costs, they may be better able to survive periodic downturns in income, especially if community resources are available and extended family networks provide occasional inflows, as well. In urban areas, monetary costs are likely to be much higher, community resources (especially if workers from the informal sector live in "informal" arrangements, as well) may be limited, and rural relatives may be unable to reverse the flow of financial resources when the primary urban income source dries up. As a result, while urban workers in the informal sector may earn more than their rural counterparts, they may be more vulnerable to episodic economic shocks that reduce their monetary income.

Of course, households are not forced to provide income security all by themselves. At the community level, many Neighborhood Associations (*Rukun Tetangga*, or RT) collect an informal tax to provide welfare assistance in emergencies. Households contribute a cup of rice (or its monetary equivalent) every week, and these resources are used to help families that do not have adequate resources.¹⁵ These community support mechanisms appear to be diminishing in importance; higher average income levels may be reducing the perceived need for community mechanisms, and family connections to the village may weaken as household members find employment outside the village. Nonetheless, the notion of community support in cases of severe household emergencies remains valid in much of rural Indonesia; this support mechanism, however, is less likely to be important in new urban and peri-urban communities.

A third form of private income insurance may be provided by employers, even in the informal sector. Although no written contracts may exist, the relationship between workers and their employers are governed by social customs and traditions. The resulting agreements between employers and workers often include some elements of risk sharing; employers might agree, for example to pay a fixed wage regardless of seasonal or other fluctuations in demand.¹⁶ Such a process might explain why rural wages, charted on a monthly basis, show no signs of seasonal variation.¹⁷

remittances in household income in Indonesia. Rural self-employed farmers in 1993 were found to earn less than two-thirds of their income on the farm. Earnings from wages (10.5%), non-farm activities (8.5%) and capital (14%) represented significant components of overall income; miscellaneous income, including gifts and remittances, represented less than 5 percent of total household income.

¹⁵ F. Wiebe, 1992, p. 5.

¹⁶ World Development Report, The World Bank, 1995, p. 87.

¹⁷ Statistik Upah Buruh Tani di Pedesaan 1988-1994, Biro Pusat Statistik, 1995.

Public Income Security Mechanisms

Although the vast majority of workers in low- and middle-income countries rely on informal private mechanisms such as those described above, governments often intervene to complement them. While Indonesia has no single program that represents a social safety net for workers in the informal sector, a collection of government programs combine to provide some additional income security.

DEPNAKER (Ministry of Manpower): One of the most common forms of government security found in other countries are public works programs. By providing work at low wages, employment can be targeted at those who really need income support. Moreover, if the programs are well-designed, they can generate important new infrastructure, as well.

In Indonesia, the absence of such a scheme is notable, but for many years, *DEPNAKER* administered a public works scheme called *Padat Karya*. In 1994, however, the central government ended all of its *Padat Karya* efforts as part of the new 5- and 25-Year Plans. Officials in the Ministry of Manpower indicated that past *Padat Karya* efforts, because of their short duration (most lasted only a few weeks or months), were severely limited in their developmental impact.¹⁸ Moreover, the central government felt that such projects could be better planned and implemented at the provincial level.¹⁹ Since the central government has pulled out of this program, very few *Padat Karya* projects have been undertaken, as regional governments appear reluctant to continue these efforts without funding from the center.

Even with the termination of *Padat Karya* efforts, *DEPNAKER* has remained active in attempting to address the problem of underemployment. Given that the primary criticism of *Padat Karya* projects was their short duration, it is not surprising that the new efforts to address the problem were designed to provide training and to promote self-reliance. With an array of programs, including *Tenaga Kerja Mandiri Terdidik* (TKMT, for Well-Educated and Self-Reliant Workforce) and *Tenaga Kerja Pemuda Mandiri Professional* (TKPMP, for Professional and Self-Reliant Young Workforce), the Ministry of Manpower has chosen education and training as the long-term strategy for improving conditions for workers in the labor market.

The design of each program is different to accommodate the special needs of each group, according to their educational background. TKPMP, for example, is targeted at high school (SMA) graduates and junior college (Sarjana) degree holders. Participants are provided brief training sessions (from 2 weeks to three months, depending on the location) before they are sent to assist as volunteers at either IDT or transmigration villages for 2-3

¹⁸ *Padat Karya* programs were also closely monitored to insure a fair and reasonable rotation across *kabupatens* and *kecamatan*s. As a result, a location that had drought in two successive years would have a very hard time requesting a *Padat Karya* project in the second year if it had already received such assistance the previous year.

¹⁹ Personal interview with *DEPNAKER* official, November, 1995.

years.²⁰ This time in the field is seen as having two purposes. First, the volunteers may provide assistance to the village groups in deciding how to use their IDT funds. Second, the time is expected to be an educational experience for the graduates, and *DEPNAKER* hopes that they will be able to identify new business opportunities during their work in the village.²¹ This program is currently in its first year of operation, and has 450 participants involved in 10 provinces. Over the next five years, *DEPNAKER* hopes to pass 50,000 graduates through its program.

If successful in generating a new generation of entrepreneurs, these training programs may have employment implications even beyond the list of participants. Even so, the immediate effects will be felt by a rather limited group that actually receives the training. Thus, while education and training may represent a valid strategy for addressing the long-term needs of the labor market in the informal sector, it is important to note that these programs do not provide a significant amount of income security for the broader community in the short-run.

BAPPENAS (National Planning Agency): Although *DEPNAKER* has primary responsibility for issues relating to the Indonesian labor force, other ministries are also involved in projects that affect the labor market. In 1994, BAPPENAS began implementing a new anti-poverty program called *Inpres Desa Tertinggal* (IDT, for Presidential Decree Program for Least Developed Villages). The program is designed to channel roughly US\$200 million each year to the poorest households in the least developed villages.²² By the end of 1997, IDT will have covered more than 28,000 villages and provided assistance to more than 12 million poor households.²³

Clearly, IDT was designed with the objective of poverty alleviation, not income security, and the two are different economic phenomenon. But while programs designed to improve income security may not alleviate poverty, successful poverty alleviation programs by definition diminish the danger of income insecurity.²⁴ Higher income levels,

²⁰ Although they are referred to as "volunteers," each participant is provided a monthly stipend of Rp. 250,000 during their assignment.

²¹ In fact, the selection of candidates involves some assessment of the candidate's ability to become a private entrepreneur after completing the program, as indicated by the candidate's family's positions in the private sector, and its ability to provide seed capital at a later date.

²² Villages were selected based on their score on an index of indicators of social and infrastructure development. Households are selected by community groups (POKMAS), and are intended to include the poorest families. For a more detailed description of the village selection process, see *Identification of Poor Villages 1994: A Brief Explanation*, Biro Pusat Statistik, 1995.

²³ On January 11, 1996, the Population Ministry announced the development of a new program to provide assistance to poor households located in non-IDT villages. Large corporations known locally as conglomerates have been asked to set aside funds which will be channeled into savings accounts held by poor households, and which will be used as seed capital for new rural investments by the poor.

²⁴ Since income security is related to both income levels (positively) and fluctuations in incomes (negatively), a program which raises incomes among the poor also increases their income security, assuming that income variability remains at least the same as before. If that program raises incomes by introducing new economic opportunities whose pattern of fluctuations is unrelated to the patterns of

even in the face of continued income insecurity, allow individuals and households to spread more effectively the costs due to fluctuations in employment and income.

Moreover, the effect on the labor market is not limited to the economic implications of IDT interventions. To complement IDT activities, the World Bank and the Overseas Economic Cooperation Fund of Japan (OECF) are investing in infrastructure projects (on- and off-Java, respectively) near IDT villages to improve those villages' connections to nearby and distant markets.²⁵ The World Bank projects (VIP, for Village Infrastructure Projects) may, in some sense, substitute for some Padat Karya efforts, as they typically seek to maximize labor content, to employ local labor, and to improve local infrastructure and, like Padat Karya, the projects are rather short in duration with no expectation of additional projects in the same villages in the near future.²⁶

In at least one important way, however, the VIP efforts differ from past Padat Karya projects: the wage paid by VIP for unskilled labor is above the market rate, while the Padat Karya wage was always below the market rate.²⁷ While the VIP wage is not far above the market rate, in the past Padat Karya used low wages as a targeting mechanism, and this apparently is not part of the VIP design. In West Java, one kecamatan official indicated that they do not even call the daily rate paid for work on the VIP construction a "wage" (*upah*), as it would set an unreasonable expectation for payment in other government projects.

When considering the VIP efforts in the context of income security, there are two important lessons to be learned.²⁸ First, if the work pays a daily wage, there is substantial demand for such work in rural Indonesia. The past experience of Padat Karya suggests that this is true even if the wage is at or slightly below the prevailing daily wage. Second, projects such as VIP (and Padat Karya), which have no expectation of a prolonged existence in a region, may provide some income assistance, but they do not fundamentally alter the conditions of income security provided by local labor markets.

traditional income sources, the additional income security gained through the poverty alleviation efforts will be even greater.

²⁵ The construction of new infrastructure both on- and off-Java has been focused predominantly on roads and bridges, but also has included some water and sanitation projects.

²⁶ One IDT site visited in the province of Sukabumi, West Java, lasted approximately six months.

²⁷ In Sukabumi, unskilled labor is paid Rp. 2,500 per half day (7 a.m. to 1 or 2 p.m.) which, according to local officials, is slightly above current wages in the private sector. At another IDT site, local administrators reported that some family members in nearby urban areas had returned to the village to participate in the employment opportunities generated by the VIP construction efforts. This experience may be unusual, however, as VIP program officials have described villages where village beneficiaries have decided themselves to pay labor wages below the market rate (and apparently sometimes labor is even donated by villagers to the project) to maximize the amount of infrastructure improvement that can be made with a given allocation of VIP resources.

²⁸ This description should not be read as a criticism of the VIP; these projects were never designed with income security as an objective.

DEPSOS (Department of Social Affairs): The loss of income is frequently associated with the loss of employment, but it can also happen as the result of an inability to work because of a physical disability, sickness or old age.²⁹ Both *DEPNAKER* and *BAPPENAS* approach income insecurity as a result of the loss of employment. The Department of Social Affairs, on the other hand, has programs in place to deal with both sources of income insecurity. *DEPSOS* has a general 4-step program that is used to assist vulnerable groups; this approach aims: i) to provide guidance and counseling; ii) to provide training often lasting 6-12 months according to each person's capabilities; iii) to provide seed capital for new economic activities; and iv) to provide continuing long-term guidance. This approach is applied through separate programs to a whole range of socially-disadvantaged groups, including street children, the physically disabled, the elderly and vulnerable women.

But while the common perception is that *DEPSOS* works only with socially-disadvantaged groups, the Department of Social Affairs also is active in helping poor families and households who lose income as a result of natural disaster. In fact, these programs are very similar in appearance to some of the efforts undertaken by the other two ministries described above, both in terms of the target group and the assistance mechanisms.

The most ambitious program may be the help for poor families, *Penyantunan dan Pengerantasan Fakir Miskin* (PPFM, for Assistance for the Poor) that has been designed as a complement to the IDT program. *DEPSOS* has identified approximately 3 million households that are poor and have no permanent employment; these families, moreover, are characterized by limited education and limited social support mechanisms. Most of these households are on Java and all are in non-IDT villages. The selection of households is made by local leaders (either the *Lurah* or the *Kepala Desa*).

PPFM uses the 4-step process described above to provide both training and financial resources to help these families improve their standard of living. To date, many of the participants have become involved in economic activities such as animal husbandry and traditional handicrafts. Although PPFM has identified approximately 3 million households, coverage remains limited; in the current 5-year plan, *DEPSOS* plans to provide assistance to 200,000 households.³⁰

In addition to these on-going programs, *DEPSOS* is also active in providing assistance to victims of natural disasters (including floods, droughts, and earthquakes) through the program *Bantuan dan Rehabilitasi Korban Bencana* (BRKB, Natural Disaster Relief and Rehabilitation). In the case of drought, food assistance in the form of free rice is provided to affected households.³¹ In response to other emergencies, much of

²⁹ World Development Report, The World Bank, 1995, p. 87.

³⁰ Increasing the Welfare of Poor Families, Department of Social Affairs, 1994, p.39.

³¹ In the past, there was some competition between this program and *Padat Karya* efforts. Although drought victims appreciated *Padat Karya* projects, they preferred getting on the *DEPSOS* list, as this assistance is provided without any work requirement.

the assistance provided through this program goes towards rehabilitating damaged housing. Although this program is more limited in scope, providing assistance to approximately 2,000 households each year since 1990, it may represent an important source of insurance in the event of unexpected disasters. If there is significant insecurity caused by the threat of droughts or floods, there may be some scope for expanding this or similar efforts rather than creating entirely new mechanisms.

III. The Rationale for a New Income Security Scheme in Indonesia

Although some observers see the problem of income insecurity as a relatively recent phenomenon produced by the transition from a primarily rural and traditional society to an industrial and modern one, the description of underemployment in Indonesia presented in the first section of this paper suggests that this problem is not so much a product of the transition process as it is of not participating in that process. As people move out of rural areas and into jobs in the modern sector, underemployment and the income uncertainty it causes decline. And while it is impossible to determine any pattern over time from looking at one year of data, the structural nature of underemployment suggests that it should become less of a problem over time.

Similarly, recent economic developments suggest that income insecurity should become less of a problem in the future. Rising average income levels, combined with an increasing multiplicity of employment opportunities (even those that are part-time and located in the informal sector), suggest that more households are becoming less vulnerable to fluctuations in the labor market all the time.

This optimistic story, however, still is consistent with the picture presented by the *SAKERNAS* data and with the field observation that many Indonesians remain eager to accept wage employment at virtually any time of the year. Underemployment remains a common problem, especially in the informal sector, and average incomes remain low throughout rural Indonesia. These two circumstances, however, do not necessarily translate into income insecurity unless no mechanisms, whether generated by the household, the local community or the central government, are in place to spread out the risks of income loss. In Indonesia, household mechanisms appear to be functioning relatively well, and a patchwork of other community and government programs represent significant additional sources of insurance; as a result, the problem of income insecurity as a result of underemployment does not appear to be pervasive throughout the informal sector.

While this conclusion suggests that no new nationwide scheme for alleviating income insecurity is necessary at this time, it does not categorically reject that possibility that the Government of Indonesia could do something new to improve the living standards of workers in the informal sector. There are two possible grounds for new or expanded action to address the problem of underemployment in the informal sector. First, there almost certainly are locations where vulnerability to economic shocks at the household

level is a significant problem, and a *targeted* new public works program could be used to provide income security to vulnerable workers in the informal sector. Second, underemployment, by itself, could be identified by the Government of Indonesia as an economic and social problem requiring policy recourse, even if it is unrelated to the concept of income insecurity at the household level. These two rationales, however, justify two very differently structured programs; each is considered below.

Public Works to Provide Income Security

As mentioned above, there almost certainly are locations where vulnerability to economic shocks at the household level is a significant problem. This vulnerability usually is the result of very low income levels combined with very limited outside income opportunities. These conditions can be found in some part of Java, but are more commonly observed in some of the outlying provinces.³²

A program designed to provide income security to the vulnerable workers in the informal sector would need to incorporate three important features: geographical targeting, household targeting, and an adequate duration period. Because income insecurity is not a pervasive problem in all parts of Indonesia, a new program would need to be directed at the areas with the highest vulnerability as opposed to all areas characterized by low incomes. On Java, for example, the vulnerability suggested by low levels of individual earnings may be mitigated to some extent by the fact that households in many parts of Java face a rich set of possible income sources to provide household income security; in such areas, no new scheme to provide additional income security may be necessary.³³ Even on Java, however, it is likely that households located in remote and isolated areas (e.g., coastal or mountainous villages) and characterized by low income levels may still face the problem of income insecurity.

Similarly, many low income areas in Eastern Indonesia appear to lack the informal insurance provided by growing demand for labor. In such areas, low incomes and the paucity of income security mechanisms may translate into serious vulnerability to economic shocks. Under such conditions, significant segments of the population may have investment and consumption decisions distorted by income insecurity. Any program designed to address the problem of income security would need to concentrate its efforts on specific and isolated vulnerable regions on Java (and on Sumatra, Kalimantan and Sulawesi) and more broadly on the vulnerable provinces in Eastern Indonesia.³⁴ This geographical variation in vulnerability suggests that a program designed to provide

³² See, for example, Timmer, et al (1993),

³³ In fact, in such areas, new wage-paying public works schemes may undermine or even displace some of the welfare-enhancing activities already taking place in the private sector.

³⁴ At the program design stage, program planners must note that income vulnerability probably is not measured very well by underemployment statistics. The fact that Bali records more than twice the rate of underemployment than does NTT should make anyone wary of using this statistic as an indicator of the need for additional income security programs. A program to provide additional income security might be better targeted using information about income levels and local infrastructure than using employment data.

additional income security would need to be targeted at low administrative levels (at least at the kabupaten level, and possibly at the kecamatan or village level).

The second important feature of a public works program designed to provide income security is the method of identifying participants in the program. The description of the problem of underemployment presented in the first section of this paper demonstrates that the problem is difficult to categorize beyond its overwhelmingly rural nature and its concentration among prime-age adults (15-44 years old) with low education levels (SD or below). While this description may not appear very fine, it is helpful for the purposes here, as it suggests that the most vulnerable groups probably would be reachable through a public works program that is mainly based in rural areas.³⁵

Understanding at this level who the vulnerable are, however, does not help very much in excluding non-participants, an essential part of a security program if it is to be affordable. Experience with public works programs in other countries, as well as that in Indonesia in the past, suggests that the most effective mechanism for targeting is the use of a low wage.³⁶ When wages are set at or above the prevailing wage rate, a very high proportion of the population will be interested in participating, and this will force the government either to expand the size of the program to accommodate everyone or, more likely, to ration the jobs among those who are interested, thereby severely diminishing the beneficial impact on income security among the vulnerable.³⁷ According to one study of Maharashtra's Employment Guarantee Scheme, the program effectively provided protection to the vulnerable as long as wages were maintained below both the minimum wage and the prevailing market wages; when, in 1988, the program wage was adjusted upwards, demand for work increased as well, forcing the program to ration jobs and diminish the protection provided to the most vulnerable groups of workers.³⁸ Some VIP efforts provide evidence of a similar experience of job rationing in Indonesia. Paying a low wage may seem to run counter to the program's objective of providing security to low-income workers, but it may be the best way of insuring that those low-income workers actually have the opportunity to participate.

The third important feature of an income security program is that it provide assistance in the most vulnerable locations for an adequate period of time. Past *Padat Karya* programs generated important new infrastructure, but the very short duration of projects and the enforced rotation among districts ensured that they did not have a very significant impact on vulnerability and income security. A new program designed to

³⁵ Public works programs need not be located only in rural areas; many of the standard projects implemented in rural areas are suitable for many urban and peri-urban areas, as well.

³⁶ Subbarao (1995), for example, argues that maintaining a low wage rate is the best way of ensuring that the people who need the jobs are the ones who get them.

³⁷ Recalling the discussion of the definition of underemployment presented earlier in this paper, workers evaluate their employment status given the prevailing wage rate. Any project that pays a higher wage in effect forces people to re-evaluate their employment status; at a higher wage, many more people will want to work additional hours (and hence will consider themselves underemployed).

³⁸ See Datt and Ravallion, 1994, for a description of this program and the importance of wage-based targeting in public works programs.

address these problems would need to incorporate this understanding into its design by providing long-term assistance in areas with chronic problems of income insecurity. Such a program need not be very large in size, but it would require a commitment to providing some new employment opportunities in a region on a long-term basis.³⁹ The use of low wages would provide an adequate incentive for individuals to exit the program as soon as possible, but the knowledge that employment in the program was available would provide a form of insurance against unanticipated economic shocks. Extended duration reinforces the importance of the other two features; to provide income security, a public works program will need to be seen as a long-term commitment to the local labor market.

Although each of the three features is important to the goal of enhancing income security, the first two may be difficult to implement in the Indonesian context. The targeting of program resources only to a few isolated regions runs counter to the standard government approach of spreading development resources as equally as possible across all regions; recent poverty programs have allowed disproportionate shares of resources to flow to areas that are recognized as backwards, but still virtually all regions have been included in the programs. Similarly, the payment of wages below the prevailing rate contravenes the government's recent drive to boost the minimum wage; the government may find it difficult to pay a wage below that legally required of private firms. Without adequate geographic and household targeting, however, such a scheme could quickly become either unaffordable or significantly diluted in its impact on income insecurity. What is known about the state of the labor market in the informal sector suggests that a new public works program could be used to address the problem of income insecurity in Indonesia, but to do so, such a program would need to be designed very differently than were the *Padat Karya* programs of the past.

Public Works to Address Underemployment

The second rationale for designing new mechanisms to address underemployment is based on the understanding that underemployment, by itself, represents an economic and social problem requiring policy recourse, even if it is unrelated to the concept of income insecurity at the household level. The current situation in the labor market reflects the fact that a significant portion of the workforce attains only very low levels of productivity, and this underutilized resource represents not only a waste of human capital, but also a tremendous opportunity for the government to stimulate higher levels of productivity from the workforce.

The main criterion for this kind of public works program is that projects would be identified that produce positive economic returns, even as they utilize underemployed labor. The positive experience in many *VIP* villages indicate that such investments can be identified throughout Indonesia and that these projects can provide some new employment opportunities. A large proportion of workers in the informal sector want wage

³⁹ Given the Government of Indonesia's apparent interest in an equal sharing of government resources across villages and regions, implementing a program that provides support to a limited number of areas for an extended period of time may be problematic.

opportunities, even if their households have already attained a level of income security, and rural infrastructure projects may be the mechanism for providing those opportunities.

Such a program need not have any of the three features described as critical for a program designed to reduce vulnerability. Geographic targeting becomes far less important, as significant underemployment can be found throughout Indonesia. Household targeting through below-market wages would not be as important, either, as long as each investment project generates positive returns (if market wages or higher are used, almost certainly some other form of rationing project employment will need to be used). Similarly, the extended duration of a project in any given locale would not be as important, as the objective of the program would be directed more at the overall labor market, rather than chronic underemployment in any specific location. Of course, an insurance aspect could be introduced to this kind of a program by including one or more of these features in the program's design.

Conclusion

As the two sub-sections above indicate, thinking about the problems of underemployment and income insecurity can generate very different types of policy responses for the Ministry of Manpower. Although there appears to be little interest in (or need for) reviving the *Padat Karya* programs of the past, the Ministry does have an opportunity to renew its involvement in public works efforts. Depending on the definition of program objectives, that new involvement could look very different.

Before any new program is undertaken, however, two issues need to be addressed directly. First, how serious is the problem of *income insecurity* in Indonesia? The results of this research indicate that *underemployment*, affecting about 12 percent of the workforce in the informal sector, is not as significant a problem as popularly believed; however, only a fraction of those underemployed may actually suffer from income insecurity. Thus, the research concludes that there is no compelling evidence of widespread income insecurity in Indonesia which would warrant a major new government initiative.

The evidence presented here suggests that any new initiative directed at income insecurity probably should be limited in scope and focus a disproportionate share of resources in Eastern Indonesia and in remote or isolated areas on Java that are characterized by low average income levels. While it may not need to be very large in terms of funds, such a program would require a long-term commitment of resources. This conclusion, however, is reached using indirect evidence of income insecurity from the informal labor market. If concerns regarding income insecurity persist, resources would be well-spent collecting direct information regarding income fluctuations before implementing a new income security scheme nationwide.

Second, is the main concern income insecurity or underemployment? Better statistics are available on employment levels, and the 12 percent figure, while considerably

lower than the popularly accepted 40 percent figure, may nonetheless represent a policy concern. A public works program designed to reduce underemployment would probably be entail the development of a program that would be more similar to the past Padat Karya efforts or the current VIP efforts, and most resources in such a program would probably be channeled to rural Java. The scope of such an effort could be rather large (as underemployment is found throughout the archipelago), and the number of interested participants would certainly grow were wage rates set at prevailing market levels. The cost of such a program could be very high (underemployment is almost certainly far more widespread than income insecurity) and the local effects on employment rates would probably be thinly spread throughout the population. Indeed, it was these two concerns which may have ultimately lead to the cessation of Padat Karya efforts in the past; this research does not provide compelling evidence of a need to revive the Padat Karya-style approach at this time.

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