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## Informal Employment in Indonesia

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## ADB Economics Working Paper Series



### Informal Employment in Indonesia

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Sining Cuevas, Christian Mina, Marissa Barcenas, and Aleli Rosario

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# **Informal Employment in Indonesia**

**Sining Cuevas, Christian Mina, Marissa Barcenas, and Aleli Rosario**  
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Sining Cuevas and Christian Mina are Consultants, and Marissa Barcenas and Aleli Rosario are Statistics Officers of the Asian Development Bank (ADB). The views presented here are entirely of the authors and do not represent the views of the ADB. The authors would like to acknowledge the constructive comments and ideas of Dalisay Maligalig, Guntur Sugiyarto, Rana Hasan, and Kaushal Joshi of ADB, which helped improve this paper. The authors are also indebted to the valuable inputs of Joanne Vanek, Debbie Budlender, and Martha Chen of the Women in Informal Economy: Globalizing and Organizing for their careful and in-depth review of the paper.

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## **Abstract**

The paper attempted to use the February 2007 round of Indonesia's National Labor Force Survey (Sakernas) for a comparative analysis of wages and benefits of formal and informal workers. While Sakernas was not designed for this purpose, the study explored questions in the existing survey that can be used to distinguish formal and informal workers. Because of data limitation, workers were classified as employed informally or "mixed"—a category composed of workers who cannot be identified, with precision, to be engaged in either formal or informal employment. Given this constraint, informal employment was estimated at the minimum to be at 29.1% of total employment in Indonesia. Informal employment is also highly concentrated in rural areas and is prevalent in agriculture and construction sectors. More women are likely to be informally employed than men, and women generally receive lower pay and are mostly unpaid family workers. To the extent possible the study was able to examine informal employment in Indonesia and to identify the gaps in the Sakernas questionnaire that can be addressed in future rounds of the survey for a successful comparative analysis between formal and informal workers.





## I. Introduction

Many studies have shown that the informal sector and informal employment continue to be a large and even growing component of the economies of developing countries. The UN's Interregional Cooperation on the Measurement of Informal Sector and Informal Employment (ICMISIE) project<sup>1</sup> estimated employment in the informal sector to be over 50% of nonagricultural employment and nearly 30% of nonagricultural gross domestic product (GDP). In Indonesia, 70% of the workforce was estimated to be engaged in informal employment, mostly in the agriculture sector (Firdausy 2000). This was an immediate result of the 1997 Asian financial crisis, which saw a decline in the number of workers from the urban areas and industrial sector against a concomitant increase in the number of workers in the rural areas and agriculture sector. Badan Pusat Statistik (BPS) or BPS Statistics Indonesia observed this situation to still be true albeit with a lower percentage (64%) of workers in the informal sector for 2006. Likewise, BPS estimated the GDP share of small enterprises in the informal sector at roughly 38% only.

While it is perceived that the informal sector contributes significantly in Indonesia's economy, particularly in terms of employment by providing economic opportunities to those who are displaced from or who cannot be absorbed by the formal sector, statistics on informal sector and informal employment have not been regularly collected and have not been included in Indonesia's official labor force statistics. Because of the sparseness of statistics in these areas, Indonesia's informal sector has not benefited from well-informed policies that will eventually mainstream them into the formal sector, provide social protection, and enhance their productivity.

This paper is part of a three-country study series designed to evaluate existing labor force surveys (LFS) aimed at expanding the LFS questionnaires so that information on the informal sector will become regularly available. In particular, the paper examines the February 2007 round of Indonesia's National Labor Force Survey (Sakernas), in order to develop and suggest for integration some questions that can screen informal enterprises

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<sup>1</sup> ICMISIE is a multiyear and multilateral development account project of the United Nations (UN), with the Economic and Social Commission for the Asia and Pacific as the lead agency. This project is being implemented by the Economic and Social Commission for the Asia and Pacific, Economic and Social Commission for West Asia, and Economic Commission for Latin America and the Caribbean in collaboration with the United Nations Statistics Division, International Labor Organization, Economic Commission for Europe, Economic Commission for Africa, and the Delhi Group (United Nations Expert Group on Informal Sector Statistics).

and analyze informal employment (BPS Statistics Indonesia 2007). The survey included very few questions that could be used to identify informal enterprises and workers engaged in informal employment. Thus, to the extent possible, this paper also measures and describes informal employment in Indonesia and provides an analysis of formal and informal employment wage differentials between male and female workers, by industry and by class of workers. The study further suggests ways to expand or improve the Sakernas to enable analysis of the informal sector.

## II. Analytical Framework<sup>2</sup>

In studying informal employment, it is important to understand the official international standard definition first. In 1993, the International Conference of Labour Statisticians (ICLS) adopted an international statistical definition of the “informal sector” to refer to employment and production that takes place in small and/or unregistered enterprises. In 2003, the 17<sup>th</sup> ICLS broadened the definition to include certain types of informal wage employment, i.e., employment outside informal enterprises. This broader concept is referred to as informal employment. According to the 17<sup>th</sup> ICLS, “employees are considered to have informal jobs if their employment relationship is, in law or in practice, not subject to labour legislation, income taxation, social protection or entitlement to certain employment benefits (advance notice of dismissal, severances of pay, paid annual or sick leave, etc.)”. Note that this definition is made in regard to the primary job or occupation, even as a person can simultaneously have two or more jobs.

Informal employment can be classified into two: informal self employment and informal wage employment. Under informal self employment are employers in informal enterprises, own-account workers in informal enterprises, unpaid family workers, and members of informal producers’ cooperatives (Chen 2006). Informal wage employment includes employees without formal contracts, worker benefits, or social protection who are employed either in formal or informal enterprises.<sup>3</sup>

The dichotomy discussed above suggests that informal employment cuts across all employment status categories: employers, employees, own-account workers, unpaid family workers, and members of producers’ cooperatives (Husmanns 2007). Employment status is critical in understanding the link between informality and poverty. The United Nations Development Fund for Women (UNIFEM) and the global network Women in Informal Employment: Globalizing and Organizing (WIEGO) came up with measurement

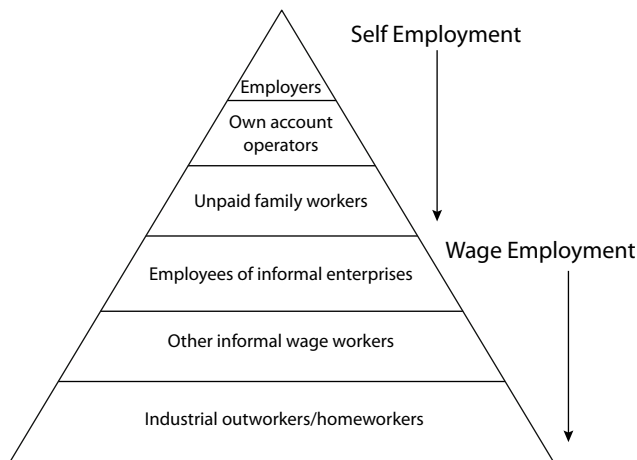
<sup>2</sup> The analytical framework presented was taken from Maligalig et al. (2008).

<sup>3</sup> Informal enterprises are household enterprises engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned; and that typically operate at a low level of organization, with little or no division between labor and capital as factors of production, and on a small scale. Labor relations—where they exist—are based mostly on casual employment, kinship, or personal and social relations rather than contractual arrangements with formal guarantees.

techniques for measuring the risk of poverty among employed persons in different employment statuses. These studies found that households that rely primarily on income from informal employment face higher poverty rates than those that rely on income from formal employment. Moreover there were important differences in poverty risk for the various types of informal workers. For example, informal agricultural workers have the highest risk of poverty while nonagricultural informal employers are the least susceptible to poverty. These results suggest that the analysis of the links between employment and poverty, specifically classifying workers by employment status, formality–informality, and industrial sector is a fruitful approach to understanding poverty.

The country studies discussed above also support the segmentation of informal employment, as shown in Figure 1. The segmented “iceberg” in Figure 1 (Chen 2004) represents the hierarchy of the classes of workers in informal employment according to their relative visibility. The employers, who are the most visible among workers in the informal sector, are at the tip, while home workers who are usually neglected in policy making and monitoring are at the bottom. The iceberg can also represent the hierarchy of average earnings across the different segments, with the height of the segment representing the mean wage or earnings. The employers at the top of the visibility iceberg also have the highest earnings. On the other hand, the home workers at the base of the pyramid have the lowest average wages. Self-employed or own-account workers and other types of workers are placed in between.

**Figure 1: Segmentation of the Informal Economy**



Source: Chen (2004).

Because the 2007 Sakernas does not have sufficient questions for determining poverty status, the approach of the United Nations Development Fund for Women-WIEGO country studies described above cannot be replicated for Indonesia. However, the average wages across employment status and by industry/trade could be analyzed to explore the links of informality and poverty. Other studies also suggest that there are more women workers in the informal sector who are poor (ILO 2002). There is also a significant gap in wages between men and women as reflected in prior research. This result can be verified by comparing the wage differentials of men and women across national accounts sector and employment status.

Workers, whether those in the formal or informal sector, encounter the same family/personal issues that often undermine their well-being and livelihood: illness, property loss, disability, old age, and death. But because of the very nature of informal employment, informal workers do not enjoy the same social protection mechanisms that come with formal employment. Also, in general, informal workers do not have job security and receive very little benefits from employers. To validate these perceptions, comparative analysis of wages, benefits, and working conditions between formal/informal workers by employment status can be undertaken. These results will be informative as to the risks faced by informal workers and could also become the basis for designing appropriate social and legal protection for the informal workforce.

The analysis described above is applied to the 2007 Sakernas. The questionnaire (see Appendix 1) and sample analysis were not designed to capture informal employment or informal sector data. In particular, the set of questions as recommended by the ICMISIE<sup>4</sup> (see Appendix 2) that screen for informal employment or any other equivalent set was not applied. However, there are some questions that were not specifically formulated for this purpose but could be used in identifying informal workers. Hence, the internationally accepted concepts of informal employment and employment status are applied despite these limitations. This process identifies the pitfalls in the current questionnaire design that should be minimized in the next LFS round. Pitfalls are documented, resolution of which are formulated as inputs to the questionnaire design for the next LFS. Moreover, as an additional output of the data analysis, the issues that were encountered in analyzing the data, such as out of category responses and other data validation issues, are also identified and utilized.

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<sup>4</sup> ICMISIE is a multiyear and multilateral development account project of the United Nations, with the Economic and Social Commission for the Asia and Pacific as the lead agency, whose main objectives are to increase the availability of data on the informal sector and informal employment, and to improve the calculation of the contribution of informal sector to employment and GDP.

### III. Methodology

The primary step in analyzing the 2007 Sakernas dataset is to identify the questionnaire items that will determine the main labor indicators such as labor force and employed and unemployed populations. By applying the International Labour Organization (ILO) definition, the items in the Sakernas questionnaire, as well as the labor concepts used in the survey, were assessed. Evaluation showed that labor force concepts adopted in Sakernas are generally similar to that of the ILO's except for some relaxation in the definition of unemployment. Unemployment in Sakernas is defined as the "population who are not working at the moment but with a job or will have a job in the future start; or not working but looking for a job or has established a new business/firm; and not working and not looking for a job nor establishing a business/firm due to discouragement (hopeless)" (BPS-Statistics Indonesia 2008). The additional requirement of "not looking for a job or establishing a new business/firm because of discouragement" is not among the recommended ILO criteria for identifying the unemployed population (Suryadarma et al. 2005).

Based on these definitions, five out of the 27 questions in Sakernas are relevant in identifying the employed and unemployed workers in Indonesia namely: Questions (Q) IV.B.2a.1, IV.B.2b, IV.B.3, IV.B.4, IV.B.5, and IV.E.21 (see Appendix 1). The decision matrix used for identifying the employed and unemployed workers is presented in Table 1. A person is categorized based on the response to the employment items and if they matched any of the combinations in the decision matrix.

**Table 1: Decision Matrix for Identifying the Employed and Unemployed in Indonesia, 2007**

Employment Status	Combination of Answers to Identify the Employed and Unemployed Persons					
	QIV. B.2a.1 Working?	QIV.B.2b Main Activity	QIV.B.3 Have a Job but Temporarily not Working?	QIV.B.4 Looking for a Job?	QIV.B.5 Established a New Business/ Firm?	QIV.E.21 Main Reason of not Looking for a Job
Employed	1 - yes &	(1) working (2) attending school (3) housekeeping (4) others		& (1) yes (2) no	& (1) yes (2) no	
	2 - no &	(2) attending school (3) housekeeping (4) others	1 - yes	& (1) yes (2) no	& (1) yes (2) no	
Unemployed	2 - no		& 2 - no	& 1 - yes	& (1) yes (2) no	
	2 - no		& 2 - no	& 2 - no	& 1 - yes	
	2 - no		& 2 - no	& 2 - no	& 2 - no	(1) discouraged (2) have a job but has not started yet

The decision matrix shows that to be considered as employed, a person must (i) belong to the working age population; (ii) had either worked for at least an hour during a reference period regardless of his/her primary activities; or (iii) had not worked temporarily but still had a job during that period. On the other hand, a person is unemployed if he is not working and (i) belongs to the working age population; (ii) had no job but had been looking for a job; or (iii) had established a new business/firm during a reference period. In addition, a person is also considered to be unemployed if he neither “looked for a job nor established a new business/firm for a reference period because of discouragement or because he/she had already got a job but had not started yet”.

The decision matrix is then applied to the Sakernas dataset to estimate for the employed and unemployed populations and to compare the resulting figures with the official labor statistics released by Statistics Indonesia. As Table 2 shows, the estimates match, demonstrating that we were able to replicate the methodology used by the statistics office. However, as implied in the decision matrix, there is a slight variation between the international standard definition of unemployment and that of the working definition in Indonesia. In fact, the 9.8% figure is higher than the unemployment rate (7.5%) if the standard definition is applied. This means that there is a considerable number of “discouraged persons who are not actively looking for work”, consequently overestimating the unemployed population by 2,457,467 persons.

**Table 2: Labor Force Characteristics in Indonesia, February 2007**

Variable	Estimates		Official Statistics (BPS-Statistics Indonesia)	
	Frequency	Percent	Frequency	Percent
Population aged 15 and over	162,352,048	88.7 <sup>a</sup>	162,352,048	
Employed	97,583,141	90.2 <sup>b</sup>	97,583,141	
Unemployed	10,547,917	9.8 <sup>b</sup>	10,547,917	9.75 <sup>b</sup>
In the labor force	108,131,058	66.6 <sup>c</sup>	108,131,058	66.6 <sup>c</sup>

<sup>a</sup> Percentage to total population

<sup>b</sup> Percentage to total persons in the labor force

<sup>c</sup> Percentage to total persons aged 15 & over

Sources: Sakernas 2007 (February round); BPS Statistics Indonesia.

The Sakernas questionnaire was examined carefully to determine a possible set of variables that can measure informal employment using the ICMISIE as guidelines. It was discovered that the questions in the current questionnaire limit the avenues that can be explored. Specifically, among the 27 questions, only one item was deemed suitable to determine the nature of employment. “QIV.B.10a: employment status”,<sup>5</sup> which identified the class of employment, was able to distinguish a portion of workers engaged in informal employment. The questionnaire lacks the items that can help separate formal from

<sup>5</sup> Used interchangeably in this paper with “class of worker”.

informal workers as well as to distinguish workers in the informal sector from those in informal employment outside the informal sector, such as registration status, presence of written accounts, and employment benefits.

Thus, working on the available dataset, only those casual employees (either in agriculture or nonagriculture sector) and unpaid workers were automatically tagged as informal since they clearly exhibit the characteristics of this classification. All other workers, own-account workers, employers, and employees were classified under the “mixed” category. This category was created to represent the workers who cannot be classified with certainty under formal or informal employment. Forcing to identify them, without additional information, will be incorrect and misleading. Therefore, for the purposes of this analysis, these two groups were devised to temporarily represent the nature of employment—mixed and informal classifications (Table 3).

**Table 3: Temporary Classification of Nature of Employment**

Informal	Mixed
Casual employees in agriculture	Own-account workers
Casual employees in nonagriculture	Employers assisted by temporary/unpaid workers
Unpaid workers	Employers assisted by permanent workers
	Employees

Results of other studies such as Maligalig et al. (2008) showed that employees engaged in sectors like financial intermediation, public administration, and education are more likely employed formally. On the other hand, employees in sectors like agriculture and fishing, construction, and private households as well as own-account workers in the agriculture and fishing sectors tend to be engaged more in informal employment. Thus, in an attempt to improve the methodology and further classify the workers under the mixed category, the variable “main industry/sector of jobs” (Q.IV.C.7) was crosstabulated with Q.IVB10.a. Unfortunately, without additional questions to filter the respondents, the attempt fell short in further identifying the informal workers in the mixed classification.

Therefore, working with the data at hand, Table 4 illustrates the composition of the employed population in Indonesia.



**Table 4: Frequency and Percentage Distribution of Employed Population**

<b>Employment Status</b>	<b>Frequency</b>	<b>Percent</b>
Employed	97,583,141	90.2
Either Formal or Informal	69,232,610	70.9
Own-account worker	18,667,332	19.1
Employer assisted by temporary workers/unpaid workers	20,848,535	21.4
Employer assisted by permanent workers	2,847,692	2.9
Employee	26,869,051	27.5
Informal	28,350,531	29.1
Casual employee in agriculture	6,278,470	6.4
Casual employee not in agriculture	4,267,064	4.4
Unpaid workers	17,804,997	18.2
Urban	38,676,852	39.6
Rural	58,906,289	60.4

Note: Percentage of employed are in terms of the total labor force; all other percentages are in terms of the total employed population.

Similarly, difficulties brought about by limited questions in the Sakernas questionnaire inhibited the possibility of using the dataset in identifying the informal sector and informal enterprises. According to the ICMISIE the following are significant subject areas toward this endeavor: (i) place of work; (ii) type of ownership of the enterprise; (iii) legal status/organization of the enterprise; (iv) type of enterprise; (v) book keeping and accounting practices of enterprise; (vi) employment size; (vii) number of paid employees; and (viii) status and type of registration of the enterprise. Among these, only one issue may be addressed by the questionnaire (QIV.C.10b), which asks about “total number of paid employees”. Still, though the choices available under this item conform to those in the recommended module (i.e., a threshold of 5 is captured), this single variable is not sufficient to effectively screen for the employed in the informal sector.

Meanwhile, in computing for the wage differentials, Q11a (net income) and Q12 (wage/salary) were considered. It was observed that strict skipping patterns were followed in this section, meaning that only the own-account workers and casual employees (agriculture and nonagriculture) answered Q11a,<sup>6</sup> while only the employees responded to Q12. Workers classified as employers were not directed to answer any income/wage-related items, which posed a problem in the income analysis. By combining the responses in the two questions, the total incomes were computed. However, the estimates are considered to be flawed since a complete set of income information (income for all classes of workers) is not available in the 2007 Sakernas dataset.

Table 5 shows the summary statistics of the income variable. Like in other variables, no missing values were found. Examination showed that the income estimates, by class of worker, are reasonable with own-account workers posting the widest range of income

<sup>6</sup> Net income for the past month obtained from own-account workers and casual employees was accompanied by “number of day(s) needed for this income”.

values and casual employees registering the narrowest. Because the incomes reported are “net”, negative values specifically for own-account workers are possible since costs of running a business are incorporated. However, note that the responses of those not directed to this item (i.e., employers and [even] unpaid workers) are zero in the data set. This may confuse the data user, hence, caution is recommended in performing analyses, especially those involving mean income estimation. Additional effort is required in declaring such values as missing, or in restricting the analysis to the answers reported only by the target respondents (i.e., own-account workers, employees, and casual employees either in agriculture or nonagriculture sector).

**Table 5: Summary Statistics of Income Variable**

Class of Worker	Frequency	Net Monthly Income		
		Mean	Minimum	Maximum
Own-account worker	23,444	665,693	–2,000,000	63,000,000
Employee	31,506	1,087,533	50,000	53,000,000
Casual employee in agriculture	6,567	400,781	7,000	4,475,000
Casual employee not in agriculture	4,641	614,794	5,000	5,180,000

Other concerns regarding the dataset were discovered during data processing, but they may be considered minor relative to the previously discussed issues. The Sakernas used the Indonesia Standard Industrial Classification (KBLI) 2000 in generating the codes for the variable on “main industry/sector of jobs” (or simply, industry/sector). KBLI 2000 was based on the UN Statistics Division’s International Standard Industrial Classification (ISIC) Revision 3. Because the available data dictionary for the February 2007 round of Sakernas does not have the complete codes for industry/sector variable, codes used in Sakernas were reconciled with industry codes in ISIC Rev. 3 (Table 6)<sup>7</sup>.

To check whether such reclassification of codes in Sakernas using ISIC Rev. 3 is correct, frequency distribution of employed persons by industry classification was generated and the resulting figures were then compared with those published in the Employment Statistics in Statistics Indonesia. Interestingly, the two sets of figures matched when some of the industries in ISIC were grouped together, thus validating the efficiency of the recoding methodology devised.<sup>8</sup>

<sup>7</sup> The industry codes are three-digit ones, meaning that the two-digit codes are supposed to have 0’s as their first digits, i.e., 11 is supposed to be 011. Also, note that codes with 53 and 54 as the first two digits were not included in the ISIC. However, upon examination of the occupations of the respondents using the 1982 Indonesian Position Classification (KJI), it was determined that the said industry codes belong to the “Wholesale and Retail Trade” group.

<sup>8</sup> In Statistics Indonesia, those who did not provide answers to industry/sector of job were included in the last grouping named “Community, Social, and Personal Services” (code 9 in the ICSI column).

**Table 6: Comparison of Industry Classification Codes: ISIC Rev. 3 vs. Sakernas**

ICSI	ISIC Rev.3		"Industry/Sector" in Sakernas	
	Industry Classification		Code(s)	Code(s)
1	{	(1) Agriculture, hunting and forestry	01-02	11-15, 20 *
		(2) Fishing	05	50 *
2		(3) Mining and quarrying	10-14	101-102, 111-112, 120, 131-132, 141-142
3	(4)	Manufacturing	15-37	151-155, 160, 171-174, 181-182, 191-192, 201-202, 210, 221-223, 231-232, 241-243, 251-252, 261-266, 269, 271-273, 281, 289, 291-293, 300, 311-315, 319, 321-323, 331-333, 341-343, 351-353, 359, 361, 369, 371-372
4	(5)	Electricity, gas and water supply	40-41	401-402, 410
5	(6)	Construction	45	451-455
6	{	(7) Wholesale and retail trade; repair of motor vehicles, motorcycles and personal and household goods	50-52	501-505, 511-515, 519, 521-526, (531-535, 539, 541-545, 549)**
		(8) Hotels and restaurants	55	551-552
7	(9)	Transport, storage and communications	60-64	601-603, 611-612, 622, 631-635, 639, 641-642
8	{	(10) Financial intermediation	65-67	651, 659-660, 671-672
		(11) Real estate, renting and business activities	70-74	701-703, 711-713, 721-725, 729, 731-732, 741-743, 749
9	{	(12) Public administration and defence; compulsory social security	75	751-753
		(13) Education	80	801-803, 809
		(14) Health and social work	85	851-853
		(15) Other community, social and personal service activities	90-93	900, 911-912, 919, 921-924, 930
		(16) Private households with employed persons	95	950
		(17) Extra-territorial organizations and bodies	99	990
		No response		0

ICSI = Industry Classification in Statistics Indonesia.

\* '0' in the first digit was truncated.

\*\* Occupations of those who have these industry codes belong to wholesale and retail trading.

Sources: ISIC Revision 3, UNSD website, and KBLI (2000).

With the described data limitations, extensive informal employment analysis was not possible. However, the entire employment sector was examined, using the following methods:

- (i) employment profiling by province, industry, gender, and class of workers
- (ii) estimating labor productivity
- (iii) categorizing workers by agriculture and nonagriculture groups
- (iv) computing for frequency distributions by informal and mixed classification
- (v) wage analysis by province, industry, gender, and class of workers

## IV. Economic Analysis

### A. Labor Sector Profile

The February 2007 Sakernas unemployment rate is estimated at 9.8%, an improvement over the February 2005 and 2006 rates of 10.3% and 10.5%, respectively. Among those who were employed, around three in ten were employees (27.5 percent), while the rest comprised about 20% each: employers assisted by temporary/unpaid workers (21.4%), own-account workers (19.1%), and unpaid workers (18.2%). Casual employees (agriculture and nonagriculture sectors combined) comprised 10.8% of the total employed, while only 2.9% were employers assisted by permanent workers. In terms of employment by village category, more people were working in rural areas, at 60.4%, than in urban areas, at 39.6% (Table 7).

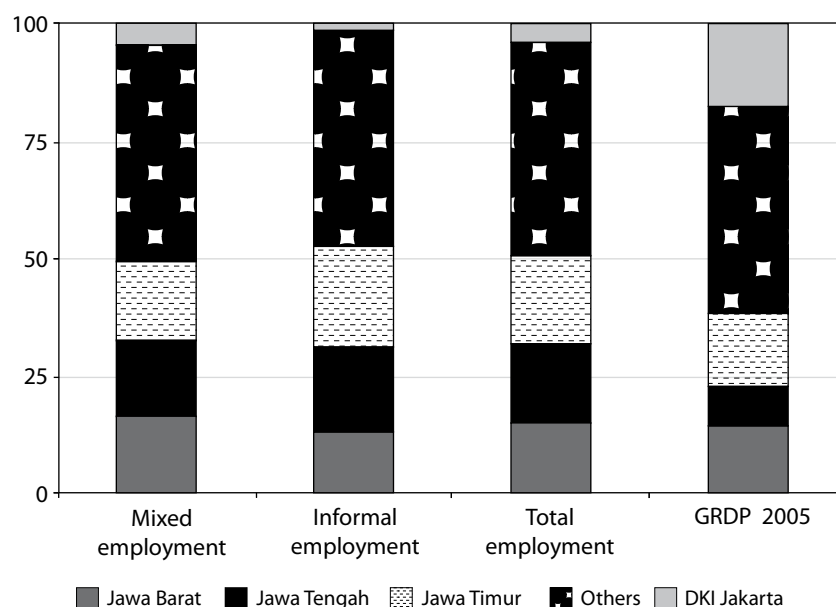
**Table 7: Labor Force Characteristics in Indonesia, February 2007**

Labor Force Characteristic	Frequency	Percent
Population aged 15 and over	162,352,048	
Employed	97,583,141	90.2
Either Formal or Informal	69,232,610	70.9
Own-account worker	18,667,332	19.1
Employer assisted by temporary workers/ unpaid workers	20,848,535	21.4
Employer assisted by permanent workers	2,847,692	2.9
Employee	26,869,051	27.5
Informal	28,350,531	29.1
Casual employee in agriculture	6,278,470	6.4
Casual employee not in agriculture	4,267,064	4.4
Unpaid workers	17,804,997	18.2
Urban	38,676,852	39.6
Rural	58,906,289	60.4
Unemployed	10,547,917	9.8
In the labor force	108,131,058	
Total population	183,084,928	

Note: Percentages of employed and unemployed persons are in terms of the total labor force; all other percentages are in terms of the total employed population.

In terms of number of employed persons, the following are the leading provinces: Jawa Barat (West Java), Jawa Tengah (Central Java), and Jawa Timur (East Java). The combined number of employed persons in these three areas composed half of the total employed population in the country. A similar observation applies if employed persons were disaggregated by nature of employment (Figure 2). On the other hand, Jakarta, which is the capital and biggest city in Indonesia, contributed only 3.6% to the total employed, 4.6% to mixed employment, and a lower 1.2% to informal employment. While this is the case, Jakarta had the largest share (16.5% in 2005<sup>9</sup>) in terms of economic contribution, as measured by gross regional domestic product (GRDP). The three provinces remain as main economic hubs and had a combined contribution of 38.7% to total GRDP, during the same year.

**Figure 2: Percentage Distribution of Employed Persons in 2007 and GRDP Contributions in 2005**



GRDP = gross regional domestic product.

Sources: Sakernas 2007, BPS Statistics Indonesia (2008a).

The nonagriculture sector dominates employment in Indonesia at 56.3%, and its advantage over the agriculture sector is about 12 percentage points. However, by subnational analysis, agriculture is the predominant sector in 19 of the 34 provinces, while only 13 provinces rely more on nonagriculture than agriculture employment. On the other hand, there are two provinces whose workers depend evenly on both sectors, namely Sumatera Utara and Nusa Tenggara Barat.

<sup>9</sup> As of report writing, the latest available GRDP estimates of Indonesia are for 2005. The shares were computed based on the total GRDP of all provinces, at current prices.

Accordingly, by industry, agriculture<sup>10</sup> absorbs most of the labor resource of Indonesia, employing 43.7% of the total workers; this is followed by wholesale and retail trade (WRT) at 17.5%, and manufacturing at 12.4%. On the other hand, not including those in the extraterritorial organizations/bodies, the following industries employed the least number with less than 1.0% each: electricity, gas, and water supply (EGW); financial intermediation; real estate, renting, and business activities; and health and social work. In terms of economic contribution, agriculture only ranked third with a 13.8% share, following manufacturing with 27.0% and WRT<sup>11</sup> with 14.9. Meanwhile, EGW consistently ranked last, with less than 1% percent share to GDP (Table 8).

**Table 8: Frequency and Percentage Distributions of Employed Persons and GDP Contributions by Industry Classification, 2007**

Industry Classification	Frequency	Percent	At Current Prices	
			GDP (billion Rupiah)	GDP Contribution (percent)
Agriculture, hunting and forestry, and fishing	42,608,760	43.7	547,236	13.83
Mining and quarrying	1,020,807	1.1	440,826	11.14
Manufacturing	12,094,067	12.4	1,068,806	27.01
Electricity, gas, and water supply	247,059	0.3	34,726	0.88
Construction	4,397,132	4.5	305,216	7.71
Wholesale and retail trade, repairs, etc.	17,085,914	17.5	590,822	14.93
Hotels and restaurants	2,339,356	2.4		
Transport, storage, and communications	5,575,499	5.7	265,257	6.70
Financial intermediation	661,224	0.7	305,216	7.71
Real estate, renting, and business activities	590,971	0.6		
Public administration and defense, social security	2,372,075	2.4	205,344	5.19
Education	2,908,225	3.0	193,955	4.90
Health and social work	779,081	0.8		
Other community, social and personal services	2,163,111	2.2		
Private households with employed persons	2,655,387	2.7		
Others (extraterritorial organizations/bodies)	5,668	0.0		
No answer/unclassified	78,805	0.1		
Others				
Total	97,583,141	100.0	3,957,404	100.00

Sources: Sakernas 2007, *Key Indicators 2008* (ADB 2008).

It is interesting to note that while some industries employed larger number of workers, it does not necessarily follow that these industries also had large contributions to GDP. For instance, the mining and quarrying sector absorbed only 1.1% of total employment but its share to total GDP is 11.1%. In pursuit of this line of thought, output per worker or labor productivity was computed both at the national and industry level.

<sup>10</sup> Includes the output of Fishing industry.

<sup>11</sup> Includes output of the Hotels and Restaurants.

Given the level of output and the number of employed workers in Table 8, labor productivity was estimated at Rp41 million (US\$4,435) or a daily labor productivity of Rp111 thousand (US\$12)<sup>12</sup> (Table 9). Supporting the earlier observation, the highest daily labor productivity is given by workers in the mining and quarrying sector, at Rp1.183 million (US\$129), followed by the financial intermediation and real estate and business services sectors, with Rp668 thousand (US\$73); EGW, Rp385 thousand (US\$42); manufacturing and public administration and defense, social security sectors, both with Rp242 (US\$26); and the transport, storage, and communication (TSC), with Rp130 thousand (US\$14). The rest registered less than Rp100 thousand (US\$10) of daily labor productivity, with agriculture (combined agriculture and fishing workers), having the least, at Rp35 thousand (US\$4).

**Table 9: Labor Productivity, 2007**

Industry Classification	Labor Productivity (Year)		Daily Labor Productivity	
	In Rupiah	In US\$	In Rupiah	In US\$
Agriculture, hunting and forestry, and fishing	12,843,265	1,405	35,187	4
Mining and quarrying	431,840,887	47,230	1,183,126	129
Manufacturing	88,374,440	9,665	242,122	26
Electricity, gas, and water supply	140,558,328	15,373	385,091	42
Construction	69,412,449	7,592	190,171	21
Wholesale and retail trade, repairs, etc.	30,415,140	3,326	83,329	9
Hotels and restaurants				
Transport, storage, and communications	47,575,455	5,203	130,344	14
Financial intermediation	243,744,784	26,658	667,794	73
Real estate, renting, and business activities				
Public administration and defense, social security	86,567,204	9,468	237,170	26
Education	22,578,399	2,469	61,859	7
Health and social work				
Other community, social and personal services				
Private households with employed persons				
Others (extra-territorial organizations/bodies)				
No answer/unclassified	22,578,399	2,469	61,859	7
Others				
Total	40,554,176	4,435	111,107	12

Sources: Computations based on data from Sakernas 2007 and *Key Indicators 2008* (ADB 2008).

The Indonesian work force is largely dominated by men. It comprised nearly two thirds (63.7%) of the total employed. If disaggregated by class of worker, men would normally be engaged as employees (29.3%), employers assisted by temporary workers (26.0%), or own-account workers (20.1%); women would mostly be unpaid workers (35.2%), employees (24.3%), or own-account workers (17.4%). Both men and women, however, are least likely be engaged as casual employees (both in agriculture and nonagriculture sectors) and employers assisted by permanent workers (Figure 3).

<sup>12</sup> Labor productivity was computed by dividing GDP by the number of total employed persons; industry labor productivity was computed by dividing the industry output (gross value added) by the total number of employed persons in the industry. Daily labor productivity was estimated by dividing the total labor productivity by 365 days. The US\$ equivalent was converted using the average foreign exchange in 2007 as reported in ADB (2008, Indonesia Country Table).

**Figure 3: Percentage Distribution of Workers, by Employment Status and Sex**



## B. Nature of Employment: Informal and “Mixed”

Given the limitations of the data as described in the preceding section, informal employment as defined by employment on casual basis and unpaid work was estimated at 28.4 million or 29.1% of the total employed population. All other types of workers were classified under the mixed category.

In terms of sector of employment, own-account workers, employers assisted by permanent workers, and employees tend to be engaged more in the nonagriculture sector. On the other hand, casual employees and unpaid family workers mostly work in agriculture. Note that those categories primarily involved in agriculture, whether casual or unpaid, are the ones associated with informal employment, while those mentioned as chiefly employed in nonagriculture compose the mixed category. However, an exception to this generalization is the classification, employer assisted by temporary workers, which is principally identified with agriculture, at 71% (Figure 4). Hence, it would be interesting to further investigate the composition of the employer assisted by temporary workers and how they relate to the other characteristics of informal employment. But due to the limitations in the current dataset, this is not possible at the moment.

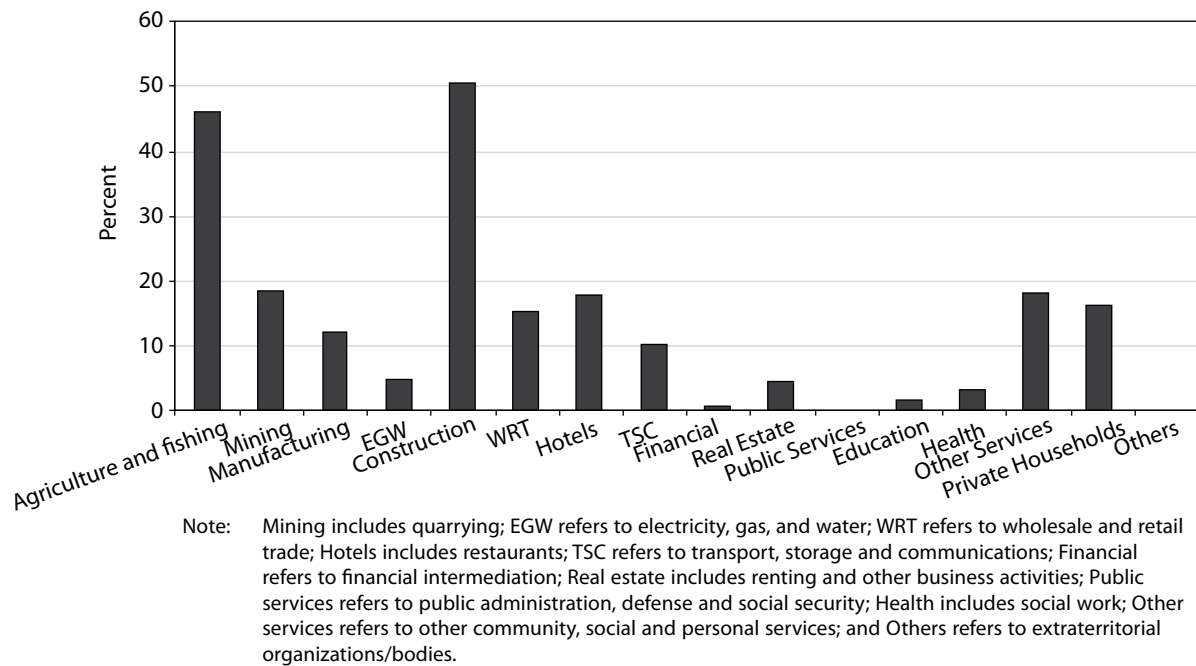


**Figure 4: Percentage Distribution of Workers, by Employment Status and Sector**



By industry, informal employment was highest in the construction and agriculture (and fishing) sectors, at 51.2% and 46.4%, respectively. This is expected as most of the agricultural activities are family-operated and a lot of activities in construction can be subcontracted or done without formal employer–employee relations. Other sectors showed moderate percentages: mining and quarrying (18.8%), other community and personal services (18.4%), hotels and restaurants (18.1%), private households (16.4%), WRT (15.6%), manufacturing (12.3%), and TSC (10.3%) (Figure 5).

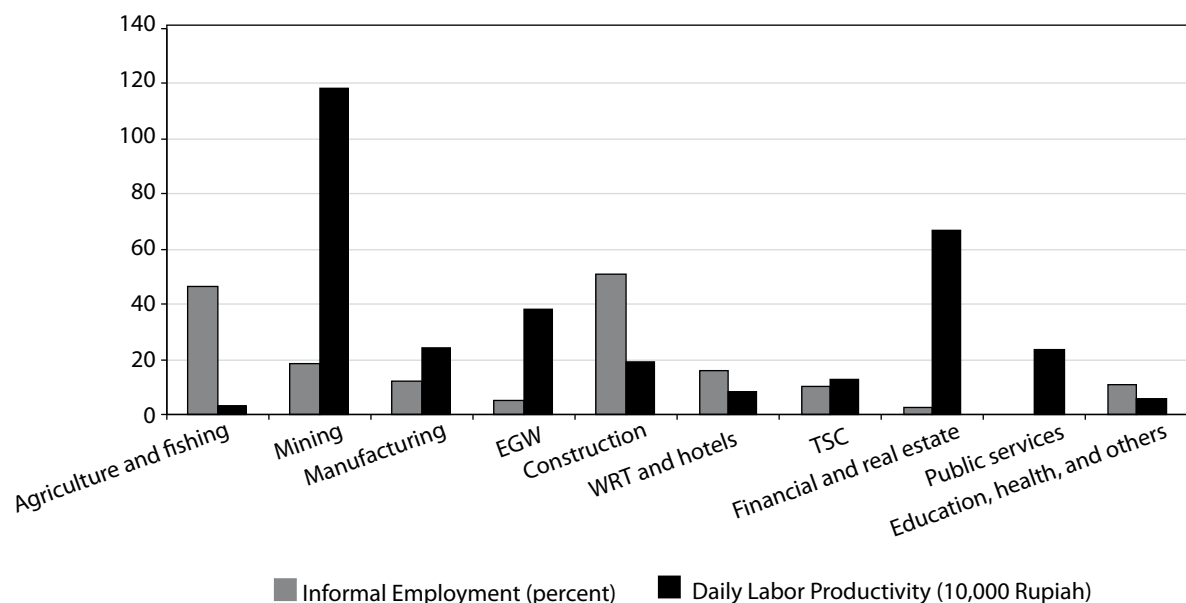
Labor productivity in the informal economy is unlikely to be computed given the strict limitations of the dataset and lack of data on output. However, analysis of the informal employment along this line of thought is attempted by using the data generated in Table 9 (labor productivity) and Figure 5 (informal employment). Figure 6 presents the number of informal workers, by industry, and the estimated daily labor productivity in the entire employment sector. There are four industry performances readily identifiable from the figure below, namely (i) agriculture and fishing; (ii) mining and quarrying; (iii) construction; and (iv) financial intermediation and real estate, renting, and business services. The agriculture and fishing, as well as the construction industries exhibit low labor productivity and high incidence of informal employment. Conversely, mining and quarrying and the financial intermediation and the real estate, renting, and business services demonstrate high labor productivity and a small number of informal workers.

**Figure 5: Prevalence of Informal Employment, by Industry, 2007**

Recall that labor productivity was computed using the gross value added of the industry divided by the total number of employed, thus, it is highly dependent on the levels of both the output and employment. It can be noticed that those industries with relatively low daily labor productivity are labor-intensive industries like agriculture, WRT, hotels and restaurants, TSC, and construction.<sup>13</sup> Moreover, two of the aforementioned industries have high prevalence of informal employment. Hence, though this is a crude examination, it would be a good avenue to pursue an investigation on the composition of employment (in terms of nature) in relation to the workers' labor productivity and the input-factor intensiveness of the industries (whether they are labor- or capital-intensive). Possible results of the study may be (i) determining the significance of informal employment in labor-intensive industries; (ii) establishing how informal workers and informal arrangements influence the industry's output; and (iii) identifying the factors affecting the wage levels in the various industries.

This also emphasizes the significance of correctly identifying formal and informal employment as it will play a key role in the analysis.

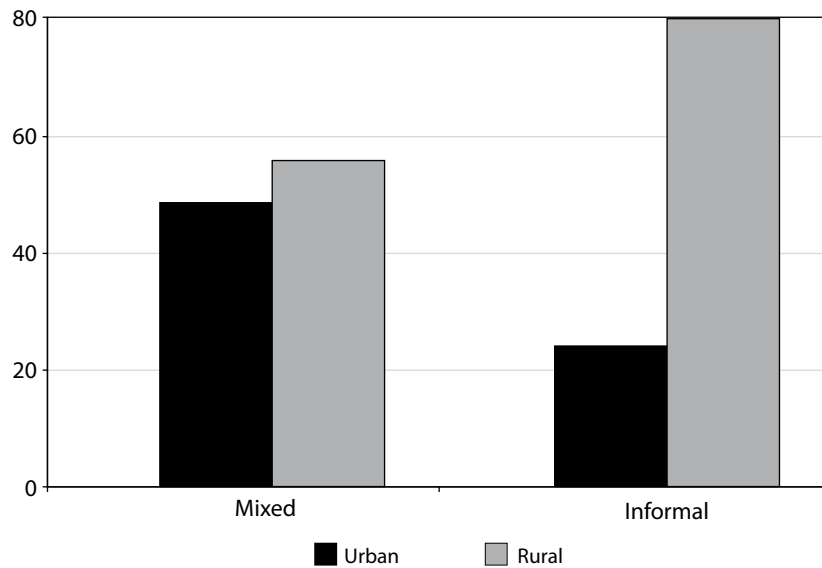
<sup>13</sup> The Education, Health and social work, Other community, social and personal services, Private households with employed persons, and Others category is excluded from this analysis since it covers a combination of more than three sectors and would need further investigation to be able to produce a valid generalization for the category.

**Figure 6: Informal Employment and Daily Labor Productivity, by Industry**

Note: The industry segregation followed the National Accounts grouping, thus, the following industries were combined: (i) Agriculture and Fishing; (ii) WRT and Hotels and restaurants; (iii) Financial intermediation and Real Estate, renting and business; and (iv) Education, Health and social work, Other community, social and personal services, private households, and others.

By village category, while informal employment is widespread (around 80% of rural employment) in rural areas, prevalence in the urban areas is only recorded at 23%. Though the measurement scheme of the nature of employment is very tentative, the wide difference in the estimates may be sufficient to assume that rural employment is normally informal in nature, contrary to the situation in the urban setting (Figure 7).

**Figure 7: Percentage Distribution of Workers, by Nature of Employment and Village Category**



As shown in Table 10, the informal category is dominated by unpaid family workers. However, it is quite intriguing that with their large total percentage, 62.8%, their numbers are greater than the casual employees only in five of the 17 industries analyzed. The unpaid family workers have a percentage share of at least 57% in the following sectors: manufacturing, education, agriculture, WRT, and hotel and restaurant. The results seem to imply the following:

- (i) Informal employment in the manufacturing, WRT, and hotel and restaurant generally involve family-owned businesses that highly depend on unpaid family members: 57.0%, 90.7%, and 95.8%, of the total employed, respectively.
- (ii) Agriculture activities are traditionally a family economic activity, as 68.7% of informally employed are unpaid family members.

Meanwhile, casual employees are the primary workers in the following industries, comprising at least 75% of the informal employment: other community, social, and personal services, 76.9%; EGW, 79.2%; TSC, 83%; private households with employed persons, 86.1%; construction, 88.9%; and financial intermediation, 90.7%.

Table 10 also shows that employees dominate the mixed category. This is true in majority of the industries (11 out of 17 industries), namely: (i) mining and quarrying; (ii) manufacturing; (iii) EGW; (iv) construction; (v) financial intermediation; (vi) real estate, renting, and business activities; (vii) public administration, defense, and social security; (viii) education; (ix) health and social work; (x) personal households with employed persons; and (xi) others (extraterritorial organizations/bodies).

**Table 10: Distribution of Workers, by Employment Status, Industry and Informal/Mixed**

Industry	Mixed				Informal		
	Own-Account Worker	Employer Assisted by Temporary Workers/ Unpaid Workers	Employer Assisted by Permanent Workers	Employee	Casual Employee in Agriculture	Casual Employee not in Agriculture	Unpaid Family Worker
Agriculture, hunting, and forestry	18.69	68.41	3.78	9.12	31.31	0.00	68.69
Fishing	48.98	17.93	5.41	27.68	54.35	0.00	45.65
Mining and quarrying	35.33	8.27	4.90	51.49	0.00	65.20	34.80
Manufacturing	14.24	11.69	4.37	69.70	0.00	42.96	57.04
Electricity, gas, and water supply	8.51	2.10	3.03	86.35	0.00	79.22	20.78
Construction	14.98	5.44	10.98	68.60	0.00	88.92	11.08
Wholesale and retail trade, repairs, etc.	46.95	24.73	5.05	23.27	0.00	9.32	90.68
Hotels and restaurants	26.56	28.19	7.07	38.19	0.00	4.16	95.84
Transport, storage, and communications	57.51	3.03	2.94	36.52	0.00	82.96	17.04
Financial intermediation	1.86	0.00	0.59	97.55	0.00	90.67	9.33
Real estate, renting, and business activities	19.82	5.36	8.51	66.30	0.00	59.71	40.29
Public administration and defense, social security	0.00	0.00	0.00	100.00	0.00	0.00	0.00
Education	2.03	0.48	0.24	97.26	0.00	37.96	62.04
Health and social work	13.44	1.76	2.08	82.72	0.00	68.98	31.02
Other community, social and personal services	42.33	6.95	4.76	45.95	0.00	76.90	23.10
Private households with employed persons	26.97	3.12	2.08	67.83	0.00	86.09	13.91
Others (extraterritorial organizations/bodies)	10.18	0.00	0.00	89.82	0.00	0.00	0.00
No answer/unclassified	83.90	6.24	0.00	9.86	0.00	72.79	27.21
All	26.96	30.11	4.11	38.81	22.15	15.05	62.80

Meanwhile, own-account workers lead the number in three sectors, fishing, WRT, and TSC. These are also the industries known to provide informal employment, such as small-boat fishing, side-walk and market vending, small vehicle transportation (motorcycles), and the like. Thus, if given more information, it would be possible to reclassify some or many of those in the mixed category in these industries to the informal employment group. On the other hand, the employers assisted by temporary workers are prevalent in agriculture, at 68.4%. Again, given more information, these types of agricultural workers can still be reclassified into formal and informal employment.

As mentioned earlier, men dominate the employment sector: there are nearly two men working for every woman employed. Classifying further by nature of employment, Table 11 shows that women would most likely be engaged in informal employment than men. Men are largely found in the mixed type, at 71.1%, a large dominance over the 28.9 percentage of women in this category. Note that in the preceding discussion, around 35% of women are unpaid workers and by definition of informal employment in this paper, it is expected that informal employment would be women-dominated. Moreover, women only compose a third of the total employment. Taking all these into account, and given the wide discrepancy between the number of men and women in the mixed category, men will likely be more engaged in the formal than informal employment.

**Table 11: Frequency and Percentage Distributions of Employed Persons by Nature of Employment and Sex**

Gender	Frequency			Percentage Distribution, by Nature of Employment Total			Percentage Distribution, by Gender Total		
	Mixed	Informal	Total	Mixed	Informal	Total	Mixed	Informal	Total
Male	49,223,274	12,928,008	62,151,282	71.10	45.60	63.69	79.20	20.80	100.00
Female	20,009,336	15,422,523	35,431,859	28.90	54.40	36.31	56.47	43.53	100.00
Total	69,232,610	28,350,531	97,583,141	100.00	100.00	100.00	70.95	29.05	100.00

Further analysis showed that in terms of class of workers, there is a large structural difference between male and female employment. This discrepancy is predominantly obvious in the agriculture sector, and to a much lesser extent, in the nonagriculture sector. Looking at Table 12, the agriculture sector structures even highly resemble the gender structure of the entire employed population of Indonesia, as presented in Figure 3.

This strengthens the significance of agriculture in the employment sector of Indonesia. From the beginning of the analysis, agriculture has proven to be a dominant industry in the country in terms of economic output and employment absorption. And as shown in Table 12, agriculture also influences the employment structure, by gender and employment status of worker, as its structure reflects that of the entire employed population. This avenue of analysis is relevant because the results, tentative as they may be, imply a strong link between agriculture and informal employment. Consequently, there is also a probability of an important role played by informal employment in Indonesia's labor market.

**Table 12: Percentage Distribution of Workers,\* by Employment Status, Agriculture and Nonagriculture Sector, and Sex**

Class of Worker	Agriculture			Nonagriculture		
	Male	Female	Total	Male	Female	Total
Own-account worker	13.7	6.4	11.0	24.8	26.3	25.4
Employer assisted by temporary workers/ unpaid workers	47.5	13.8	35.0	9.6	12.9	10.8
Employer assisted by permanent workers	2.6	1.2	2.1	4.7	1.6	3.6
Employee	6.7	3.4	5.5	46.7	41.2	44.7
Casual employee in agriculture	14.9	14.5	14.7	-	-	0.0
Casual employee not in agriculture	-	-	0.0	10.2	3.3	7.7
Unpaid workers	14.6	60.7	31.7	4.0	14.7	7.8
Total	100.0	100.0	100.0	100.0	100.0	100.0

\* Excluding those who did not provide answers on industry class or sector.

Due to lack of information, the application of Chen's model to the Indonesian workforce, as presented in the analytical framework section, may not be plausible due to a number of reasons. First, the iceberg cannot be applied solely to the informal employment (or economy as referred to in the model) because the mixed category may also include informal employment. Furthermore, wage data are not available for the employer classification, thus, segmentation by class of worker based on income would not be thoroughly effective. If the model is to be applied, there would only be two segments in the informal employment iceberg, comprised of casual employees and unpaid family workers, with only a single-wage information. Similarly, the mixed employment will only have three divisions—employee, employer, and own-account worker—with only two levels having the wage data.

## C. Wage Analysis

The mean monthly income of employed persons in Indonesia was estimated at Rp788 thousand. The highest paid workers in the labor economy are those employed by extraterritorial organizations/bodies, with mean monthly wage of Rp6 million. This is also the group with the least number of workers (around 5,668, which is equivalent to 0.01% of the total employed) (Table 8). Workers in seven industries posted mean monthly wages of more than a million rupiah, with financial intermediation having the highest at Rp1.9 million; public administration and defense, social security, Rp1.5; mining and quarrying and real estate renting and business activities sectors, Rp1.4; health and social work and EWG, Rp1.3; and education, Rp1.2 million (Table 13).

**Table 13: Mean Monthly Income of Employed Persons, by Industry Classification**

Industry Classification	Mean Income (in Rp)
Agriculture, hunting, and forestry	447,077
Fishing	630,556
Mining and quarrying	1,394,293
Manufacturing	770,586
Electricity, gas, and water supply	1,316,541
Construction	882,740
Wholesale and retail trade, repairs, etc.	781,917
Hotels and restaurants	779,634
Transport, storage, and communications	844,257
Financial intermediation	1,968,877
Real estate, renting, and business activities	1,353,623
Public administration and defense, social security	1,518,891
Education	1,152,388
Health and social work	1,261,986
Other community, social and personal services	733,350
Private households with employed persons	442,447
Others (extraterritorial organizations/bodies)	6,059,312
No answer/unclassified	494,721
All	787,648

Note: Net income for the previous month for own-account workers and casual employees; usual net wage/salary in a month for employees.

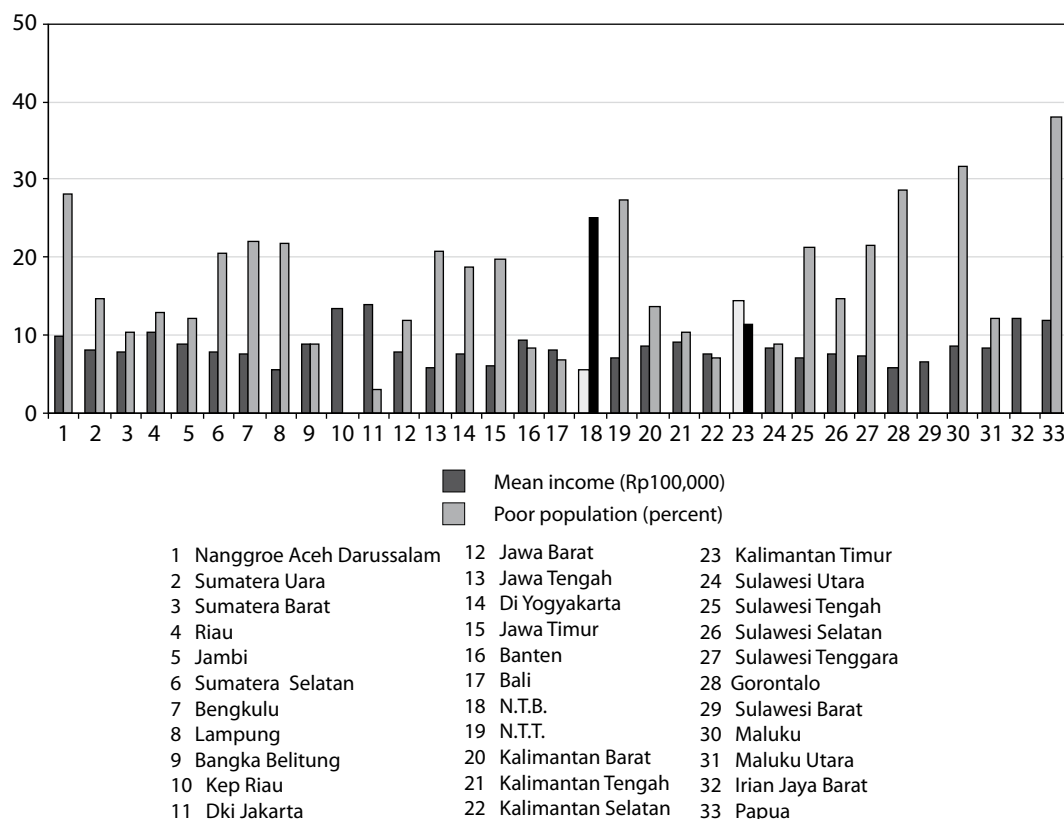
The lowest mean monthly income is reflected in the following industries: manufacturing (Rp770 thousand), fishing (Rp631 thousand), agriculture (Rp447 thousand), and private households with employed persons (Rp442 thousand). Recall that agriculture is one of the industries with the highest prevalence of informal employment, at 47.5% (Figure 5).

Across provinces, workers in Kalimantan Timur received the highest monthly income on the average, at Rp1.5 million. As mentioned earlier about the mining and quarrying industry, it is not surprising that the main economic activities in this province are oil field exploration, and natural gas, coal, and gold mining. Apparently, Kalimantan Timur was also one of the provinces having relatively lower poverty incidence in 2004, at 11.57% (Figure 8). On the other hand, workers in the Nusa Tenggara Barat had the lowest estimated mean monthly income (Rp557 thousand) and among those with high percentage of poor population (at 25.38%).

Figure 8 illustrates the extensive discrepancy in mean monthly income across provinces.



**Figure 8: Mean Monthly Income (2007) and Population below the Poverty Line (2004) by Province**



Note: The highlighted provinces are Nusa Tenggara Barat with mean monthly income of Rp557,000 and percentage poor population in 2004 of 25.4; and Kalimantan Timur with Rp1.4 million and 12%, mean monthly wage and population below the poverty line, respectively.

Sources: Sakernas 2007, BPS Statistics Indonesia (2008b).

In terms of income, male workers are better off than their female counterpart. This is true in all classes with the widest gap in mean monthly income among employees (i.e., Rp1.1 million compared with Rp0.8 million). Large discrepancies in mean monthly income of male and female workers were also observed among casual employees not in agriculture (at Rp254 thousand) and own-account workers (with Rp226 thousand). The smallest discrepancies were noted among casual employees in agriculture, at Rp129 thousand. Tests of statistical significance indicated that there is a significant difference between the mean monthly income of men and women across classes (Table 14).

Overall, men receive higher income than women, whether they are in the agriculture or nonagriculture sectors, or in the formal or mixed categories. Statistical tests further showed a significant difference between the mean monthly income of men and women across classes, sectors, and nature of employment.

**Table 14: Mean Monthly Income of Employed Persons by Employment Status and Sex**

Class of Worker	Median Income (in Rp)		Mean Income (in Rp)			
	Male	Female	Male	Female	Difference <sup>^</sup>	p-value <sup>a</sup>
Own-account worker	520,000	310,000	713,324	487,713	225,612	0.000
Employer assisted by temporary workers/unpaid workers	–	–	–	–	–	–
Employer assisted by permanent workers	–	–	–	–	–	–
Employee	800,000	602,500	1,109,641	826,878	282,763	0.000
Casual employee in agriculture	340,000	200,000	419,997	291,420	128,578	0.000
Casual employee not in agriculture	600,000	165,000	631,873	377,956	253,917	0.000
Unpaid workers	–	–	–	–	–	–

<sup>a</sup> The p-value of the test is the probability of getting the same test statistic (result) or more extreme test statistic value from the population(s) being tested under the assumption that the null hypothesis is true. A p-value of .05, for example, indicates that there is only a 5% chance of getting the same or more extreme test statistic if the null hypothesis is true, hence we say that the test statistic is less likely to have come from the population(s) in which the null hypothesis—in this case that there are no differences between the mean wages of formal and informal workers is true—therefore, we have to reject the null hypothesis. In statistical parlance, the result is highly significant if the p-value of the test is <0.01, significant if the p-value is <0.05. If the p-value is more than 0.05, the null hypothesis is usually accepted and the appropriate conclusion is that there are no significant differences in the mean wages in this case. However, in the social sciences where measurement issues abound regarding the data, these thresholds are usually lower. a.

Note: Net income for the previous month for own-account workers and casual employees; usual net wage/salary in a month for employees.

<sup>^</sup> Mean income<sub>(male)</sub> - Mean income<sub>(female)</sub>

Highest mean income received by male workers, at Rp1.1 million, is registered by employees in nonagriculture, while the lowest, at Rp420 thousand, is posted by the casual employees in agriculture. On the other hand, female employees in nonagriculture record the highest mean income, at Rp840 thousand, and own-account workers in agriculture, the least, at Rp267 thousand. In both cases, highest payments are received in nonagricultural employment, while the minimum, in agriculture employment (Table 15).

**Table 15: Mean Monthly Income of Employed Persons (in rupiah), by Employment Status, Agriculture and Nonagriculture Sector, and Sex**

Class of Worker	Agriculture			Nonagriculture		
	Male	Female	p-value <sup>~</sup>	Male	Female	p-value <sup>a</sup>
Mixed						
Own-account worker	511,490	267,404	0.000	798,845	531,848	0.000
Employee	752,524	618,165	0.000	1,148,242	840,903	0.000
Informal						
Casual employee	419,997	291,420	0.000	632,292	381,185	0.000

<sup>a</sup> The p-value of the test is the probability of getting the same test statistic (result) or more extreme test statistic value from the population(s) being tested under the assumption that the null hypothesis is true. A p-value of .05, for example, indicates that there is only a 5% chance of getting the same or more extreme test statistic if the null hypothesis is true, hence we say that the test statistic is less likely to have come from the population(s) in which the null hypothesis—in this case that there are no differences between the mean wages of formal and informal workers is true—therefore, we have to reject the null hypothesis. In statistical parlance, the result is highly significant if the p-value of the test is <0.01, significant if the p-value is <0.05. If the p-value is more than 0.05, the null hypothesis is usually accepted and the appropriate conclusion is that there are no significant differences in the mean wages in this case. However, in the social sciences where measurement issues abound regarding the data, these thresholds are usually lower.

Across industries, like in the preceding discussions, men generally receive higher mean monthly wages than women both in the mixed and informal employment types (Table 16). On average, women receive higher income than men only in the TSC and extraterritorial organizations/bodies sectors under mixed employment; and fishing, education, and health and social work under informal employment. Tests of significance, however, showed that the wage differentials under the mixed category are not significant in the following industries: fishing; construction; financial intermediation; real estate, renting and business activities; health and social work, and extraterritorial organizations/bodies.

**Table 16: Mean Monthly Income of Employed Persons by Employment Status, Industry Classification, and Sex**

Industry Classification	Mixed			Informal		
	Male	Female	p-value	Male	Female	p-value <sup>a</sup>
Agriculture, hunting, and forestry	580,335	385,014	0.0000	409,601	289,776	0.0000
Fishing	636,059	519,447	0.2850	629,911	682,728	0.8320
Mining and quarrying	1,651,036	585,732	0.0000	602,544	401,487	0.2310
Manufacturing	927,265	589,675	0.0000	504,655	372,365	0.0060
Electricity, gas, and water supply	1,376,320	937,882	0.0050	675,993	215,781	0.0170
Construction	1,116,784	1,041,483	0.6680	676,798	314,143	0.0000
Wholesale and retail trade, repairs, etc.	892,352	640,780	0.0000	539,255	374,721	0.0470
Hotels and restaurants	915,746	642,843	0.0000	457,057	164,875	0.0040
Transport, storage, and communications	854,525	1,102,051	0.0010	632,065	438,668	0.1550
Financial intermediation	2,046,080	1,846,820	0.2460	1,550,436	1,303,000	0.6050
Real estate, renting, and business activities	1,358,140	1,432,307	0.5810	640,184	132,139	0.0010
Public administration and defense, social security	1,561,762	1,325,920	0.0000	-	-	-
Education	1,260,181	1,059,058	0.0000	306,577	567,022	0.1940
Health and social work	1,390,632	1,183,936	0.1470	533,077	745,177	0.5730
Other community, social, and personal services	827,266	570,810	0.0000	633,206	547,232	0.6500
Private households with employed persons	644,093	361,881	0.0000	515,878	352,254	0.0040
Others (extraterritorial organizations/bodies)	1,353,104	17,000,000	0.1120	-	-	-
No answer/unclassified	716,827	267,996	0.0520	384,767	105,503	0.0010

\*\* Mean wage of own-account workers and employees; income of employers was not asked in the survey.

\*\*\* Mean wage of casual employees, either in agriculture or nonagriculture sector.

<sup>a</sup> The p-value of the test is the probability of getting the same test statistic (result) or more extreme test statistic value from the population(s) being tested under the assumption that the null hypothesis is true. A p-value of .05, for example, indicates that there is only a 5% chance of getting the same or more extreme test statistic if the null hypothesis is true, hence we say that the test statistic is less likely to have come from the population(s) in which the null hypothesis—in this case that there are no differences between the mean wages of formal and informal workers is true—therefore, we have to reject the null hypothesis. In statistical parlance, the result is highly significant if the p-value of the test is <0.01, significant if the p-value is <0.05. If the p-value is more than 0.05, the null hypothesis is usually accepted and the appropriate conclusion is that there are no significant differences in the mean wages in this case. However, in the social sciences where measurement issues abound regarding the data, these thresholds are usually lower.

Note: Net income for the previous month for own-account workers and casual employees; usual net wage/salary in a month for employees.

On the other hand, income discrepancies between men and women under informal employment are not significant in seven out of 15 industries,<sup>14</sup> namely: fishing; mining and quarrying; TSC; financial intermediation; education; health and social work; and other community, social, and personal services. Some of these industries provide higher mean monthly income for women but the difference proved insignificant.

The earlier discussions concerning nature of employment only involved analysis within, and not between, the mixed or informal categories. In what follows, wage differentials in the two groups are discussed.

Results show that the mean monthly income of workers under the mixed category is higher than those under the informal group. This is true in all industries except fishing (Table 17). The largest discrepancy, of almost Rp1 million, was recorded in the mining and quarrying sector; followed by the real estate, renting, and business activities, at Rp793 thousand; then by the education sector, at Rp741 thousand. On the other hand, the least difference was observed in the fishing industry, at Rp2 thousand. Other sectors showing a narrow differential gap are: private households with employed persons (Rp31 thousand); other community, social, and personal services (Rp136 thousand); and TSC, (Rp236 thousand).

Test of significance of the difference in mean monthly income showed that income disparity is significant across industries, except for three, namely: (i) fishing; (ii) private households with employed persons, and (iii) financial intermediation (Table 17). Further investigation showed that the dominant class of workers in these industries under the mixed category are own-account workers for fishing (49%) and employees for private households and financial intermediation at 68% and 98%, respectively (see Table 10).

Meanwhile, comparison by village category showed an income gap of about Rp456 thousand between the mixed and the informal workers in urban areas, and a gap of Rp240 thousand in rural areas. In both cases, however, those that fall under the mixed category have relatively higher mean monthly income, and the difference was also found to be statistically significant.

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<sup>14</sup> There is no informal employment in the public administration, defense and social security, and extraterritorial organizations/bodies.

**Table 17: Mean Monthly Income of Employed Persons by Nature of Employment and Industry Classification**

Industry Classification	Mean Income (in Rp)			
	Mixed**	Informal***	Difference <sup>^</sup>	p-value <sup>a</sup>
Agriculture, hunting, and forestry	531,221	364,602	166,619	0.0000
Fishing	630,201	632,474	(2,273)	0.9660
Mining and quarrying	1,536,664	575,592	961,072	0.0000
Manufacturing	793,612	450,295	343,317	0.0000
Electricity, gas, and water supply	1,347,621	610,074	737,547	0.0000
Construction	1,114,233	675,106	439,127	0.0000
Wholesale and retail trade, repairs, etc.	788,703	505,815	282,889	0.0000
Hotels and restaurants	786,837	274,241	512,596	0.0000
Transport, storage, and communications	865,843	630,231	235,612	0.0000
Financial intermediation	1,971,867	1,506,194	465,673	0.2710
Real estate, renting, and business activities	1,378,476	585,202	793,274	0.0000
Public administration and defense, social security	1,518,891	–	–	–
Education	1,156,808	415,738	741,070	0.0000
Health and social work	1,277,234	611,743	665,491	0.0000
Other community, social, and personal services	755,696	619,644	136,052	0.0190
Private households with employed persons	447,110	416,398	30,712	0.3060
Others (extraterritorial organizations/bodies)	6,059,312	–	–	–
No answer/unclassified	560,125	229,070	331,055	0.0300

\*\* Mean wage of own-account workers and employees; income of employers was not asked in the survey

\*\*\* Mean wage of casual employees, either in agriculture or nonagriculture sector.

<sup>^</sup> Mean income<sub>(mixed)</sub> - Mean income<sub>(informal)</sub>

<sup>a</sup> The p-value of the test is the probability of getting the same test statistic (result) or more extreme test statistic value from the population(s) being tested under the assumption that the null hypothesis is true. A p-value of .05, for example, indicates that there is only a 5% chance of getting the same or more extreme test statistic if the null hypothesis is true, hence we say that the test statistic is less likely to have come from the population(s) in which the null hypothesis—in this case that there are no differences between the mean wages of formal and informal workers is true—therefore, we have to reject the null hypothesis. In statistical parlance, the result is highly significant if the p-value of the test is <0.01, significant if the p-value is <0.05. If the p-value is more than 0.05, the null hypothesis is usually accepted and the appropriate conclusion is that there are no significant differences in the mean wages in this case. However, in the social sciences where measurement issues abound regarding the data, these thresholds are usually lower.

Note: Net income for the previous month for own-account workers and casual employees; usual net wage/salary in a month for employees.

## V. Conclusions and Recommendations

Analysis of informal employment in Indonesia using the February 2007 round of Sakernas is limited by the scarcity of information that can precisely identify informal sector or informal employment. Variables needed to apply the internationally accepted definition of informal employment are not available in the questionnaire and hence, in the survey data. Only the question on the employment status of worker could be used to classify the employed. Therefore, employment can only be classified as informal employment and mixed employment. The mixed employment category was named as such because the category of workers such as own-account workers, employers assisted by temporary workers/unpaid workers, and employers assisted by permanent workers and employees may include both informal and formal employment. In other countries, own-account workers and employers assisted by temporary workers/unpaid workers are mostly classified under informal employment. However, since there are no other questions such as location of work, existence of employment contract, manner of payment, etc. in Sakernas to further distinguish who are engaged informally among these classes of workers, they are still classified under the mixed employment category.

Given this data limitation, informal employment from the Sakernas is at the minimum, estimated at 28.4 million or 29.1% of the total employed in Indonesia (minimum because some of those in the mixed category can still be reclassified as informally employed).

Informal employment is concentrated in rural areas, comprising about 80% of the total employed informally. It is particularly highest in the construction and agriculture sectors, with 51.2% and 47.5%, respectively. Women are found to be more likely engaged in informal employment than men—with a ratio of two women for every man among the informally employed. Women in informal employment are worse off than men, as they either get lower pay or are mostly unpaid. Across classes of workers, results also showed that the mean monthly income of workers under the informal group is relatively lower than that of workers under the mixed category. This observation is true in almost all industries except in the fishing industry. Tests of significance revealed that the differences between the mean monthly income of the two groups are statistically significant across industries except in fishing, private households with employed persons, and financial intermediation. Significant differences in income between these two groups were also observed in both rural and urban areas.

The above findings, crude as they are in analyzing and understanding informal employment, support the conclusion that there is a need for improving the measurement of informal employment and consequently, the informal sector. An expanded Sakernas questionnaire will be able to provide more inputs so that the official labor force statistics will include breakdowns on informal employment, and in so doing, raise the visibility of informal workers. Effective policy interventions and monitoring may then be formulated on the basis of these statistics.

Enhancements in the current Sakernas questionnaire are recommended in view of better filtering of respondents toward identifying who are engaged in formal or informal employment. The questions in the current Sakernas questionnaire limit the avenues that can be explored; specifically, among the 27 questions, only one item was deemed suitable to determine the nature of employment. Question “IV.B.10a: employment status”, which identified the class of employment, was able to distinguish a portion of workers engaged in informal employment. But, as the entire paper suggests, this is not sufficient. Additional questions in support of the one mentioned are needed to confidently categorize the workers. Below are some general subject areas that need to be incorporated in the questionnaire, with their corresponding potential benefits if adapted. It should be noted, however, that these are not phrased as the items in the questionnaire, but must only be treated as guidelines in formulating the questions.

Subject Area	Benefits
1. Existence of written contracts	A worker with a written contract enters a formal agreement with another unit, a person or institution, thus will most likely be engaged in formal employment. This information will strengthen the detection of employees and employers (27.5% and 24.3%, respectively in Indonesia) who are formally employed. Meanwhile, informal employment is based on casual employment, kinship, or personal and social relations rather than formal or contractual arrangements. Thus, this subject area will also improve the possibility of correctly identifying informally employed workers.
2. Place of work	This item may help separate workers, especially the own-account workers, employers, and employees, by marking those that work in places associated with either formal or informal sector and employment. Own-account workers working in the streets and wet markets increase the probability that they may be mobile vendors, thus may be classified informally employed. On the other hand, employees working in the government or an institution may most likely be formally employed.
3. Mode of payment	Informal workers tend to be paid on a daily basis, as they are engaged in a shorter period of time, while formal workers are usually paid on a longer basis since they are contracted in a longer duration. This item may help filter the workers based on the length of work engagement or the job “seasonality”.
4. Benefits received	One of the distinguishing features between formal and informal employment is the existence of worker benefits. That is, formal workers are expected to receive benefits or are more likely to be given better benefits. Hence, this may also act as one of the items that may help sort the formally employed from the informal ones.
5. Registration of the enterprise	Informal enterprises are normally not registered. This additional criterion is to be asked to restrict the scope of informal sector enterprises from among the household unincorporated enterprises with at least some market production to two subsets of enterprises: the own-account enterprises and enterprises of the employers. It is also recommended that this question will be asked with choices other than “Yes” or “No” to distinguish between registration mandated by law for ALL enterprises and those that are only for specific types of activities (e.g., related to licensing, health inspections).
6. Existence of financial accounting method	Informal enterprises are characterized with little or no division between labor and capital as factors of production. Existence of a financial accounting method signifies a structured business venture and separation of household and enterprise expenditures. Hence, this item will help set apart the own-account workers (19.4% in Indonesia) working in informal enterprises and engaged in informal employment.

As additional recommendations, Appendix 2 provides sample questions that can be included in Sakernas to accurately determine those engaged in informal employment.

Another concern that should be discussed, in line with the above recommendations, is the skipping pattern of questions. The skipping pattern, when implemented effectively, can also enhance the filtering process. To illustrate, subject area 1 can only be applied to employers and employees since the item is most appropriate to this group of workers. Similarly, subject area 6 is most relevant to own-account workers, thus, may be directed only to this category. However, skipping patterns should be applied with care as though the method improves the data gathering process, it may also be a source of weakness of the questionnaire. In fact, the latter concern is observed in the current case. As described in the methodology section, income-related information were not effectively gathered because of the skipping patterns implemented concerning the employment status question. As a consequence, only own-account workers, casual employees, and employees responded to items on wage and income, namely, QIV.C.11a “(Net) income a month ago”, and QIV.C.12 “How much do you usually earn a (net) wage/salary of a main job per month”, thereby providing incomplete income and wage analyses.

Meanwhile, it is also recommended that the current questionnaire not limit questions on income and wages solely on the main jobs of respondents but also on their other (secondary) jobs. Secondary jobs or employment is significant in informal employment analysis due to the fact that a person may be formally employed in his primary job, but may possibly also work informally in his other jobs. Engaging in a second job is not unlikely in economies like that of Indonesia, since most people work in more than one job to supplement the financial earnings of their families.

Adding the measurement and monitoring of informal employment in the set of objectives of Sakernas may warrant formulation of questions and response choices designed to satisfy these specific objectives. Once it is developed, pretesting of questionnaire should be done, the results of which should be processed. This pretest will give an idea on the relevance and sufficiency of the information provided by these additional questions/items as well as the amount of time needed for one complete interview. It should be noted that duration of the interview is also needed in workload analysis.

If the recommendations are applied and the testing of the questionnaire produces successful results, a wide variety of labor studies may be possible with the revised Sakernas. As an immediate advantage of correctly identifying formal and informal workers, the following analyses may be performed:

- (i) prevalence of formal and informal workers in various industries
- (ii) labor productivity between formal and informal workers
- (iii) examination of the industries' performance vis-à-vis formal–informal employment
- (iv) significance of informal employment in labor-intensive industries
- (v) contribution of informal employment in capital-intensive industries
- (vi) determining the influence of informal workers and informal arrangements to an industry's output
- (vii) identification of the factors affecting the wage levels in the various industries in relation to the nature of employment



## Appendix 1: Sakernas Questionnaire



SAK2007 -  
AK

One set for  
BPS Province

***BPS Statistics Indonesia***

### THE NATIONAL LABOR FORCE SURVEY 2007

INFORMATION ON HOUSEHOLD MEMBERS

CONFIDENTIAL

0 2 0 7

I. LOCATION IDENTIFICATION			
1	Province		<input type="text"/>
2	Regency/Municipality *)		<input type="text"/>
3	Sub-Regency		
4	Village *)		
5	Village Category	Urban - 1    Rural - 2	<input type="text"/>
6	a. Census Block Code		
	b. Sub-Census Block Code		
7	Serial Number of Sampled Sakernas		<input type="text"/>
8	Serial Number of Sampled Household		<input type="text"/>
9	Name of Household Head		
10	Number of Household Members		<input type="text"/>
11	Number of Household Members Aged 10 Years and over		<input type="text"/>

II. INFORMATION OF FIELD ENUMERATION			
1	Name & ID Number of Enumerator : .....	5	Name & ID Number of Supervisor : .....
2	Enumerator's occupation : 1. BPS Provincial Staff <input type="checkbox"/> 2. BPS Regency/Municipality Staff <input type="checkbox"/> 3. Mantis (BPS Sub Regency Coordinator) 4. Mitra (Freelance Surveyor)	6	Supervisor occupation : 1. BPS Provincial Staff <input type="checkbox"/> 2. BPS Regency/Municipality Staff <input type="checkbox"/> 3. Mantis (BPS Sub Regency Coordinator) 4. Mitra (Freelance Surveyor)
3	Enumeration Date :	7	Supervision Date :
4	Signature of Enumerator :	8	Signature of Supervisor :

\*) Cross out the inapplicable one

**Appendix 1: continued.**

III. LIST OF HOUSEHOLD MEMBERS						
Serial Number	Name of Household Members	Relationship to Head of Household (code)	Sex Male 1 Female 2	Age (Years)	Only for Those Aged 10 Years and Over	
					Marital Status (code)	School Participation (code)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
<input type="text" value="0"/> <input type="text" value="1"/>		<input type="text" value="1"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="0"/> <input type="text" value="2"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="0"/> <input type="text" value="3"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="0"/> <input type="text" value="4"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="0"/> <input type="text" value="5"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="0"/> <input type="text" value="6"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="0"/> <input type="text" value="7"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="0"/> <input type="text" value="8"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="0"/> <input type="text" value="9"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="1"/> <input type="text" value="0"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="1"/> <input type="text" value="1"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="1"/> <input type="text" value="2"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="1"/> <input type="text" value="3"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="1"/> <input type="text" value="4"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<input type="text" value="1"/> <input type="text" value="5"/>		<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Codes for Column (3)				Codes for Column (6)		Codes for Column (7)	
Relationship to Head of Household				Marital Status		School Participation	
Household Head	1	Parent, Father/		Single	1	No Schooling	1
Wife or husband	2	mother in-Law	6	Married	2	In School	2
Son or daughter	3	Others Relative	7	Divorced	3	Drop out and	
Son/Daughter in-law	4	Housemaid	8	Widowed	4	Completed School	3
Granchild	5	Others	9				

After recording all of the household members in column (2) and column (3), please confirm by asking whether anyone was missed such as: newborn babies, members of household who have been away for less than 6 months and housemaid(s) who live in the same house. If you find them, added those names on the list. Mean while, if there is a household member who is leaving for less than 6 months but intended to move or would leaving home for 6 months and more is not considered as a household member, take he/she out from the list. Finally, please reorder the numbering in column (1)

**Appendix 1: continued.**

IV. CHARACTERISTICS OF HOUSEHOLD MEMBER AGED 10 YEARS AND OVER																													
Name: ..... Serial No: ..... <span style="border: 1px solid black; padding: 0 5px;">  </span>		<b>Q6 to Q14 are Just For Household Member Who Employed (Q2.a.1=1 or Q3=1)</b>																											
IV. A. EDUCATION		6 a. Total working day(s): .....day(s) <span style="border: 1px solid black; padding: 0 5px;">  </span> b. Total number of working hours of <b>all jobs</b> during the previous week : <table border="1" style="width: 100%; text-align: center; border-collapse: collapse;"> <tr> <th>Mon</th><th>Tue</th><th>Wed</th><th>Thr</th><th>Fr</th><th>Str</th><th>Sun</th><th>Mon</th> </tr> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </table> <span style="border: 1px solid black; padding: 0 5px;">  </span>		Mon	Tue	Wed	Thr	Fr	Str	Sun	Mon																		
Mon	Tue			Wed	Thr	Fr	Str	Sun	Mon																				
1a. The highest level of educational attainment:  <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">No Schooling</td> <td style="width: 5%; text-align: center;">0</td> <td style="width: 30%;">General Senior High School</td> <td style="width: 5%; text-align: center;">5</td> </tr> <tr> <td>Incompleted Primary School</td> <td style="text-align: center;">1</td> <td>Vocational Senior High School</td> <td style="text-align: center;">6</td> </tr> <tr> <td>Primary School</td> <td style="text-align: center;">2</td> <td>Q2a Diploma I/II</td> <td style="text-align: center;">7</td> </tr> <tr> <td>General Yuniior High School</td> <td style="text-align: center;">3</td> <td>Academy/Diploma III</td> <td style="text-align: center;">8</td> </tr> <tr> <td>Vocational Yuniior High School</td> <td style="text-align: center;">4</td> <td>University/Diploma IV</td> <td style="text-align: center;">9</td> </tr> </table>		No Schooling	0	General Senior High School	5	Incompleted Primary School	1	Vocational Senior High School	6	Primary School	2	Q2a Diploma I/II	7	General Yuniior High School	3	Academy/Diploma III	8	Vocational Yuniior High School	4	University/Diploma IV	9	IV.C. MAIN INDUSTRY							
No Schooling	0	General Senior High School	5																										
Incompleted Primary School	1	Vocational Senior High School	6																										
Primary School	2	Q2a Diploma I/II	7																										
General Yuniior High School	3	Academy/Diploma III	8																										
Vocational Yuniior High School	4	University/Diploma IV	9																										
b. Field of studies: ..... <span style="float: right;"><i>Filled by editor</i></span> <span style="border: 1px solid black; padding: 0 5px;">  </span>		7. Main industry during the previous week of jobs: ..... <span style="float: right;"><i>Filled by editor</i></span> ..... <span style="border: 1px solid black; padding: 0 5px;">  </span> (Completely wrote)																											
IV.B. ACTIVITY DURING THE PREVIOUS WEEK		8. Main occupation during the previous week : ..... <span style="float: right;"><i>Filled by editor</i></span> ..... <span style="border: 1px solid black; padding: 0 5px;">  </span> (Completely wrote)																											
2a. What kind of activities below did you do during the previous week?  <table style="width: 100%; border-collapse: collapse;"> <tr> <th></th> <th style="text-align: center;">Yes</th> <th style="text-align: center;">No</th> </tr> <tr> <td>1. Working</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>2. Attending School</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>3. House Keeping</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>4. Others</td> <td style="text-align: center;">①</td> <td></td> </tr> </table>			Yes	No	1. Working	1	2	2. Attending School	1	2	3. House Keeping	1	2	4. Others	①		9. Total number of hours worked of a main job during the previous week: ..... Hours <span style="border: 1px solid black; padding: 0 5px;">  </span>												
	Yes	No																											
1. Working	1	2																											
2. Attending School	1	2																											
3. House Keeping	1	2																											
4. Others	①																												
b. According to the number of “yes” answered above, which activity was mostly engaged the time during the previous week?  1 → Q4      2      3      4		10a. Main employment status during the previous week:  <table style="width: 100%; border-collapse: collapse;"> <tr> <td>Own account worker</td> <td style="text-align: center;">1</td> <td style="text-align: center;">→</td> <td style="text-align: center;">Q11</td> </tr> <tr> <td>Employer assisted by temporary workers/unpaid worker</td> <td style="text-align: center;">2</td> <td style="text-align: center;">→</td> <td style="text-align: center;">Q14a</td> </tr> <tr> <td>Employer assisted permanent workers</td> <td style="text-align: center;">3</td> <td style="text-align: center;">→</td> <td style="text-align: center;">Q10b</td> </tr> <tr> <td>Employee</td> <td style="text-align: center;">4</td> <td style="text-align: center;">→</td> <td style="text-align: center;">Q12</td> </tr> <tr> <td>Casual employee in agriculture</td> <td style="text-align: center;">5</td> <td rowspan="2" style="text-align: center;">}</td> <td rowspan="2" style="text-align: center;">Q11</td> </tr> <tr> <td>Casual employee not in agriculture</td> <td style="text-align: center;">6</td> </tr> <tr> <td>Unpaid workers</td> <td style="text-align: center;">7</td> <td style="text-align: center;">→</td> <td style="text-align: center;">Q14a</td> </tr> </table>		Own account worker	1	→	Q11	Employer assisted by temporary workers/unpaid worker	2	→	Q14a	Employer assisted permanent workers	3	→	Q10b	Employee	4	→	Q12	Casual employee in agriculture	5	}	Q11	Casual employee not in agriculture	6	Unpaid workers	7	→	Q14a
Own account worker	1	→	Q11																										
Employer assisted by temporary workers/unpaid worker	2	→	Q14a																										
Employer assisted permanent workers	3	→	Q10b																										
Employee	4	→	Q12																										
Casual employee in agriculture	5	}	Q11																										
Casual employee not in agriculture	6																												
Unpaid workers	7	→	Q14a																										
3. (If Q2a.1 =1, go to Q4) Did you have a job but temporarily not working during the previous week?  Yes      1      No      2		10b. Total number of employees are paid: <5 persons   1      5 - 19 persons   2      > 19 persons   3 (Skip over Q14.a )																											
4. Are you looking for a job?  Yes      1      No      2		11a. Income a month ago: Rp. .... <span style="border: 1px solid black; padding: 0 5px;">  </span>																											
5. Have you established a new business/firm during previous week?  Yes      1      No      2  (if Q2a.1 = 2 and Q3 = 2, go to Sub Block IV.E)		b. Number of day (s) is/are needed in R 11.a: .... day(s) <span style="border: 1px solid black; padding: 0 5px;">  </span> (Skip over Q14.a )																											
		12. How much do you usually earn a wage/salary of a main job per month? a. Cash : Rp. .... <span style="border: 1px solid black; padding: 0 5px;">  </span>																											
		b. Goods : Rp. .... <span style="border: 1px solid black; padding: 0 5px;">  </span>																											

**Appendix 1: continued.**

<p>13. Current job's condition compared with last year job's condition</p> <table border="1"> <thead> <tr> <th>Characteristics</th> <th>Much better</th> <th>Remain as good</th> <th>Remain as bad</th> <th>Wor'se</th> <th>Do not know / not relevant</th> </tr> </thead> <tbody> <tr> <td>1. Income</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>2. Workplace facilities</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>3. Health guarantee/insurance</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>4. Work safety facilities</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>5. Transport facilities</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> <tr> <td>6. The whole condition</td> <td>4</td> <td>3</td> <td>2</td> <td>1</td> <td>0</td> </tr> </tbody> </table>	Characteristics	Much better	Remain as good	Remain as bad	Wor'se	Do not know / not relevant	1. Income	4	3	2	1	0	2. Workplace facilities	4	3	2	1	0	3. Health guarantee/insurance	4	3	2	1	0	4. Work safety facilities	4	3	2	1	0	5. Transport facilities	4	3	2	1	0	6. The whole condition	4	3	2	1	0	<p>19. How long have you been looking for a job/establishing a new business/firm?</p> <p>.....Month(s) <input type="text"/></p>
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<p>14a. When did you start working?</p> <p>February 28, 2006 and before 1 → Q15</p> <p>After February 28, 2006 2 → <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p>Month Year</p> <p>b. How long have you been looking for a job/ establishing a new business/firm ?</p> <p>..... Month(s) <input type="text"/></p>	<p>20. Type of job you are looking for</p> <p>Full time job 1 } Q23</p> <p>Part time job 2 }</p> <p><b>Asked if Q4=2 and Q5=2</b></p> <p>21. The main reason of not looking for a job:</p> <table border="1"> <tbody> <tr> <td>Discouraged</td> <td>1</td> </tr> <tr> <td>Have a job but has not started yet</td> <td>2</td> </tr> <tr> <td>Attending school</td> <td>3</td> </tr> <tr> <td>Housekeeping</td> <td>4</td> </tr> <tr> <td>Already have a job</td> <td>5</td> </tr> <tr> <td>Sufficient income</td> <td>6 } Q23</td> </tr> <tr> <td>Unable to do work</td> <td>7</td> </tr> <tr> <td>Others (.....)</td> <td>8</td> </tr> </tbody> </table> <p>(COMPLETELY WROTE)</p>	Discouraged	1	Have a job but has not started yet	2	Attending school	3	Housekeeping	4	Already have a job	5	Sufficient income	6 } Q23	Unable to do work	7	Others (.....)	8																										
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<p>15. Did you have an additional job during the previous week?</p> <p>Yes 1 No 2 → IV.E</p>	<p>23. Did you ever work before?</p> <p>Yes 1 No 2 → STOP</p>																																										
<p>16. Type of industry of a main additional job:</p> <p>..... Filled by editor</p> <p>..... <input type="text"/></p> <p>(COMPLETELY WROTE)</p>	<p>24. If "Yes", did you stop working or move out into another job after February 28, 2006?</p> <p>Yes 1 No 2 → STOP</p>																																										
<p><b>IV.E. LOOKING FOR A JOB</b></p> <p><b>ACTIVITY/ESTABLISHED A NEW BUSINESS/FIRM</b></p> <p><b>Q17 to Q20 asked if Q4 = 1 and or Q5 = 1</b></p>	<p>25. The main reason of stopping work or move into another job after February 28, 2006:</p> <table border="1"> <tbody> <tr> <td>Lay off</td> <td>1</td> </tr> <tr> <td>Business collapse</td> <td>2</td> </tr> <tr> <td>Insufficient income</td> <td>3</td> </tr> <tr> <td>Unsuitable working environment</td> <td>4</td> </tr> <tr> <td>Others (.....)</td> <td>5</td> </tr> </tbody> </table> <p>(COMPLETELY WROTE)</p>	Lay off	1	Business collapse	2	Insufficient income	3	Unsuitable working environment	4	Others (.....)	5																																
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**Appendix 1: continued.**

2a. What kind of activities below did you do during the previous week?

	<i>Yes</i>	<i>No</i>
1. Working	1	2
2. Attending School	1	2
3. House Keeping	1	2
4. Others	1	

b. According to the number of “yes” answered above, which activity was mostly engaged the time during the

previous week?      *1*      **Q4**      *2*      *3*      *4*

3. (If Q2a.1 =1, go to Q4)

Did you have a job but temporarily not working during the previous week?

*Yes*      *1*      *No*      *2*

4. Are you looking for a job?

*Yes*      *1*      *No*      *2*

5. Have you established a new business/firm during previous week?

*Yes*      *1*      *No*      *2**(if Q2a.1 = 2 and Q3 = 2, go to Sub Block IV.E)***Asked if Q4=2 and Q5=2**

21. The main reason of not looking for a job:

Discouraged	<i>1</i>
Have a job but has not started yet	<i>2</i>
Attending school	<i>3</i>
Housekeeping	<i>4</i>
Already have a job	<i>5</i>
Sufficient income	<i>6</i>
Unable to do work	<i>7</i>
Others (.....)	<i>8</i>

*(COMPLETELY WROTE)*

## Appendix 2: Sample Questions for Determining Informal Employment

### Questionnaire Module on Informal Employment in the LFS

*For employees only (to be asked for main job and, where applicable, also for secondary jobs): Several aspects pertaining to the informality/formality of jobs are covered by the questions. The objective is to be able to analyze nature of informality as well as degree (according to number of conditions that hold) of informality.*

#### **QIE1: What is the duration/nature/stability of your employment?**

1. Permanent job/business/unpaid family work
2. Short-term or seasonal or casual job/unpaid family work
3. Worked for different employer on day-to-day or week-to-week basis

#### **QIE2: Are the terms of your employment covered by a written contract?**

1. Yes, I have a written contract for long-term employment
2. Yes, I have a written contract for short-term employment
3. No, I only have a verbal contract
4. No, I do not have any contract

#### **QIE3: Does your employer pay contributions to the legislated pension fund for you?**

1. Yes
2. No
3. Do not know

#### **QIE4: Do you benefit from paid annual leave/holiday leave or from compensation instead of it?**

1. Yes
2. No
3. Do not know

#### **QIE5: In case of incapacity to work due to health reasons, would you benefit from paid sick leave?**

1. Yes
2. No
3. Do not know

#### **QIE6: In case of birth of a child, would you be given the opportunity to benefit from maternity leave?**

1. Yes
2. No
3. Do not know
4. Not applicable

**Appendix 2: Continued.**

**QIE7: Unless there is due cause, could your employment be terminated by your employer without advance notice?**

1. Yes
2. No
3. Do not know

**QIE8: In case of termination of employment (either initiated by you or your employer), would you receive the benefits and compensation specified in the existing labour laws?**

1. Yes
2. No
3. Do not know

**Classifying Jobs of Employees as Informal Jobs**

1. “At least one” criterion: A job is said to be informal if at least one of the responses to questions QIE1 – QIE8 corresponds to “informal job”:

Question	Response Category	
	Formal Job	Informal Job
QIE1	1	2, 3
QIE2	1, 2	3, 4
QIE3	1	2
QIE4	1	2
QIE5	1	2
QIE6	1	2
QIE7	2	1
QIE8	1	2

2. A minimum (>1) specified set of benefits is not received—can be developed with the objective of analyzing degree of informality.

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## **About the Paper**

This paper is part of a three-country study series designed to evaluate existing labor force surveys and determine the extent to which they can be used in measuring informal employment. Although Indonesia's National Labor Force Survey (Sakernas) was not specifically designed to gather information on informal employment, Sining Cuevas, Christian Mina, Marissa Barcenas, and Aleli Rosario explored questions in the existing survey that can be used to distinguish formal and informal workers. Considering the data constraints, informal employment was estimated to be, at a minimum, 29.1 percent of total employment in Indonesia.

## **About the Asian Development Bank**

ADB's vision is an Asia and Pacific region free of poverty. Its mission is to help its developing member countries substantially reduce poverty and improve the quality of life of their people. Despite the region's many successes, it remains home to two thirds of the world's poor: 1.8 billion people who live on less than \$2 a day, with 903 million struggling on less than \$1.25 a day. ADB is committed to reducing poverty through inclusive economic growth, environmentally sustainable growth, and regional integration.

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