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Why Is Unemployment High in the Philippines?

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Abstract

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Unemployment has remained high in the Philippines, at almost twice the level of neighboring countries, despite relatively fast employment growth in the past decade. Employment growth was not sufficient to reduce unemployment because of rapid population growth and increased labor force participation. This paper shows that Philippine employment growth and unemployment declines were positively correlated with real GDP growth and, to a lesser extent, negatively with the real minimum wage. The key policy implications are that higher economic growth and moderation of increases in the real minimum wage are required to reduce unemployment.

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FACTORS BEHIND HIGH UNEMPLOYMENT IN THE PHILIPPINES

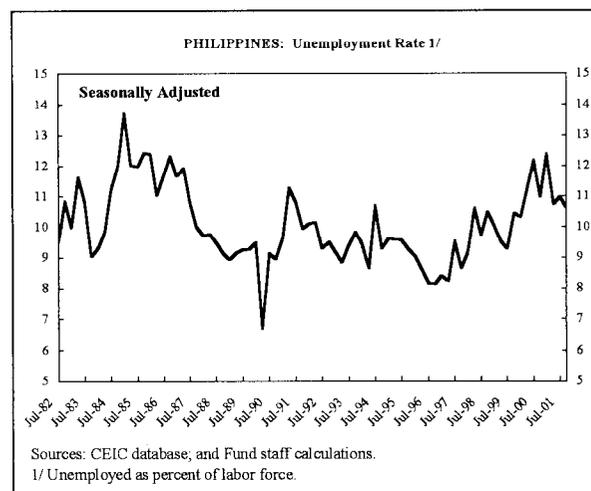
I. INTRODUCTION

The unemployment rate in the Philippines remains high relative to other countries in the region. Unemployment fell to a cyclical low of 8 percent in 1996, prior to the onset of the Asian crisis, but rose to more than 11 percent in 2000 and 2001, more than twice the level of a number of neighboring countries. While employment growth has been higher than in many other countries in the region, this has not been sufficient to lower the unemployment rate given high population growth and a rise in labor force participation.

This paper analyses the factors behind unemployment in the Philippines, by estimating equations to explain employment growth and the unemployment rate. The paper first discusses the performance of the labor market (including a comparison with neighboring countries) and its institutional features. It then presents the econometric analysis and discusses some policy conclusions.

II. LABOR MARKET PERFORMANCE IN THE PAST TWENTY YEARS

The unemployment rate² has fluctuated in the range of 7-14 percent over the past twenty years (see chart). In 1996, the rate fell to a cyclical low of about 8 percent, prior to the slow down in economic activity associated with the Asian crisis. Unemployment did not rise sharply as a result of the Asian crisis, but jumped in 2000 to more than 11 percent, as employment contracted due to a sharp fall in agricultural employment (Table 1). By October 2001, however, the seasonally adjusted unemployment rate had declined to 10½ percent, due to some recovery in agricultural employment. In the late 1990s, the under-employment rate³ was more than twice the unemployment rate, but fell to 17¼ percent in 2001.



² Derived from a quarterly household labor survey (see data annex for details).

³ Defined as employed persons seeking additional hours of employment.

Table 1: Philippines Labor Market Indicators

(In percent)

| | 1982 | 1990 | 1995 | 1999 | 2000 | 2001 |
|-----------------------------------|------|------|------|------|------|------|
| Unemployment rate | 9.4 | 8.4 | 9.5 | 9.8 | 11.2 | 11.1 |
| Male | 8.8 | 7.4 | 8.8 | 9.5 | 10.8 | 10.8 |
| Female | 10.5 | 10.1 | 10.7 | 9.9 | 11.6 | 11.6 |
| Urban | ... | ... | 12.3 | 12.5 | 14.0 | 14.1 |
| Rural | ... | ... | 6.8 | 7.1 | 8.4 | 8.3 |
| Underemployment rate | ... | ... | 20.0 | 22.3 | 21.7 | 17.2 |
| Male | ... | ... | 21.8 | 24.9 | 24.0 | ... |
| Female | ... | ... | 16.9 | 17.5 | 17.8 | ... |
| Urban | ... | ... | 17.1 | 18.9 | 18.5 | 14.0 |
| Rural | ... | ... | 22.6 | 25.0 | 24.6 | 18.7 |
| Labor force participation rate 1/ | 61.1 | 64.4 | 65.8 | 66.6 | 65.0 | 67.1 |
| Male | 79.1 | 81.9 | 82.9 | 85.6 | 81.5 | 82.4 |
| Female | 43.2 | 47.2 | 48.4 | 50.2 | 48.6 | 51.8 |
| Urban | ... | ... | 63.1 | 64.3 | 63.1 | 64.8 |
| Rural | ... | ... | 68.6 | 68.8 | 66.9 | 69.4 |
| Share of labor force | | | | | | |
| Male | 64.4 | 63.1 | 63.1 | 62.5 | 62.0 | 61.3 |
| Female | 35.6 | 36.9 | 36.9 | 37.5 | 38.0 | 38.7 |
| Urban | ... | ... | 48.7 | 47.2 | 47.8 | 48.8 |
| Rural | ... | ... | 51.3 | 52.8 | 52.2 | 51.2 |
| Labour force (in millions) | 18.5 | 24.2 | 28.4 | 31.8 | 31.8 | 32.8 |
| Unemployed | 1.7 | 2.0 | 2.7 | 3.0 | 3.5 | 3.7 |
| Employed | 16.8 | 22.2 | 25.7 | 28.7 | 28.3 | 29.2 |
| Agriculture, fishery, forestry | ... | 9.9 | 11.1 | 11.4 | 10.7 | 10.8 |
| Industry | ... | 3.4 | 4.1 | 4.5 | 4.5 | 4.7 |
| Services | ... | 8.7 | 10.3 | 12.7 | 13.1 | 13.6 |

Source: CEIC database

1/ Defined as employed and unemployed persons as a percent of the population over 15 years old.

Unemployment has been higher among females than males. The female unemployment rate was about 2-2½ percentage points higher than the male unemployment rate in the 1980s and early 1990s, but the gap has narrowed to about 1 percentage point in recent years. Under-employment, however, has been significantly higher among males than females, averaging 24 percent in 2000 for males compared with almost 18 percent for females.

Urban unemployment has been almost twice the rural rate. The urban unemployment rate in 2001 was 14 percent, while the rural unemployment rate was only 8¼ percent (the labor force is about evenly split between rural and urban areas). However, the under-employment rate in rural areas has been higher than in urban areas, suggesting that rural workers are more likely to want additional hours of work than urban workers. Most of the rural workers are employed in the agricultural sector, where part-time and seasonal work is more prevalent than in urban areas.

Employment growth has been strongest in the service sector. Employment in services grew by almost 50 percent in the 1990s, well above growth in the industry sector (30 percent) and agriculture (8 percent). By 2001, the service sector had the largest share of employment at about 47 percent of the total.

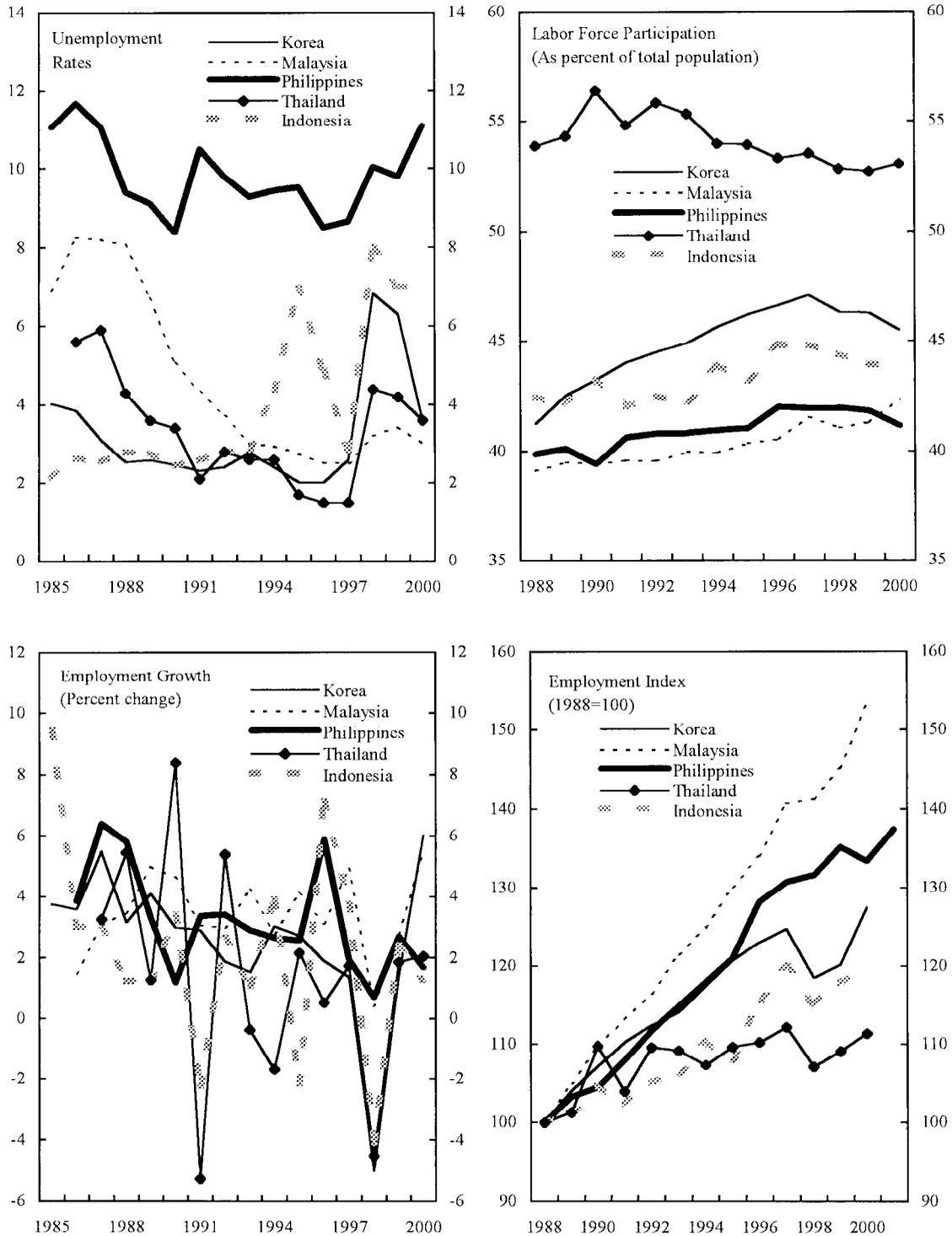
Labor force participation has increased by 6 percentage points over the past twenty years, mainly because of a large increase in participation by women. Nonetheless, the participation rate for males, at 82 percent in 2001, remains well above that for women, at 52 percent.

An important feature of the labor market is the large number of Filipinos working overseas. Partly in response to the lack of job opportunities at home, the number of workers formally deployed overseas has increased substantially and reached 2.9 million by 1999, about 9 percent of the labor force. Worker remittances were equivalent to US\$6.8 billion in 1999 (about 8½ percent of GNP), up from less than US\$1.2 billion in 1990.

III. COMPARISON WITH OTHER COUNTRIES IN THE REGION

The unemployment rate in the Philippines is about twice the rate of other selected countries in the region (Figure 1). While Philippine unemployment began to decline in the late 1980s, the recession in the early 1990s contributed to a jump in the unemployment rate. The Philippines did not experience the sharp increase in unemployment associated with the Asian crisis seen in other countries, but unemployment in the Philippines increased in 2000, as employment growth slowed in the agricultural sector. The sources and methods for calculating unemployment in the Philippines and neighboring countries differs in some respects, but the measurement basis appears broadly comparable (see data annex).

Figure 1. SELECTED ASIAN COUNTRIES: Labor Market Indicators, 1985-2000



Sources: CEIC database and IMF, World Economic Outlook database.

Employment growth in the Philippines has been faster over the past decade than in most other countries in the region, with the notable exception of Malaysia. Employment in the Philippines grew by almost 30 percent in the 1990s, compared with growth of less than 20 percent in Korea, Thailand and Indonesia over the same period. In Malaysia, however, employment grew by about 40 percent in the 1990s, contributing to a significant fall in the unemployment rate from more than 8 percent in 1988 to about 3 percent in 2000.

Employment growth has not been sufficient to reduce the unemployment rate given the increase in population and the rise in the labor force participation rate. Population growth in the Philippines was among the fastest of Asian countries, and was only slightly slower than in Malaysia (Figure 2). The increase in the labor force participation rate in the Philippines was about in line with that experienced in other countries in the region.

The relatively fast employment growth contrasts with relatively slow real GDP growth in the Philippines. In the 1990s, real GDP expanded by only one-third in the Philippines, compared with increases of 50-100 percent in Indonesia, Korea, Malaysia, and Thailand. The high employment growth combined with the slow GDP growth is reflected in the relatively poor labor productivity performance in the Philippines. Labor productivity increased by less than 7 percent in the past decade in the Philippines,⁴ compared with increases of 30-50 percent in the other selected Asian countries.

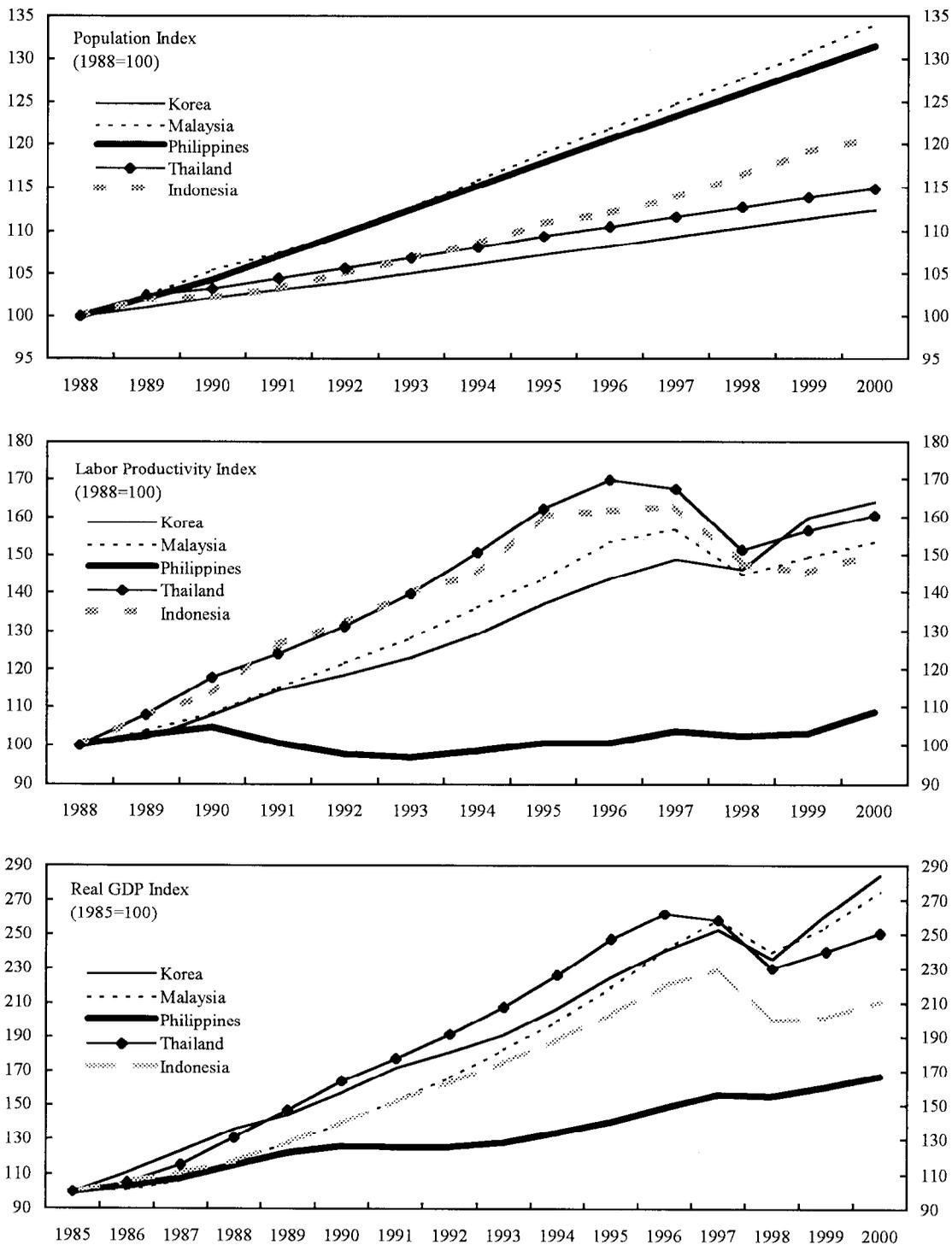
The comparison with Malaysia is perhaps the most interesting. Malaysia and the Philippines had similar rates of population growth over the past two decades, and unemployment in Malaysia was also relatively high in the 1980s. However, the unemployment rate fell in Malaysia in the 1990s while it rose in the Philippines, as employment growth was not high enough to offset the labor force growth, in contrast to Malaysia where employment growth was high enough to more than offset labor force growth. The higher population base in the Philippines (at 76 million in 2000, compared with about 23 million in Malaysia) meant that the number of new jobs required in the Philippines to reduce unemployment was about three times that in Malaysia.

IV. INSTITUTIONAL STRUCTURE OF THE LABOR MARKET

Philippine labor policy supports tripartism, with involvement of the government, employers and unions in labor issues. Tripartism was declared a national policy with the passage of the Labor Code in 1974, itself a product of tripartite discussions. The code prescribed the convening of regular national tripartite conferences on labor issues (which have been held about once a year)

⁴ In part, the slower productivity growth in the Philippines may reflect statistical problems with the national accounts. The national accounts data has not adequately measured the rapid growth of value added in the electronics and information technology sector in the Philippines in the past 5-6 years, yet the household labor force survey has likely measured the increased employment in these sectors. Therefore, growth in both value added and labor productivity are likely understated in the 1990s.

Figure 2. SELECTED ASIAN COUNTRIES: Population, Productivity, and Real GDP Growth



Sources: CEIC database and IMF, World Economic Outlook database.

together with the establishment of tripartite agencies to deal with labor matters. Also, the Labor Code requires the government to assist in job training, job search, monitoring of conditions of employment, health and safety, and labor relations (with involvement of the employers and unions in all these areas).

Wage bargaining centers on the setting of minimum wages, with limited collective bargaining. Since 1989, Regional Tripartite Wages and Productivity Boards have been responsible for setting minimum wages, and comprise representatives of the government, employers and unions (Box 1). A National Wages and Productivity Commission (also with a tripartite composition) reviews the decisions of the regional boards to ensure they are in accordance with the criteria to be used for setting the minimum wage. Collective bargaining at the enterprise level is advocated by government as the ideal way of setting wages and other terms and conditions, but the coverage of collective bargaining has remained relatively limited.⁵

Labor has the right to organize but union membership is relatively small. About 3¾ million workers (12 percent of the labor force) belonged to some 9,000 unions in 1998. The extent of union membership among workers in the sizable electronics sector is limited, as it is in the agriculture sector. Union representatives in the Philippines have expressed concern that employers in some sectors (including the electronics sector) do not treat them as partners in seeking improvements in labor productivity and working conditions.

The National Labor Relations Commission is in charge of resolving labor disputes. The commission has exclusive jurisdiction to decide on disputes related to unfair practices; wages and other terms and conditions of employment; and violation of the legality of strikes. Man days lost to strike action in 1998 (550,000) were about half the level of the early 1990s. Despite this improvement, observers note that the process of resolving labor disputes remains overly legalistic and adversarial.

A Congressional Commission on Labor has been reviewing the Labor Code to ensure that developments in the labor market and the demands of globalization are reflected. Employer groups are seeking a less legalistic approach to the resolution of labor disputes and greater flexibility in working hours (currently restricted to five eight-hour days a week). The Department of Labor also notes the need for the Labor Code to conform with International Labor Organization (ILO) conventions ratified by the Philippines.⁶

⁵ Only about 500,000 out of 29 million workers are covered by Collective Bargaining Agreements.

⁶ The Philippines recently ratified the anti-child labor conventions No. 138 and No. 182, bringing to seven the number of conventions ratified out of the eight fundamental ILO conventions. The Philippines is working toward ratification of the remaining fundamental convention (No. 29) on forced labor.

Box 1. Determination of the Minimum Wage

Prior to 1989, the Philippine Congress determined minimum wages, with no variation by region or industry. The Legislature would set the minimum wage after public hearings and consultations with employers, unions, and government agencies. Wage adjustments were made irregularly, depending on the extent of public demands for an increase. The main objective of setting a minimum wage was to protect workers from exploitation that may arise from imperfections in the labor market. The minimum wage was to be set at a level sufficient for workers to meet basic living requirements and thereby enable a more equitable sharing of national income.

In 1989, the Regional Tripartite Wage and Productivity Boards were established to take over responsibility for setting minimum wages from the Philippine Congress, in an effort to have the minimum wage better reflect regional and industry variation in economic conditions. The regional wage boards are comprised of three government representatives, two employer group representatives and two union representatives. The Boards conduct public hearings before deliberating on the minimum wage adjustment for their region. The Philippine Congress, however, can still legislate the minimum wage, if it were an across-the-board adjustment for the nation as a whole.

In determining minimum wages, the regional boards must consider a range of criteria, including the following:

- the demand for living wages;
- wage adjustment vis-à-vis the consumer price index;
- the need to induce industries to invest in the countryside (where the cost of living is lower);
- the fair return on capital invested and capacity to pay of employers; and
- effects on employment growth and family income.

The frequency of wage adjustments is usually not more than once every 12 months (usually in October-December). Adjustments could be more frequent if there are extraordinary increases in petroleum prices or basic goods and services.

The regional boards are authorized to exempt certain firms from paying the minimum wage. These typically include new establishments, distressed firms, and establishments with less than 10 workers.

Compliance with the minimum wage requirements, however, is a problem. Of the almost 50,000 establishments inspected by government in 1999, 19 percent were found to have been violating the minimum wage order for their region.

There is no formal government-funded unemployment income support scheme in the Philippines. The tradition of strong family ties, together with the sizable flow of remittances from workers abroad, provides income support for the unemployed. The government, however, provides a number of services, including job search facilities through an internet-based job matching services, and employment creation assistance through the Public Employment Service Office. The government also sponsors a number of job training initiatives in the private sector and administers the deployment of Filipino workers overseas through the Philippine Overseas Employment Administration.

V. FACTORS AFFECTING EMPLOYMENT GROWTH IN THE PHILIPPINES

The factors behind employment growth in the Philippines are examined in a simple model that regresses the level of employment on output and the minimum wage (deflated by product prices), as follows.⁷

$$\log(\text{employment}) = \alpha \log(\text{real GDP}) + \beta \log(\text{minimum wage/price index}) + \text{constant} \\ + \text{seasonals}$$

The equation is estimated using the cointegration approach (the Johansen method in PC FIML). The advantage of this approach is that it enables analysis of the variables in level form (which all tested as non-stationary, I (1) variables).⁸

The data is explained in the data annex. Employment is derived from the quarterly household labor survey and the minimum wage was used because of the absence of better wage data (a weakness that needs to be addressed to facilitate better analysis). The use of the minimum wage may imply weaker statistical results for the wage variable in the equation if decisions by firms are based on wages that are higher than the minimum (or reflect non-wage costs),⁹ that are not correlated with the minimum wage.

⁷ This approach assumes that the underlying technology is a CES production function, following Ferguson (1969). A cost function for labor can be derived from the production function, as specified in the equation.

⁸ The use of simple Ordinary Least Squares analysis of levels data would likely give rise to spurious regression results, hence the use of cointegration. Moreover, analysis of the change in employment (to ensure stationarity of the variables) would not pick up information in the trends that are clearer in the level data.

⁹ A survey conducted by the Bureau of Labor and Employment Statistics that covered non-agricultural establishments employing at least 20 persons in 1998, found that wages and salaries comprised almost 80 percent of total labor costs. The remaining labor costs included bonuses and gratuities, social security expenses, and payments in kind. The annual salary and wage costs per employee were about 107,000 pesos in 1998, compared with the annualized minimum wage (continued...)

The results from estimating the above equation for aggregate employment show a close correlation between output and employment (Table 2). The coefficient on real GDP is estimated at 0.68-0.93, with the results depending on the sample period (with a somewhat lower coefficient for the 1990s only) and on whether the GDP deflator (a proxy for prices faced by the firm) or the consumer price index (CPI) is used to deflate the minimum wage. The results imply that a 10 percent increase in real GDP is correlated with a 7-9 percent increase in employment. Importantly, the results should not be misinterpreted as implying causality between output and employment—they merely indicate a correlation without testing for the direction of causality.

The estimation results are less robust for the minimum wage. For the full sample period, the minimum wage was not found to be significantly correlated with employment. However, for the 1990s, the period when the minimum wage was set regularly by Regional Boards, a significant negative correlation was found. The results for the equation based on the 1990s suggest that a 10 percent rise in the minimum wage is correlated with a fall in employment of about 5-6 percent over the long run. The overall statistical results for the shorter sample period are not as strong, however, given that the cointegration test is not significant (in contrast, for the full sample, the null hypothesis of no cointegration could not be rejected).

Employment equations were also estimated for the three major sectors of the economy, and show similar results to the aggregate equations (Table 3).¹⁰ The coefficients for real value added in the respective sectors range from 0.73 for agriculture to 1.0 for services, which implies that a 10 percent increase in output is correlated with a 7-10 percent increase in employment in these sectors.

The minimum wage was found to be significantly and negatively correlated with employment for the agriculture and services sectors. The results suggest that a 10 percent rise in the real minimum wage is correlated with a 4.3 percent decline in employment in agriculture and a 2.8 percent decline in employment in services. The significance of the minimum wage for agriculture is somewhat surprising, given that about three-quarters of the workers in this sector are not directly subject to minimum wage legislation, as they are unpaid family workers or work on their own account. However, the statistical results suggest either that: (1) employment of the one-quarter of workers in agriculture subject to the minimum wage is sensitive to changes in the minimum wage; and/or (2) that an increase in the minimum wage in other sectors may draw

of 26,000-46,000 (assuming 250 working days annually—the range reflects the regional variation in the minimum wage in 1998, with a low of 104 pesos per day and a high of 187 pesos per day).

¹⁰ Data are only available for employment by sector since the late 1980s. For the industry and service sector equations, the sample period was shortened to begin in 1991:1 and 1990:2 respectively, due to instability in the coefficients for the full period from 1989:2.

Table 2. Philippines: Aggregate Employment Equations 1/
(Cointegration Analysis)

| Explanatory variable | Full sample (using GDP deflator) 2/ | Full sample (CPI) 2/ | 1990's (using GDP deflator) | 1990's (CPI) |
|---|---|-------------------------|-----------------------------------|-------------------|
| Log (real GDP) | 0.90** | 0.93** | 0.68** | 0.88** |
| Log (real minimum wage) | 0.001 | -0.05 | -0.63* | -0.55** |
| Lags in analysis | 1 | 1 | 1 | 1 |
| Sample period | 1983:3- 2000:2 | 1983:3- 2000:2 | 1990:2- 2000:2 | 1990:2- 2000:2 |
| λ^a Max 3/ 95 percent confidence level | 24.0* 21.0 | 24.6* 21.0 | 16.7 21.0 | 17.8 21.0 |
| λ^a Trace 3/ 95 percent confidence level | 33.1* 29.7 | 37.1** 29.7 | 27.4 29.7 | 27.8 29.7 |

1/ The employment equation is specified as follows: $\log(\text{employment}) = \alpha \log(\text{real GDP}) + \beta \log(\text{minimum wage/price index}) + \text{constant} + \text{seasonals}$.

2/ Indicates whether the GDP deflator or the Consumer Price Index was used to deflate nominal wages to obtain a measure of real wages.

3/ The maximum and trace statistics provide a test of the null hypothesis of no cointegration using the Johansen approach. If the test statistic is significant, the null hypothesis can be rejected.

** indicates that the coefficient is statistically significant at the 5 percent level, * indicates significance at the 10 percent level.

Table 3. Philippines: Employment Equations by Sector 1/
(Cointegration Analysis)

| Long Run | Agriculture | Industry | Services |
|--|-------------------|-------------------|-------------------|
| Log (real value added for the sector) | 0.73** | 0.79** | 1.0** |
| Log (real minimum wage) | -0.43** | -0.07 | -0.28** |
| Lags in analysis | 1 | 1 | 1 |
| Sample period | 1990:2- 2000:2 | 1991:1- 2000:2 | 1990:2- 2000:2 |
| λ^a Max 95 percent confidence level | 21.0* 21.0 | 20.0 21.0 | 24.6* 21.0 |
| λ^a Trace 95 percent confidence level | 34.3* 29.7 | 32.2* 29.7 | 47.1** 29.7 |

1/ The employment equation is specified as follows: $\log(\text{employment}) = \alpha \log(\text{real GDP}) + \beta \log(\text{minimum wage/price index}) + \text{seasonals}$.

Note: For the agriculture equation, the coefficient on wages is a larger negative when the consumer price index is used to deflate wages rather than the GDP deflator for agriculture. For the industry equation, a shorter sample period was used as the coefficients appeared unstable when the full 1990's sample period was used. The wholesale price index was used to deflate the minimum wage for industry—using the GDP deflator to deflate the minimum wage also showed an insignificant, but positive, coefficient for the real minimum wage.

** indicates that the coefficient is statistically significant at the 5 percent level, * indicates significance at the 10 percent level.

workers away from agriculture (which is often seen as a fall-back occupation when employment in non-agriculture sectors is not available). The result for services is not surprising given that almost two-thirds of workers in this sector are in formal employment (and subject to minimum wage legislation). For the industry sector, the minimum wage was not significantly correlated with employment.

The following table summarizes the findings of the regression analysis and shows that the change in real GDP was the main factor correlated with the change in employment. In the 1990s, total employment increased by 28¾ percent, with the equation suggesting that 34½ percentage points of the change was related to real GDP growth and negative 3 percentage points was related to the increase in real minimum wages (Figure 3). A remaining almost 3 percentage points is unexplained by the equation. The negative relationship with the minimum wage is the most significant for the agriculture sector equation, with a negative 10 percentage point contribution from the real wage to employment growth. The fall in the real minimum wage in the service sector (by about 14 percent in the 1990s, due to a larger increase in the GDP deflator in this sector than in other sectors) was related to a 4 percent increase in employment. Nonetheless, a sizable unexplained residual remains for several equations, which may be because the equations are specified in levels and take no account of the dynamic adjustment to the long term equilibrium relationship.

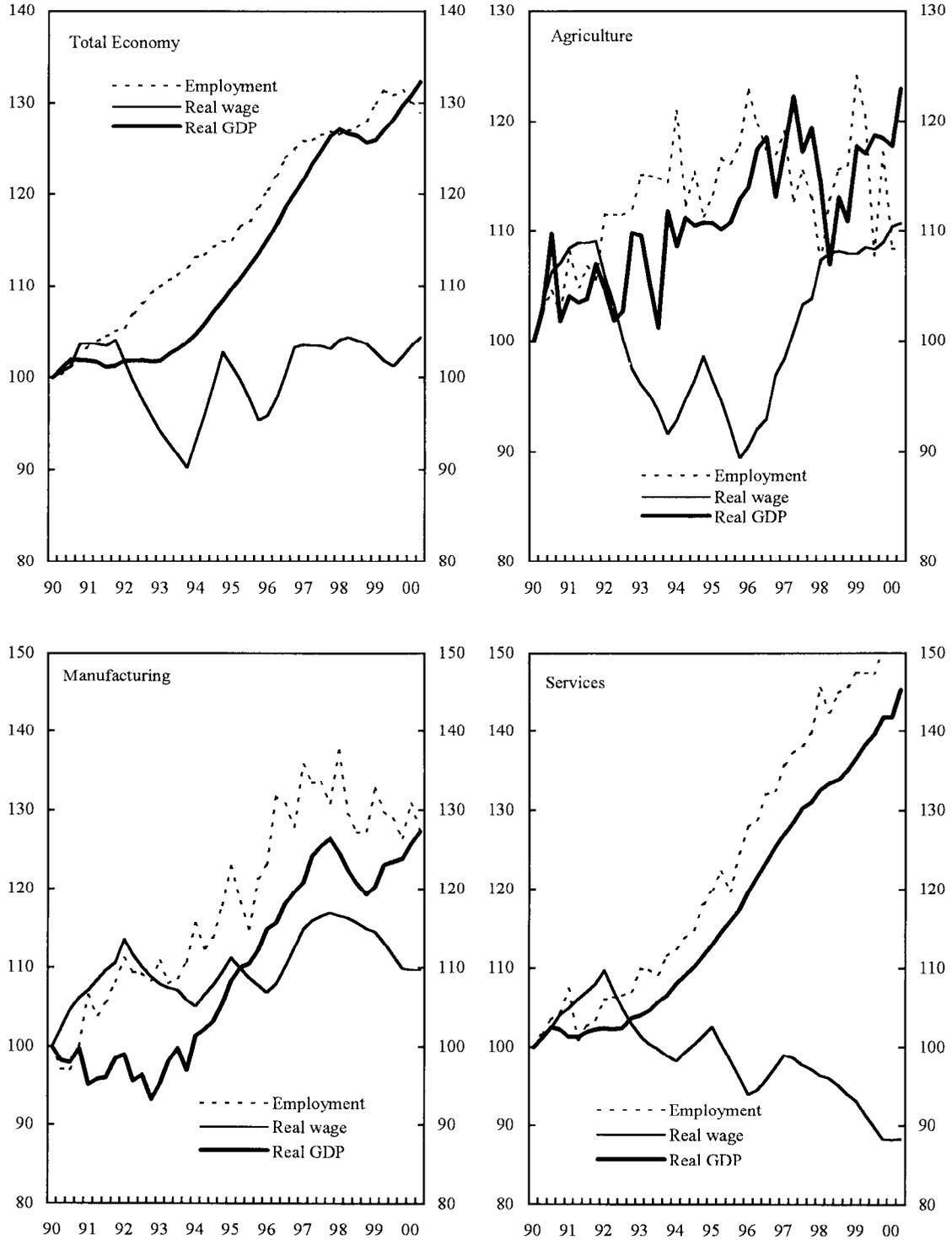
Philippines: Factors Related to Employment Growth

| | Agriculture | Industry | Services | Total 1990s 1/ | Total 1984-2000 1/ |
|--|-------------|----------|----------|-------------------|-----------------------|
| Actual Percent change in Employment 1/ | 3.6 | 25.6 | 53.1 | 28.7 | 54.8 |
| Fitted percentage point contribution of: (from equations in Tables 2 and 3) | | | | | |
| Real GDP growth | 17.6 | 27.9 | 50.6 | 34.6 | 47.1 |
| Real minimum wage | -10.1 | -1.8 | 4.0 | -3.1 | -1.9 |
| Unexplained | -3.9 | -0.5 | -1.5 | -2.8 | 9.6 |

1/ From 1989:2 to 2000:2, unless otherwise stated.

2/ Using the minimum wage deflated by the CPI.

Figure 3. PHILIPPINES: Employment, Real GDP, and Real Wages, 1990-2000
(1990=100)



Sources: CEIC database, and Fund staff calculations.

Direct estimation of the unemployment rate in a reduced form equation is consistent with the above results (Table 4).¹¹ The results suggest that the unemployment rate was:

- positively autocorrelated, with the first lag of the unemployment rate the most significant;
- negativity related to lagged output growth, showing that an increase in output growth is related to a fall in unemployment (with the first lag the most significant); and
- positively related to changes in the minimum wage (deflated by the CPI), suggesting that an increase in the minimum wage is related to a rise in the unemployment rate (with the first and third lags the most significant).

There is also some evidence that the increase in remittances from Filipino workers overseas in the 1990s was positively related to the unemployment rate (Table 5). This suggests that remittances from abroad provide income while workers search for a new job. The results for this equation, however, show that inclusion of remittances makes the minimum wage variable less significant than in the earlier equation (in Table 4).

VI. FACTORS AFFECTING THE MINIMUM WAGE

Given the negative correlation between the minimum wage and employment, it may be useful to understand the factors influencing the determination of the minimum wage. A wage equation is estimated as follows (following Layard, Nickell, and Jackman (1991)):

$$\log(\text{nominal wage}) = \alpha \log(\text{consumer price index}) + \beta \log(\text{productivity}) + \gamma \log(\text{unemployment rate}) + \text{constant} + \text{seasonals}$$

¹¹ The reduced form equation is specified as follows: $\log(\text{unemployment rate}) = \alpha \log(\text{unemployment rate}) + \beta \Delta \log(\text{real GDP}) + \gamma \Delta \log(\text{minimum wage/cpi}) + \text{constant} + \text{seasonals}$. Given that statistical tests suggest that the unemployment rate may be stationary, the quarterly change in real GDP and the minimum wage were used to obtain stationary explanatory variables, and the equation was estimated using Ordinary Least Squares.

Table 4. Philippines: Unemployment Equation
(Ordinary Least Squares Analysis)

| Dependent variable: log (unemployment rate) | | |
|---|----------------|-------------|
| Explanatory variables: | Coefficient | T-statistic |
| Constant | 0.66 | 2.36** |
| log (unemployment rate) | | |
| First lag | 0.50 | 3.39** |
| Second lag | 0.22 | 1.5 |
| Third lag | 0.02 | 0.1 |
| Fourth lag | -0.18 | 1.3 |
| Fifth lag | -0.05 | 0.4 |
| Sixth lag | 0.19 | 1.5 |
| Δ log (real GDP) | | |
| First lag | -1.80 | 2.86** |
| Second lag | -0.16 | 0.2 |
| Third lag | -0.50 | 0.7 |
| Fourth lag | -0.62 | 0.9 |
| Δ log (minimum wage/cpi) | | |
| First lag | 0.46 | 2.06** |
| Second lag | 0.12 | 0.54 |
| Third lag | 0.38 | 1.67* |
| Fourth lag | -0.26 | 1.10 |
| Plus Seasonals | | |
| Sample period | 1983:3-2000:2 | |
| R-squared | 0.83 | |
| Durbin Watson statistic | = 2.03 | |
| AR 1-3 F(5,43) | = 2.10 (0.08)* | |
| ARCH 4 F(4, 40) | = 1.35 (0.26) | |
| Normality Chi sq. (2) | = 2.25 (0.32) | |
| Reset test F(1, 47) | = 0.47 (0.49) | |

** indicates that the coefficient is statistically significant at the 5 percent level, * indicates significance at the 10 percent level. Figures in brackets, i.e, (), indicate significance levels.

Table 5. Philippines: Unemployment Equation (including remittances)
(Ordinary Least Squares Analysis)

| Dependent variable: log (unemployment rate) | | |
|---|----------------|-------------|
| Explanatory variables: | Coefficient | T-statistic |
| Constant | 1.38 | 3.45** |
| log (unemployment rate) | | |
| First lag | 0.61 | 3.75** |
| Fourth lag | -0.28 | 1.89* |
| Δ log (real GDP) | | |
| First lag | -1.27 | 1.01 |
| Fourth lag | -1.86 | 1.71* |
| Δ log (minimum wage/cpi) | | |
| Third lag | 0.41 | 1.31 |
| Δ log (remittances per capita/cpi) | | |
| First lag | 0.10 | 1.55 |
| Fourth lag | 0.14 | 2.06** |
| Plus seasonals | | |
| Sample period | 1990:4-2000:2 | |
| R-squared | 0.87 | |
| Durbin Watson statistic | = 1.95 | |
| AR 1-3 F(3,25) | = 0.76 (0.52) | |
| ARCH 4 F(3, 22) | = 0.49 (0.70) | |
| Normality Chi sq.(2) | = 3.94 (0.14) | |
| Reset test F(1, 27) | = 3.79 (0.06)* | |

** indicates that the coefficient is statistically significant at the 5 percent level, * indicate significance at the 10 percent level. Figures in brackets, i.e., (), indicate significance level. Note—the above equation was obtained after excluding lags of each variables that were no significant at the 2025 percent level. A shorter sample period was used then for Table 4 as remittance data was available from 1990 only.

The estimation results (again using cointegration) suggest that the minimum wage is correlated with the CPI and unemployment rate but less so with productivity (Table 6). The results show that a 10 percent increase in the CPI is correlated with an 11-13 percent increase in the minimum wage rate, depending on the sample period used. The unemployment rate is negatively correlated with the minimum wage, suggesting that regional wage boards take into account labor market conditions in setting the minimum wage (as required by the criteria used to set the minimum wage).¹² Productivity is significant in the equation for the 1990s sample period when the unemployment rate is excluded, suggesting that the regional wage boards may have taken some account of productivity developments in setting the minimum wage.

Table 6. Philippines: Minimum Wage Equation 1/
(Cointegration Analysis)

| Explanatory variable | Full sample | 1990's | 1990's (ex unemployment rate) |
|--|-------------------|-------------------|-------------------------------------|
| Log (consumer price index) | 1.27** | 1.23** | 1.12** |
| Log (productivity) | -0.43 | 0.59 | 0.69* |
| Log (unemployment rate) | -0.7** | -0.36* | ... |
| Lags in analysis | 1 | 1 | 1 |
| Sample period | 1983:3- 2000:2 | 1990:1- 2000:2 | 1990:1- 2000:2 |
| λ^a Max 95 percent confidence level | 31.5** 27.0 | 27.4** 27.0 | 27.1** 21.0 |
| λ^a Trace 95 percent confidence level | 87.6** 47.2 | 56.1** 47.2 | 44.3** 29.7 |

1/ The employment equation is specified as follows: $\log(\text{nominal minimum wage}) = \alpha \log(\text{consumer price index}) + \beta \log(\text{productivity}) + \gamma \log(\text{unemployment rate}) + \text{constant} + \text{seasonals}$

** indicates that the coefficient is statistically significant at the 5 percent level, * indicates significance at the 10 percent level.

¹² The unemployment rate is not a strongly trending variable (i.e., it is likely a stationary or I(0) variable), hence it strictly should not be included in the cointegration equation. Therefore, the results of the cointegration equation including unemployment should be treated with caution.

VII. CONCLUSION

Unemployment has remained high in the Philippines, at almost twice the level of some neighboring countries, despite a relatively strong rise in employment. Job growth was not fast enough to reduce the unemployment rate, given rapid population growth and increased labor force participation in the Philippines.

This paper found that employment growth and the unemployment rate were strongly correlated with real GDP growth in the Philippines. In particular, a 10 percent increase in real GDP was correlated with a rise in total employment of around 7-9 percent. Similar results were shown for the agriculture, industry and services sectors. The unemployment rate was also found to be negatively correlated with real GDP growth.

A less robust correlation was found between employment and the minimum wage. The results show that a 10 percent increase in the real minimum wage was correlated with a 5-6 percent decline in aggregate employment in the 1990s. The analysis by sector showed a somewhat weaker relationship, with employment in agriculture and services more sensitive to the minimum wage than employment in the industry sector. The unemployment rate was also positively correlated with increases in the real minimum wage.

A key policy implication is that higher economic growth and moderate increases in the real minimum wage are required to reduce unemployment to a level more consistent with other countries in the region. In turn, this will require sustained implementation of a comprehensive policy package focused on macroeconomic stability, structural reform, poverty reduction, and better governance (see for example, IMF Occasional Paper 187, *Philippines: Toward Sustainable and Rapid Growth*, 1999). Moreover, the results suggest that excessive increases in the minimum wage, not justified by price inflation or productivity increases, will likely adversely affect employment growth, especially in the agriculture and service sectors.

A reduction in population growth may reduce pressures on the job market, and on economic infrastructure more generally, but the impact would only be felt in the long run. Even if the birth rate fell sharply in coming years, the population entering the workforce (i.e., those over 15 years old) would likely grow relatively quickly for the next 15 years (at about 2 percent per year) given that more than one-third of the current population is less than 15 years old. The continued growth in the work force underscores the need for strong policies to support sustained economic growth and thereby create jobs for the new entrants.

References

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Labor Force Survey

Data on the labor force, employment and unemployment (presented in Table 1) is derived from the Labor Force Survey. The survey covers 41,000 households and is conducted four times a year, in January, April, July and October. The reference period for the survey is the week prior to the survey interview. The definitions used in the survey are as follows:

Labor force: persons 15 years old and over who are either employed or unemployed.

Employed: persons 15 years old and over who: (1) worked for one hour or more during the reference period for pay or profit (or without pay on the farm or business enterprise operated by a member of the same household); or (2) have a job but are not at work because of temporary illness/injury, vacation, or other reasons.

Unemployed: persons who have no job/business and are actively looking for work. Also considered unemployed are persons without a job or business who are not looking for work because of their belief that no work was available or because of temporary illness/disability, bad weather, or pending job interviews.

Underemployed: employed persons who express the desire to have additional hours of work in their present job or an additional job, or to have a new job with longer hours.

Comparison with neighboring countries

The statistical basis of the above data is similar to that in neighboring countries such as Indonesia, Korea, Thailand, and Malaysia.¹³

In Indonesia, data is derived from a quarterly National Labor Force Survey, based on concepts that are being similar to the Philippine data except that unemployment is defined more narrowly. Unemployment excludes those not actively seeking work because of the belief that no jobs are available, whereas these persons are recorded as unemployed in the Philippines. Employment is defined broadly the same as in the Philippines, except that it covers persons aged 10 years and over (compared with 15 years and over in the Philippines).

In Malaysia, data is derived from a quarterly Labor Force Survey, with unemployment defined in the same way as in the Philippines. The main difference is that persons aged 65 and over are excluded from the employment and unemployment data, whereas they are included in the Philippines. Unemployment is defined in much the same way as in the Philippines, with a distinction made between those actively seeking work and those “inactively unemployed” who did not seek work during the reference week (because they did not believe work was available

¹³ See the International Labor Organization website laborsta.ilo.org for further details.

or those who would have looked for work if they had not been temporarily ill, faced bad weather, or were awaiting answers to job applications).

In Korea, a monthly survey of the labor force is the basis for the data, with the definitions broadly comparable with the Philippines. The survey covers those aged 15 years and over, with the main difference with the Philippines being for unpaid family workers (they need to work for 18 hours or more to be counted as employed in Korea, compared with only one hour in the Philippines). Unemployment is defined much as in the Philippines.

In Thailand, data are based on a survey taken three times a year and the definitions are similar to the Philippines. The survey covers those aged 15 years and over since 1996 (and 13 years and older before that) who worked for at least one hour for wages, dividends or other forms of payment (or those temporarily out of work). The unemployed are defined much the same way as in Korea, Malaysia, and the Philippines.

Data used for modeling

Employment and unemployment data used in the paper are derived from the labor force survey outlined above, and is available from 1982.

Wage data used for modeling is based on a weighted average of the minimum wage¹⁴ as no other consistent and timely data for labor costs is available. Average monthly compensation of paid employees is available from the Annual Survey of Establishments conducted by the National Statistics Office, but the latest data is for 1995. An index of compensation per employee is also published by the National Statistics Coordination Board, but is derived simply as total compensation divided by total employment and therefore is unadjusted for changes in skill levels of the workforce.¹⁵ Better wage data is needed to facilitate labor market analysis. In particular, a labor cost index is needed that adjusts for quality changes in the labor force.

Real gross domestic product data is derived from the Philippine National Accounts, as is data for the GDP deflator. Seasonally adjusted GDP data is used.

¹⁴ The minimum wage for Manila and outside Manila are weighted together using employment. A distinction is made between the minimum wage for agriculture and non-agriculture (with the latter used in the industry and services employment equations).

¹⁵ For example, the index of compensation per employee for manufacturing fell by about half in the 1990s (in constant price terms), apparently because a growing share of lower paid jobs lowered the average compensation for the sector as a whole.