Determinants of Unemployment in the Philippines

Thirunaukarasu Subramaniam

Department of Southeast Asian Studies, University of Malaya, Kuala Lumpur, Malaysia
Email: stkarasu@um.edu.my

Ahmad Zubaidi Baharumshah

Department of Economics, University Putra Malaysia, Malaysia
Email: baharumshah@yahoo.com

Abstract: This paper examines the determinants of unemployment in the Philippines using the Autoregressive Distributed Lag Method (ARDL). This study reveals that the Philippines labour market may be affected by a structural unemployment problem. Political instability may also retard economic growth and aggravate the unemployment problem in the Philippines. Thus, it is important for the Philippines stakeholders to engage in active labour market policies. At the same time, maintaining a stable government is also crucial to the Philippines economy.

Keywords: Political change, unemployment, Philippines

JEL Classification Numbers: E24

I. Introduction

Determinants of unemployment include job vacancy, economic growth, foreign direct investment, exports and government spending. Downes (1998) analyzed the unemployment issue in Trinidad and Tobago and concluded that economic growth plays a dominant role in unemployment reduction. Other factors deemed important by Downes include increases in real wages and real loan, which adversely affects the unemployment rate especially in the long-run. Kooros (2006) highlighted an inverse relationship of unemployment with Gross National Product (GNP), discount rate and inflation, but a positive relationship with the wage rate in the case of the United States. The impact of active monetary policy on unemployment in the Philippines was analysed by Canlas (1997) and the author concluded that active monetary policy is not effective in

1 The authors wish to thank the participants of International Network for Economic Research (INFER) Workshop entitled “Changes in the Labour Market and Challenges of the 21st Century” held at University of Rovira I Virgili, Tortosa, Spain from 10th -11th of April 2008 for their constructive comments and suggestions.
unemployment reduction, as it only produces a temporary decline in unemployment and the downside will be the permanent inflation rate that ushers in.

Trivedi and Baker (1985) concluded that a rise in unemployment in Australia is related to rise in real unit labour costs, lagged unemployment and real unemployment benefits (prior to 1975), and a decline in the rate of capacity utilization. Valentine (1993) asserted that the growth in real unit labour costs is the main cause for an increase in unemployment in Australia.

Christopoulos and Tsionas (2002) suggested that a reduction of the government sector is an additional channel through which employment could grow faster. Barro (1991) and Scully (1989) opined that there is an inverse relationship between government size and economic growth. On the other hand, Abrams (1999) highlighted a positive relationship between unemployment and government size.

Driffield and Taylor (2000) in their analysis on foreign direct investment (FDI) and the labour market found that FDI potentially increases wage inequality and the use of relatively more skilled labour in domestic firms. Ruane and Gorg (1999) showed that in the Republic of Ireland, FDI contributed to aggregate employment. Seyf (2000) in his study on the unemployment problem in the European Union (EU) concluded that the same volume of FDI created more jobs in Germany compared to any other EU countries. The author also concluded that it is unlikely that encouraging FDI would enable European countries to reduce unemployment substantially.

Teo et al. (2004) studied the unemployment-vacancy relationship for Singapore, Japan, Hong Kong and Taiwan and concluded that these countries are experiencing greater unemployment and low vacancies. According to the authors, the higher negative coefficient obtained for the vacancy rate in Singapore suggests that Singapore’s labour market is experiencing higher matching efficiency compared to Japan and Korea.

Figure 1 below shows the economic growth, unemployment and job vacancy rate in the Philippines from 1974 to 2003. The economic growth was negative in the Philippines during the period of 1984-1985, 1991-1992 and 1998. Unemployment during these periods were also found to be high. In the 1980s and 1990s, the economic growth in the Philippines had not exceeded 5 percent. In 2000, two years after the 1997 Asian financial crisis, the economic growth in the Philippines was 3.90 percent. Even with positive economic growth, the unemployment rate remains high in the Philippines.
When economic growth was the lowest in 1985, unemployment rate increased. A severe recession in 1984-85 saw the economy shrink by more than 10 per cent, and perceptions of political instability during the Aquino administration further dampened economic activity.\(^2\)

The economic downturn of the early 1980s was very damaging to the Philippines, which slid into a full-fledged depression because of the worsening terms of trade, a large accumulation of foreign debt that led to a stoppage of international credit, and the collapse of the manufacturing sector (Galenson, 1992). It is obvious that the Philippines economy is simply not able to create enough jobs, causing the unemployment rate to reach double-digit. The slow economic growth in the Philippines coupled by political instability could be the potential causes.

The impact of political change on unemployment is rather neglected. Thus, this study intends to look at the impact of political change on unemployment in the Philippines. With this in mind, the objectives of this paper are organized as follows:

a. to determine whether there exists a long-run relationship among unemployment, job vacancy, FDI, economic growth, government spending and inflation;
b. to identify the main macroeconomic variables that determines unemployment in the Philippines;

c. to analyse the impact of political change on unemployment.

The organization of this paper is as follows. Section 2 briefly explains the data sources; Section 3 discusses the model specification; Section 4 look at the methodology; Section 5 gives the empirical results and Section 6 concludes.

2. Data

Secondary data will be utilized in this research. This data is obtained from World Development Indicator 2006 CD-ROM, published by the World Bank. Data used in this study is annual data that covers the period from 1974 to 2003. Data on job vacancy rate for the Philippines was obtained from Yearbook of Labor Statistics, published by the Department of Labour and Employment Philippines.

3. Model Specification

Based on the unemployment models developed by Phelps (1994), Layard and Nickell (1986), Assarson and Janson (1998) and Teo et al, (2004), we posit the following specification to determine the unemployment rate for the Philippines.

\[ UR_t = \beta_0 + \beta_1 VR_t + \beta_2 EG_t + \beta_3 GOV_t + \beta_4 FDI_t + \beta_5 INF_t + \beta_6 DUM + \epsilon_t \]  

where \( UR_t \) is the unemployment rate; \( VR_t \) is the job vacancy rate; \( EG_t \) is the economic growth; \( GOV_t \) is the government spending; \( FDI_t \) is foreign direct investment; \( INF_t \) is the inflation rate; and \( DUM \) is the dummy variable. Variable \( DUM \) is represented by \( DUM1 \) (which represents the 1997 Asian economic crisis) and \( DUM2 \) (which represents the 1986 Philippines Revolution). The expected signs for all coefficients are expected to be negative as per the theory.

4. Methodology

Pesaran et al. (2001) suggested the use of the Autoregressive Distributed Lag Model (ARDL) approach when the time series under study comprise of a mixture of I(0) and I(1) and it is small in sample size. The Unrestricted Error Correction Model (UECM) or error correction version of the ARDL approach can be written as follows:

\[
DU_R^k = b_0 + \sum_{i=0}^{m} b_i DUR_{t-i}^k + \sum_{i=0}^{m} b_{2i} DEG_{t-i}^k + \sum_{i=0}^{m} b_{3i} DGOV_{t-i}^k + \sum_{i=0}^{m} b_{4i} DFDI_{t-i}^k + \sum_{i=0}^{m} b_{5i} INF_{t-i}^k + b_7 UR_{t-i}^k + b_8 VR_{t-i}^k + b_9 EG_{t-i}^k + b_0 FDI_{t-i}^k + b_1 INF_{t-i}^k + u_t 
\]  

(2)
\[ DUR^{k}_t = b_0 + \sum_{i=0}^{m} b_{1i} DUR^{k}_{t-i} + \sum_{i=0}^{m} b_{2i} DEG^{k}_{t-i} + \sum_{i=0}^{m} b_{3i} DGOV^{k}_{t-i} + \sum_{i=0}^{m} b_{4i} DFDI^{k}_{t-i} + \]
\[ \sum_{i=0}^{m} b_{5i} INF^{k}_{t-i} + b_{6i} UR^{k}_{t-i} + b_{7i} VR^{k}_{t-i} + b_{8i} EG^{k}_{t-i} + b_{9i} GOV^{k}_{t-i} + b_{10i} FDI^{k}_{t-i} + \]
\[ b_{11i} INF^{k}_{t-1} + \alpha_{12} DUM_{1} + u_{1t} \] (3)
\[ DUR^{k}_t = b_0 + \sum_{i=0}^{m} b_{1i} DUR^{k}_{t-i} + \sum_{i=0}^{m} b_{2i} DEG^{k}_{t-i} + \sum_{i=0}^{m} b_{3i} DGOV^{k}_{t-i} + \sum_{i=0}^{m} b_{4i} DFDI^{k}_{t-i} + \]
\[ \sum_{i=0}^{m} b_{5i} INF^{k}_{t-i} + b_{6i} UR^{k}_{t-i} + b_{7i} VR^{k}_{t-i} + b_{8i} EG^{k}_{t-i} + b_{9i} GOV^{k}_{t-i} + b_{10i} FDI^{k}_{t-i} + \]
\[ b_{11i} INF^{k}_{t-1} + \gamma_{12} DUM_{2} + u_{3t} \] (4)

where \( D \) represent the first difference operator; \( m \) represent the lag length selected based on the Akaike Information Criteria (AIC); \( u_{1t}, u_{2t} and u_{3t} \) are normally distributed residuals. The bounds test developed by Pesaran et Al. manipulates the F-statistic by imposing certain restrictions on the level lagged variables. The null and alternative hypotheses are as follows:

\[ H_0 : b_6 = b_7 = b_8 = b_9 = b_{10} = b_{11} = 0 \] (5)
\[ H_1 : b_6 \neq b_7 \neq b_8 \neq b_9 \neq b_{10} \neq b_{11} \neq 0 \] (6)

The null hypothesis above indicates that the long-run relationship is non-existent in the three models. Vice versa, the alternative hypothesis, indicates that at least one of the \( b_i \) is not equal to zero. The F-value test (Wald test) computed after imposing the restrictions will be compared with critical bound values as proposed by Pesaran et al. The null-hypothesis of a non-existence of a long-run relationship can be rejected if the computed F-value exceeds the upper critical bound. Vice versa, the null of no cointegration cannot be rejected if the computed F-value falls below the lower bound. A conclusive inference cannot be made if the F-value computed falls between the upper and the lower bound.

Equations 2, 3 and 4 above, augment the short-run as well as the long-run effects. The short-run effect is captured by the coefficients of the first-differenced variables. The long run coefficients can be obtained by multiplying the coefficients of the one-lagged explanatory variables with a negative sign and subsequently dividing the values obtained with the coefficient of one-lagged dependent variable (Barsden, 1989; Tang, 2002).
5. Empirical Results

Table 1 summarizes the results of the unit root test, which employs the Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) tests for the Philippines. All series namely UR, VR, EG, GOV, FDI and INF are found to be a mixture of I(0) and I(1) for the Philippines. This gives us a good basis to employ the ARDL cointegration approach. The unit root test is performed in order to differentiate stationary and non-stationary series and at the same time to determine whether the variables under investigation is I(0) or I(1) processes. Determination of the order of integration is important in order to identify the use of appropriate cointegration techniques. The lag length selection for the ADF test is based on the AIC, whereas for the PP test, the Newey-West bandwidth is allowed to automatically choose the optimal lag-length.

Table 1: Unit Root Test

<table>
<thead>
<tr>
<th>Variables</th>
<th>ADF</th>
<th>PP</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C&amp;T</td>
<td>C&amp;T</td>
</tr>
<tr>
<td>Panel I: Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UR</td>
<td>-1.903</td>
<td>-0.525</td>
</tr>
<tr>
<td>VR</td>
<td>-0.106</td>
<td>-0.720</td>
</tr>
<tr>
<td>FDI</td>
<td>-2.756*</td>
<td>-3.421*</td>
</tr>
<tr>
<td>EG</td>
<td>-3.418**</td>
<td>-3.345**</td>
</tr>
<tr>
<td>GOV</td>
<td>-1.485</td>
<td>-2.523</td>
</tr>
<tr>
<td>INF</td>
<td>-4.595***</td>
<td>-4.395***</td>
</tr>
<tr>
<td>Panel II: 1st Difference</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UR</td>
<td>-4.087***</td>
<td>-4.767***</td>
</tr>
<tr>
<td>VR</td>
<td>-6.179***</td>
<td>-6.433***</td>
</tr>
<tr>
<td>FDI</td>
<td>-7.000***</td>
<td>-6.899***</td>
</tr>
<tr>
<td>EG</td>
<td>-4.240***</td>
<td>-4.223**</td>
</tr>
<tr>
<td>INF</td>
<td>-6.017***</td>
<td>-5.890***</td>
</tr>
</tbody>
</table>

Note: *, ** and *** denote statistical significance at 10%, 5% and 1% levels respectively.

For the Philippines, the first ARDL model without any structural break, yielded an F-value of only 3.42, which falls between the critical upper and lower bound [2.62, 3.79] at the 5 per cent level of significance. This suggests that the result obtained for the Philippines is inconclusive. The second ARDL model with the crisis dummy only, yielded an F-value of only 2.66, which falls below the critical lower bound of 2.86,
4.01]. This indicates that there is no steady state long-run equilibrium among the variables in the second model.

The Philippines is always plagued by political instability, with frequent changes in government. In 1986, Ferdinand Marcos fell from power after reigning for more than 20 years since 1965. He was removed from the office by the “People Power” vis-a-vis the EDSA (Epifanio de los Santos Avenue) Revolution, which is also known as People Power Revolution or the Philippine Revolution of 1986. To take into consideration, the political change that has taken place in the Philippines, the third ARDL model for the Philippines is constructed by including another dummy for political climate. Once the political stability dummy for 1986 to take into consideration the political change that took place is included in the estimation, the overall result shows a drastic improvement whereby, the calculated F-value (Wald test) increased to 7.03, and this value is higher than the critical upper bound of [2.86, 4.01]. This indicates that there is a steady state long-run equilibrium among the variables in the case of the Philippines.

Table 2: Results of Cointegration Test (F-Statistic Version of Bounds Test) (H0: No Cointegration)

<table>
<thead>
<tr>
<th>Diagnostics</th>
<th>Philippines</th>
<th>Philippines (with crisis dummy)</th>
<th>Philippines (with political dummy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computed F-Statistics</td>
<td>3.42</td>
<td>2.66</td>
<td>7.03*</td>
</tr>
</tbody>
</table>

Note: The lower and upper critical values for the F-statistic version of the bounds test [lower critical bound, upper critical bound] at 5% significance level is [2.62, 3.79] and [2.86, 4.01]. * denotes the computed test statistic (F-test) exceeds the upper critical bounds at 5% level of significance, thus rejecting the null of no cointegration. Case III of Pesaran et al. (2001), that is unrestricted intercepts and no trends is followed.

Table 3 shows the long-run estimated coefficients for the three different models, namely without structural break, with a crisis dummy and with a political change dummy. Once the crisis dummy is introduced into the model, the variable EG becomes significant at the 5 per cent level of significance and it has the expected negative sign. Variables FDI and INF are also found to be significant at 1 per cent level of significance. By including the political change dummy into the equation, the overall model showed improvements. When the second dummy namely the political change dummy is introduced into the model, VR, EG and GOV are found to be significant.
Table 3: Long-run Estimated Coefficients

<table>
<thead>
<tr>
<th>Variables</th>
<th>Coefficients (Dependent Variable: UR)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Philippines (without structural break)</td>
</tr>
<tr>
<td></td>
<td>ARDL(0,1,2,2,1)</td>
</tr>
<tr>
<td>VR</td>
<td>+1.3095</td>
</tr>
<tr>
<td>EG</td>
<td>+0.0606</td>
</tr>
<tr>
<td>GOV</td>
<td>-1.8116*</td>
</tr>
<tr>
<td>FDI</td>
<td>+3.4381**</td>
</tr>
<tr>
<td>INF</td>
<td>+0.05576</td>
</tr>
<tr>
<td>DUM1</td>
<td>-</td>
</tr>
<tr>
<td>DUM2</td>
<td>-</td>
</tr>
</tbody>
</table>

Note: *, ** and *** denotes statistical significance at 10%, 5% and 1% levels respectively.

One intriguing finding for the Philippines is that the positive coefficient of VR in third ARDL model suggests the presence of structural unemployment in the Philippines. A positive sign of VR for the Philippines that contradicts with the theory of Beveridge Curve, implies that the Philippines is facing a mismatch problem. The VR was also found to be significant at 1 per cent level of significance in the third model when the political change dummy is taken into account. A mismatch in the education and training output vis-a-vis the employment requirement and utilization is cited as a major reason for increasing unemployment by Cruz (2003). The author further added that this factor is more dominant compared to expansions of the working-age population and the economy’s inability to generate employment.

In the third model, EG does not have the expected negative sign even though it is found to be significant. FDI plays an insignificant role in the economy of the Philippines. Even though FDI has the expected negative sign in the model, it is not significant, suggesting that FDI is not an important variable in the determination of unemployment in the Philippines. In fact, the Philippines has one of the lowest investments in infrastructure in Southeast Asia, causing it to be a less attractive destination for FDI. The Philippines investment in infrastructure is only at 2-3 percent of its GDP (Balboa and Medalla, 2006). This problem is further accentuated by the political instability. Somehow, the establishment of special economic zones (SEZs) have substantially increased investments as well as exports in the Philippines (Makabenta, 2002). Makabenta (2002) also found that access to infrastructure, which lowers transportation costs is a major factor in the
determination of FDI location in the Philippines. The geographical factor of the Philippines is also unattractive for FDI. Locations other than Luzon are less preferred by foreign investors, causing unemployment to remain high in other parts of the Philippines. The Palawan Island for example, has an unemployment of 19.6 percent in 1999 (Asian Development Bank, 2002). In the third model, the variable INF is found to be insignificant but has the expected negative sign, suggesting that there exists a trade-off between unemployment and inflation. This finding is similar to that of Kooros (2006).

The inclusion of a political change dummy has two major implications for the Philippines labour market. Firstly, the mismatch problem is enlightened in this study. According to Canlas (1997), the rising agricultural productivity in the Philippines releases workers from this sector, and workers released from the agricultural sector lack the skills required by the industry and services sectors, and, hence, suffer spells of unemployment. Lim (1997) highlighted the inability of the Philippines economy to absorb labour force participants that are more skilled and from higher educational background based on the small share of professional and technical workers and administrative, executive and managerial workers, causing them to seek employment abroad. Galenson (1992) also highlighted that the principal cause of unemployment in the Philippine was the failure of the manufacturing sector to absorb the rapidly growing labour force. Second, political instability may also increase unemployment as it reduces FDI as well as economic growth.

6. Conclusion

A positive relationship of unemployment with job vacancy suggests that an increase in job vacancy does not contribute towards a reduction in unemployment. We suspect that there could be a mismatch problem in the Philippines labour market. Thus, active labour market policies are vital in the Philippines labour market. It is also important for the Philippines to maintain a stable government, as this, in turn, determines FDI and economic growth, that is crucial for employment creation.

References


Scully, W. Gerald, 1989, The size of the state, economic growth and the efficient utilization of national resources, Public Choice, 63, 149-164.