



Munich Personal RePEc Archive

Economic growth and institutions in developing countries: Panel evidence

Ahmad, Mahyudin and Marwan, Nur Fakhzan

Universiti Teknologi MARA, Universiti Teknologi MARA

8 October 2012

Online at <https://mpra.ub.uni-muenchen.de/42293/>
MPRA Paper No. 42293, posted 01 Nov 2012 16:14 UTC

Economic Growth and Institutions in Developing countries: Panel Evidence

Mahyudin Ahmad
Economics Department, Faculty of Business and Management
Universiti Teknologi MARA, Kedah Campus

Nur Fakhzan Marwan
Faculty of Business and Management
Universiti Teknologi MARA, Pahang Campus

Abstract

Numerous empirical studies have documented the evidence of institutional significance towards economic growth. This study extends such evidence as it examines the link between institutions and growth in developing countries including East Asian region. By using neoclassical growth framework augmented with institutional controls and latest estimation technique in panel data analysis, this study finds evidence of positive institutions growth-effects and uncovers the channel of their effects toward growth. This study also fills the gap in the East Asian growth literature, in which, to the best of our knowledge, only two studies namely Rodrik (1997) and Campos and Nugent (1999) that document the institutional importance toward economic growth for the region and apparently these studies are for the period before the 1997 Asian Financial Crisis.

Keywords: Institutions, economic growth, Asian Financial Crisis, dynamic panel analysis, generalized methods of moments.

JEL code: O43, E13

1.0 Introduction

The East Asian countries have seen spectacular economic development in the region for the past three decades. Table 1 below shows the countries in the region have undoubtedly achieved miraculous economic growth for the period up to 1996 with the rates of GDP per-capita growth ranging between 4-7 percent on average¹. The dramatic performance of the region is arguably the results of several institutional qualities² that were present in the countries such as strong authoritarian government implementing numerous pro-growth policies, secure private property rights and bureaucratic efficiency (see for example theoretical analyses by Ahrens (2002) –strong and authoritarian governments and secure property rights; Gonzalez and Mendoza (2001) –well-functioning public institutions). Empirically, Rodrik (1997) and Campos and Nugent (1999) show that secure property rights and bureaucratic efficiency are the significant determinants of the region’s economic performance. These are the only two empirical studies focusing on the institutional effect on East Asian growth that we are aware of and apparently they are for period before the Asian Financial Crisis in 1997.

As also shown in Table 1, the miraculous growth achievement has however disappeared beginning 1997 as a consequence of the Asian financial crisis (AFC). Except China, all the other countries were unable to achieve the pre-crisis level of economic growth. The World Bank (1998) suggests that institutional failures are among the causes of the crisis. Lanyi and Lee (1999) and Lingle (2000) argue that the absence of transparency and accountability and

¹ The phenomenal economic performance during the period 1960s to 1990s was dubbed as “the East Asian Miracle” by the World Bank (1993). There are studies that documented the underlying factors behind the economic achievement by the region such as Young (1995), Krugman (1995), Collins and Bosworth (1996), Sarel (1997) Senhadji (2000), Han *et al.* (2002), Nelson and Pack (1999), Easterly and Levine (2002), and Iwata *et al.* (2002).

² Influential studies such as those by Hall and Jones (1999), Acemoglu *et al.* (2001, 2005), and Rodrik *et al.* (2004) has found evidence that institutions do affect growth.

too much intervention and politicisation from the autocratic government are the main causes rendering the countries vulnerable to crisis.

Table 1:
Average Real GDP Per-capita Growth for East Asian countries 1960-2008

| Year | 1960-1980 | 1981-1984 | 1985-1988 | 1989-1992 | 1993-1996 | 1997-2000 | 2001-2004 | 2005-2008 | Average 1960-96 | Average 1997-08 |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------|-----------------|
| China | 2.7 | 8.2 | 9.2 | 6.1 | 10.2 | 7.0 | 8.3 | 9.9 | 7.3 | 8.4 |
| Hong Kong | 6.6 | 5.2 | 6.9 | 3.6 | 1.9 | 1.3 | 2.9 | 4.8 | 4.8 | 3.0 |
| Singapore | 6.7 | 5.0 | 4.2 | 4.5 | 6.2 | 3.5 | 2.7 | 2.2 | 5.3 | 2.8 |
| South Korea | 5.1 | 6.3 | 8.4 | 6.5 | 6.4 | 2.9 | 4.0 | 3.7 | 6.5 | 3.5 |
| Malaysia | 4.1 | 3.9 | 0.8 | 6.0 | 6.8 | 1.0 | 2.5 | 3.6 | 4.3 | 2.4 |
| Thailand | 4.3 | 3.3 | 6.2 | 8.2 | 6.8 | -1.6 | 3.9 | 3.4 | 5.8 | 1.9 |
| Indonesia | 3.2 | 4.1 | 3.3 | 6.5 | 6.0 | -2.3 | 3.1 | 4.5 | 4.6 | 1.8 |
| Philippines | 2.2 | -2.4 | -1.0 | -0.2 | 1.9 | 1.3 | 2.3 | 3.3 | 0.1 | 2.3 |

Source: Own calculation. The original data are obtained from the World Development Index (WDI) from the World Bank (2009).

This study investigates the link between institutions and economic growth in developing countries from East Asia, Africa and Latin America for the period of 24 years from 18985-2008. Utilizing neoclassical growth model controlling for the steady state determinants, we find empirical support for the significant institutional qualities that matter for growth. Specifically security of property rights that is consistently significant across all estimations and samples, and this finding confirms that of Rodrik (1997) . We also find evidence to the strong government hypothesis that matter for growth in the East Asian region as proposed by Ahrens (2002). Furthermore, we also show that institutions affect growth via total factors productivity channel.

The remainder of this paper is as followed: section 2 presents the growth framework, methodology and data sources. Discussions of the estimation results are presented in section 3 and section 4 concludes.

2.0 Growth framework, methodology and data sources

Consider the following Cobb-Douglas function, which exhibits constant returns to scale but diminishing return to individual factors:

$$Y_{it} = K_{it}^{\alpha} (A_{it} L_{it})^{1-\alpha} \quad (1)$$

where $\alpha < 1$, and Y is the real output, K is the physical capital, and L is the amount of labour. A represents a labour-augmenting technology assumed to grow exogenously at rate g . After incorporating the institutional effects that is assumed to influence growth via total factors productivity captured in the A function, the standard derivation of steady state income per capita function is therefore:

$$\ln y_{it} = \ln A_0 + gt + I_{it} + \frac{\alpha}{1-\alpha} \ln s_{it} - \frac{\alpha}{1-\alpha} \ln(n + g + \delta)_{it} \quad (2)$$

The assumption that institutions affect growth via total factors productivity (the A function) and not via physical capital investment ($\ln s_{it}$) will be valid if coefficients for both institutions and investment terms are significant indicating that their separate channel of effects³. The functional form of Equation (4) with appropriate error term is therefore specified as the following:

$$\ln y_{it} - \ln y_{it-1} = \beta_0 + \beta_1 \ln y_{it-1} + \beta_2 I_{it} + \beta_3 \ln s_{it} + \beta_4 \ln(n + g + \delta)_{it} + \varepsilon_{it} \quad (3)$$

where β 's are the parameters to be estimated.

³ If institutions primarily affect investment and therefore indirectly affecting growth (via investment channel), the Solow framework could therefore be extended to include institutions via s_{it} as a function of institutions i.e.

$s = f(I)$ and $f'(I) > 0$. However, the implication from this specification is that, if it is true institutions affect growth via investment channel only, it will be redundant to include both investment and institutions as regressors in a growth model. Investment (as a proximate growth determinant) should therefore be omitted. On the other hand, if institutions affect growth only partially via investment channel, omitting investment would not be appropriate as important information would be lost (see Dawson (1998) for more discussion on the possible channel of institutional impact towards growth and the consequent assumptions need to be made).

A panel observation for 69 developing countries in three regions namely East Asia, Africa and Latin America for a period of 25 years (1984-2008) is used. The data is converted into 4-year average hence making $t=6$ throughout the sample period. As for the East Asian countries, the 4-year average data fit nicely to the division between the period of high growth (1985-1996, $t=1, 2$ and 3) and the period post-AFC (1997-2008, $t=4, 5$ and 6). The Data on real GDP per capita and population growth are obtained from World Development Indicators (WDI) from the World Bank (2009). We conveniently follow Mankiw, *et al.* (1992), Islam (1995), Caselli *et al.* (1996) and Hoeffler (2002) to assume exogenous technological change plus depreciation rate as 0.05. Similarly, we follow them to use investment share of real GDP per capita as a proxy for physical capital and the investment data are obtained from Penn World Table 6.3 (Heston *et al.*, 2009). To reflect institutional settings in the East Asian region, three classes of institutions are introduced i.e. property rights, bureaucratic efficiency, and political institutions. Four indicators from International Country Risk Guide (ICRG) provided by the PRS Group (2009) –*Investment Profile*⁴ and *Law and Order* to reflect secure property rights; *Bureaucracy Quality* and *Government Stability* to reflect bureaucratic efficiency –whereas an index of *Political Rights* from Freedom in the World, also known as Gastil index (Gastil, 1978) and *Polity2* indicator from Polity IV by Marshall and Jaggers (2008) are used to reflect political institutions⁵.

In this study, we employ the latest panel data system GMM method developed by Arellano and Bover (1995) and Blundell and Bond (1998), in addition to Pooled Ordinary Least Square (OLS) and panel fixed effect methods, to estimate Equation (4)⁶. System GMM method is

⁴ It is a merged version of Government Repudiation of Contracts and Risk of Expropriation indicators previously found in ICRG data (IRIS dataset version). Refer Knack and Keefer (1995).

⁵ Both Political Rights and Polity2 indicators represent the rating score for a country as far as the level of democracy is concerned, and the higher the score, the more democratic a country is. Therefore, a positive sign is expected since it is argued that a more democratic government cause better economic growth.

⁶ The estimation using Pooled OLS and fixed effect methods will afford an appropriate comparison with previous institutional studies, such as Rodrik *et al.* (2004) and Glaeser *et al.* (2004) that rely on such method.

shown to be able to correct unobserved country heterogeneity, omitted variable bias, measurement error, and potential endogeneity that frequently affect growth estimations using pooled OLS and fixed effect methods (Bond *et al.* 2001). System GMM is also capable to reduce potential bias and imprecision associated with a simple first-difference GMM estimator (Arellano and Bover, (1995), Blundell and Bond (1998)).

The general assumptions for the system GMM regression are as follows: we treat lagged dependent variable as predetermined variable and both investment and population growth as potentially endogenous variables. Similarly, we assume all institutional variables are endogenous since reverse causality from growth to institutions is possible. We set the instruments lag to be one to two periods for the predetermined, potentially endogenous and endogenous variables⁷. This assumption is meant to eliminate endogeneity bias. With this assumption, we postulate that, once the steady state determinants are controlled for, growth-effect of institutions would originate from the state of institutions in the past four to eight years to cause an inter-temporal influence on the current institutions⁸.

Consistency of the GMM estimator depends on the validity of the instruments. As suggested by Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998), two specification tests are used. Firstly, Sargan/Hansen test of over-identifying restrictions which tests for overall validity of the instruments and the null hypothesis is that all instruments as a group are exogenous. The second test examines the null hypothesis that error term ε_{it} of the

⁷ These sets of lag are finally chosen after a series of attempts involving multiple combinations of lag were made in running the system GMM regression. The decision to use these sets of lag is because they yield the best results as far as the significance of the steady state determinants and institutional variables as well as the strength of diagnostic test of the regressions are concerned.

⁸ We follow Bond *et al.* (2001) to employ one-step GMM estimators since efficiency gain from two-step GMM estimators is shown by Bond *et al.* to be small, and two-step estimators normally converge to its asymptotic distribution relatively slowly, and in finite sample its asymptotic standard errors can be seriously biased downwards, and thus making it unreliable. Despite the Windmeijer (2005) correction to this problem to achieve robust standard errors in two-step GMM estimation, we already enforce heteroskedasticity and autocorrelation robust standard error in the one-step GMM estimation, therefore one-step GMM estimation is preferred.

differenced equation is not serially correlated particularly at the second order (AR2)⁹ Ones should not reject the null hypothesis of both tests.

3.0 Estimation results and discussions

The results of the estimation are presented the Table 2 and 3 below. Table 2 contains results for the whole developing countries and East Asian samples meanwhile Table 3 shows the results for East Asian sample for the period before and after the AFC. The parameters of interest in our estimations are the institutional variables as well as the investment term. Based on the results in Table 2, the investment variable is consistently statistically significant and positive across all estimations. This finding, coupled with significant institutional variables clearly supports the assumption that institutions affect growth via factor productivity channel and not via investment.

As for the institutional variables, on overall, security of property rights emerges the most important institutional quality that matters for growth for both samples across all estimations methods (Investment Profile variables are positive significant in all estimations for both samples, while Law and Order shows some influence to growth particularly in the whole sample). Besides, bureaucratic efficiency significantly determines growth particularly in whole sample (particularly Government Stability) but not in East Asian sample. Therefore, these results confirm the finding by Rodrik (1997) on the importance of secure property rights environment, but yield opposite evidence to that of Campos and Nugent (1999) and Gonzalez and Mendoza (2001) that shows significant effect of bureaucratic efficiency to growth (albeit partially since the quality is an important growth determinant in whole sample that also includes East Asian countries).

⁹ By construction, the differenced error term is probably serially correlated at first-order even if the original error is not. While most studies that employ GMM dynamic estimation report the test for first order serial correlation, some do not.

Another important finding is the consistently negative coefficient for Political Rights variable (for Polity2, some of its coefficients are) particularly in the estimation of East Asian sample. Recall Ahrens (2002) shows strong and autocratic government in the East Asian countries that are able to govern the markets and pursue (and enforce) pro-growth policies is the underlying reason behind the countries' dramatic economic success. The finding in this section therefore gives empirical support to the strong government hypothesis.

As for the East Asian sample between the period of pre- and post-AFC as shown in Table 3, on overall, investment term is consistently positive significant across all estimations and periods thereby giving further evidence to our earlier assumption on the channel of institutional effect towards growth. For institutional variables, it is fair to say, as far as the period of high growth or pre-AFC is considered, all three key institutional characteristics i.e. secure property rights, bureaucratic efficiency and strong government are the key growth determinants (reflected by the positive significant Investment Profile, Bureaucracy Quality, and negative significant Political Rights variables, respectively). For the period of post-AFC, with the exception of property rights quality which is positive significant as expected, the other two key characteristics however yield ambiguous results. Notwithstanding that, negative coefficients for Political Rights remain.

As far as the empirical performance of system GMM estimation in this study is concerned, it is of reasonably satisfactorily robust. The test for first order serial correlation in the residuals AR(1) show that null hypothesis of no first order serial correlation is overwhelmingly rejected in all estimations and samples, which is not unexpected. Meanwhile, test of second order serial correlation AR(2) on overall shows that all estimations have no problem of second order serial correlation since AR(2) test statistics are unable to reject the null of no second order serial correlation (p -value from 0.102 to 0.169 in all four estimations).

Hansen test for overidentification meanwhile indicates the null of exogenous instruments is not rejected with p -value from 0.734-1.000. Nevertheless, the implausibly good p -value of this range for Hansen J test should be interpreted with caution since the test is apparently weakened by too high instrument count¹⁰.

¹⁰ Nevertheless, there are numerous studies employing system GMM that report p -value of 1.000 or close to 1.000 for Hansen test of overidentifying restrictions, see for example Baltagi *et al.* (2009), Hassan *et al.* (2009), etc.

Table 2:
Estimations of growth model augmented with institutional variables for whole countries and East Asian samples

| Method | Whole sample: 69 developing countries | | | East Asian sample: 14 countries | | |
|-----------------------------------|---------------------------------------|-------------------------|------------------------|---------------------------------|------------------------|-----------------------|
| Sample | Pooled OLS | Fixed effects | System GMM | Pooled OLS | Fixed Effects | System GMM |
| Constant | -0.142* (0.078) | -0.23*** (0.084) | -0.279** (0.126) | -0.102 (0.080) | -0.192** (0.095) | -0.173 (0.143) |
| ln (y_{it-1}) | -0.002 (0.002) | -0.001 (0.002) | 0.000 (0.003) | 0.001 (0.003) | -0.001 (0.002) | -0.001 (0.003) |
| ln (s_{it}) | 0.017*** (0.004) | 0.015* (0.008) | 0.033*** (0.009) | 0.017*** (0.005) | 0.028*** (0.008) | 0.039*** (0.011) |
| ln ($n+g+\delta$) _{it} | 0.008 (0.007) | 0.022** (0.011) | 0.019* (0.012) | 0.009 (0.008) | 0.019 (0.012) | 0.013 (0.015) |
| Investment Profile | 0.003* (0.002) | 0.005*** (0.002) | 0.003* (0.002) | 0.005** (0.003) | 0.006** (0.003) | 0.005* (0.003) |
| Law and Order | 0.002* (0.001) | 0.002* (0.001) | 0.003 (0.002) | 0.003 (0.002) | 0.003* (0.002) | 0.002 (0.002) |
| Bureaucracy Quality | 0.000 (0.001) | -0.001 (0.001) | -0.001 (0.001) | -0.001 (0.002) | 0.004** (0.002) | -0.002 (0.003) |
| Government Stability | 0.004* (0.002) | 0.003 (0.002) | 0.005** (0.002) | -0.001 (0.002) | -0.004** (0.002) | -0.000 (0.003) |
| Political Rights | 0.002 (0.002) | 0.000 (0.002) | 0.003 (0.003) | -0.004* (0.002) | -0.003 (0.003) | -0.005 (0.003) |
| Polity2 | -0.001 (0.001) | 0.001 (0.002) | -0.001 (0.002) | 0.002 (0.002) | -0.001 (0.002) | 0.003 (0.004) |
| R ² | 0.250 | 0.493 | | 0.162 | 0.407 | |
| Adj. R ² | 0.233 | 0.376 | | 0.143 | 0.270 | |
| No. of instruments | | | 127 | | | 113 |
| AR1 p-value | | | 0.032 | | | 0.048 |
| AR2 p-value | | | 0.102 | | | 0.166 |
| Hansen p-value | | | 1.000 | | | 1.000 |

Notes: Dependent variable is log real GDP per capita growth. Robust standard errors are in parentheses. AR(1) and AR(2) are the Arellano-Bond tests for first-order and second-order autocorrelation in the residuals of differenced equation, respectively. Hansen test of overidentification tests for H_0 : the instruments as a group are exogenous. ***, **, and * indicate the coefficient is significantly different from zero at 1%, 5%, and 10% respectively.

Table 3:
Estimations of growth model augmented with institutional variables for East Asian samples pre- and post-AFC

| Sample | East Asian countries for the period pre-AFC (1985-1996) | | | East Asian countries for the period post-AFC (1997-2008) | | |
|-----------------------------------|---|-----------------------|------------------------|--|-------------------------|-----------------------|
| Method | Pooled OLS | Fixed effects | System GMM | Pooled OLS | Fixed effects | System GMM |
| Constant | -0.101 (0.079) | -0.189** (0.093) | -0.188 (0.151) | -0.114 (0.081) | -0.188** (0.094) | -0.251 (0.153) |
| ln (y_{it-1}) | 0.002 (0.002) | -0.000 (0.002) | 0.000 (0.003) | 0.001 (0.003) | -0.001 (0.002) | 0.002 (0.004) |
| ln (s_{it}) | 0.018*** (0.005) | 0.028*** (0.007) | 0.042*** (0.012) | 0.021*** (0.005) | 0.029*** (0.008) | 0.046*** (0.012) |
| ln ($n+g+\delta$) _{it} | 0.008 (0.008) | 0.019 (0.012) | 0.013 (0.015) | 0.009 (0.008) | 0.019 (0.012) | 0.019 (0.016) |
| Investment Profile | 0.009*** (0.003) | -0.003 (0.005) | 0.008** (0.003) | 0.008** (0.004) | 0.009*** (0.003) | 0.008* (0.004) |
| Law and Order | -0.003 (0.003) | -0.001 (0.003) | -0.004 (0.003) | 0.006 (0.005) | -0.000 (0.004) | 0.005 (0.007) |
| Bureaucracy Quality | 0.003** (0.001) | 0.004* (0.002) | 0.000 (0.002) | -0.012** (0.006) | -0.004 (0.004) | -0.016 (0.010) |
| Government Stability | 0.003 (0.004) | 0.004 (0.005) | 0.003 (0.004) | 0.000 (0.003) | -0.003 (0.002) | 0.002 (0.003) |
| Political Rights | -0.01*** (0.002) | -0.002 (0.003) | -0.006* (0.003) | -0.013** (0.007) | -0.011** (0.005) | -0.015 (0.010) |
| Polity2 | 0.001 (0.002) | -0.002 (0.002) | 0.002 (0.003) | 0.012* (0.007) | 0.009* (0.005) | 0.015 (0.011) |
| R ² | 0.152 | 0.403 | | 0.135 | 0.405 | |
| Adj. R ² | 0.133 | 0.265 | | 0.115 | 0.268 | |
| No. of instruments | | | 92 | | | 74 |
| AR1p-value | | | 0.051 | | | 0.032 |
| AR2p-value | | | 0.169 | | | 0.143 |
| Hansen p-value | | | 0.974 | | | 0.734 |

Notes: Dependent variable is log real GDP per capita growth. Robust standard errors are in parentheses. AR(1) and AR(2) are the Arellano-Bond tests for first-order and second-order autocorrelation in the residuals of differenced equation, respectively. Hansen test of overidentification tests for H_0 : the instruments as a group are exogenous. ***, **, and * indicate the coefficient is significantly different from zero at 1%, 5%, and 10% respectively.

4.0 Concluding remarks

The East Asian countries have experienced a dramatic economic performance in the past three decades but an unprecedented financial crisis in 1997-1998 has however brought an end to the achievement, which the countries seem to never recover the pre-crisis rate of growth. Utilizing neoclassical Solow growth framework augmented with institutional variables reflecting property rights, bureaucratic efficiency and political institutions, and employing latest estimation technique and dataset, this study finds empirical support to the proposition “*institutions matter*” for economic growth in developing countries and to show that the institutional growth-effect essentially runs via total factor productivity channel.

Specifically, this study finds security of property rights (proxied by Investment Profile) matter significantly for growth in all developing countries under study including the East Asian region and this finding is consistent to different model specifications, sample of countries and time periods. Another notable finding by this study is the evidence to the strong government hypothesis (reflected by negative coefficient of Political Rights) for East Asian countries. Furthermore, this study is able to show that the institutions affect growth via total factors productivity.

Arguably this study is the first as far as we are aware of that uses dynamic panel data analysis to test for institutions-growth linkage in developing countries particularly the East Asian countries for the period when significant growth achievement and severe financial crisis have happened.

References

- Acemoglu, D., Johnson, S. & Robinson J.A. (2001) The Colonial Origins of Comparative Development: An Empirical Investigation. *American Economic Review*, 91, pp. 1369 – 1401.
- Acemoglu, D., Johnson, S. & Robinson, J. A., (2005). Institutions as a Fundamental Cause of Long-Run Growth, in: Philippe Aghion & Steven Durlauf (ed.), *Handbook of Economic Growth, edition 1, volume 1, chapter 6*, pages 385-472 Elsevier.
- Ahrens, J. (2002). *Governance and economic development: A comparative institutional approach*. New Thinking in Political Economy series. Cheltenham UK, Northampton Massachusetts : Edwards Elgar.
- Arellano. M. & Bond, S.R. (1991). Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. *Review of Economics Studies* 58 (2), pp.277-297.
- Arellano, M. & Bover, O. (1995). Another Look at the Instrumental Variable Estimation of Error Component Models. *Journal of Econometrics* 68 (1), pp. 29-51.
- Bond, S., Hoeffler, A. & Temple, J. (2001). GMM Estimation of Empirical Growth Models. *CEPR Discussion Paper No. 3048*.
- Blundell, R. & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics* 87 (1), pp. 115–143.
- Campos, N. F. & Nugent, J. B. (1999) Development Performance and the Institutions of Governance: Evidence from East Asia and Latin America, *World Development*, 27 (3), pp. 439-452.
- Caselli, F., Esquivel, G., & Lefort, F., (1996). Reopening the convergence debate: A new look at cross-country growth empirics. *Journal of Economic Growth* 1 (3), pp. 363–389.
- Collins, S. M. and Bosworth, B. P., (1996), Economic Growth in East Asia: Accumulation versus Assimilation, *Brookings Papers on Economic Activity*, 27, issue 1996-2, p. 135-204,
- Easterly, W. and Levine, R. (2002). "It's Not Factor Accumulation: Stylized Facts and Growth Models," *Working Papers Central Bank of Chile* 164, Central Bank of Chile.

- Gastil, R. D. (1978). Freedom in the world : political rights and civil liberties. Retrieved from <http://www.nsd.uib.no/macrodatabguide/set.html?id=17&sub=1>
- Glaeser, E. L., La Porta, R., Lopez-de-Silanes, F., Shleifer, A. (2004) Do Institutions Cause Growth? *Journal of Economic Growth*, 9, pp. 271-303.
- Gonzalez, E.T. and Mendoza, L. (2001). *Governance in Southeast Asia: Issues and Options*. Mimeo. Philippines: Philippines Institute of Development Studies.
- Hall, R. E. & Jones, C. I. (1999) Why Do Some Countries Produce So Much More Output per Worker Than Others? *The Quarterly Journal of Economics*, 114, pp. 83-116.
- Heston, A., Summers, R. & Aten, B. (2009). *Penn World Table Version 6.3*, Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania, August 2009.
- Hoeffler, A. (2002). The augmented Solow model and the African growth debate. *Oxford Bulletin of Economics and Statistics* 64 (2), pp. 135–158.
- Islam, N. (1995). Growth empirics: a panel data approach. *Quarterly Journal of Economics* 110 (4), pp. 1127–1170.
- Iwata, S., Khan, M. S., Murao, H. (2002). Sources of Economic Growth in East Asia: A Nonparametric Assessment, *IMF Working Paper No. WP/02/13*.
- Knack, S. & Keefer, P. (1995) Institutions and Economic Performance: Cross-country Tests using Alternative Institutional Measures. *Economics and Politics*, 7, pp. 207-227.
- Krugman P. (1995). The Myth of Asia's Miracle, *Foreign Affairs*, 62.
- Krugman, P. (1998). *What happened to Asia?* Paul Krugman homepage, retrieved on 26 March 2010 from www.disinter.htmlstweb.mit.edu.
- Lanyi, A. & Lee, Y. (1999). Governance Aspect of the East Asian Financial Crisis. *IRIS Center Working Paper no. 226*. College Park, M.D.: IRIS Center.
- Lingle, C. (2000). The Institutional Basis of Asia's Economic Crisis, in: Richter, Frank-Jurgen (ed), *The East Asian Development Model: Economic Growth, Institutional Failure and the Aftermath of the Crisis*. New York: St. Martin Press.
- Mankiw, G. N., Romer, D. & Weil, D.N. (1992). A Contribution to the Empirics of Economic Growth. *The Quarterly Journal of Economics*, Vol. 107, No. 2. pp. 407-437.

Marshall G. M. & Jaggers, K. (2009). *Polity IV Project*, Center for Systemic Peace and Colorado State University

Nelson, R. R. & Pack, H. (1999). The Asian Miracle and Modern Growth Theory, *Economic Journal*, Royal Economic Society, vol. 109(457), pages 416-36.

PRS Group, The. (2009). International Country Risk Guide dataset.

Rodrik, D. (1997) TFPG Controversies, Institutions, and Economic Performance in East Asia. *National Bureau of Economic Research Working Paper No. 5914*.

Rodrik, D., Subramaniam, A., & Trebbi, F. (2004) Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development. *Journal of Economic Growth*, 9(2), pp. 131-165.

Sarel, M. (1997). Growth and Productivity in ASEAN Countries. *IMF Working Paper*, Vol. 97/97, pp. 1-50

Senhadji, A. (2000). Sources of Economic Growth: An Extensive Growth Accounting Exercise, *IMF Staff Papers, Palgrave Macmillan Journals*, vol. 47(1), pages 6.

Solow, R. M. (1956). A Contribution to Theory of Economics Growth, *The Quarterly Journal of Economics*, 70 (1), pp. 65-94.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics* 126, pp. 25–51.

World Bank (1993). *The East Asian Miracle: Economic Growth and Public Policy*. Oxford University Press: New York, NY.

World Bank (1998). *East Asia: Road to Recovery*. Washington D.C.: The World Bank.

World Bank (2009). World Banks World Development Indicators (WDI).