The Australian National University

Centre for Economic Policy Research

DISCUSSION PAPER

Drivers of Growth in the Philippines

Markus Brueckner and Birgit Hansl

DISCUSSION PAPER NO. 702

April 2018

ISSN: 1442-8636
ISBN: 978-1-921693-86-1

Drivers of Growth in the Philippines

Markus Brueckner
Australian National University

Birgit Hansl
World Bank

April 2018

Abstract: During the 2000s PPP GDP per capita growth in the Philippines was modest. Transitional convergence accounted for almost half of the growth in the Philippines during that time period. Reforms to the structure of the economy boosted growth by less than one percentage point per annum. The most significant structural reform was improvements in telecommunication infrastructure that lifted growth by over half a percentage point per annum. The decline of domestic credit to the private sector reduced growth by about one quarter of a percentage point per annum. Successful stabilization policies positively contributed to growth but the effect is small, about one half of a percentage point per annum. The paper discusses the growth performance of the Philippines relative to comparator countries: ASEAN, lower middle income countries, countries where migrant remittances are large relative to GDP, young democracies, structural peers, and regional peers. The main message from the analysis is that structural reforms were not as significant in the Philippines as in comparator countries. The Philippines lagged behind in structural reforms and this significantly contributed to the country's relatively modest growth performance.

Contact details:

- Markus Brueckner, Professor of Macroeconomics, Research School of Economics, Australian National University, LF Crisp Buidling 26A, Canberra, ACT 0200, Australia. Email: markus.brueckner@anu.edu.au. Brueckner is an affiliate of CAMA.
- Birgit Hansl, Lead Economist and Program Leader, World Bank, One Global Place, 5th Avenue and 25th Street, Bonifacio Global City, Taguig City, Philippines 1634 . Email: bhansl@worldbank.org

1. Introduction

This paper examines the driving forces of economic growth in the Philippines. The main focus is on medium term growth, i.e. changes in GDP per capita over a 10-year period. The paper will examine what part of growth is due to transitional convergence, structural reforms, stabilization policies and external conditions.

The economic growth performance of the Philippines in recent decades is not particularly stellar. During the past decade, the 2000s, growth in PPP GDP per capita was below 3 percent per annum on average (see Figure 1A). Growth was even slower during the 1990s. The relatively modest growth performance of the Philippines in recent decades is surprising: The Philippines is a lower middle income country and it has been a democracy since the early 1990s.

At the end of the 1990s, there was the Asian financial crisis. The Philippine economy was adversely affected by that crisis and entered into a recession. One question that arises from this observation is to what extent economic growth during the 2000s was due to transitional convergence – i.e. a reversion to country-specific steady state? An empirical regularity is that growth is higher after a recession. We estimate a dynamic model that accounts for this feature. The econometric model shows that transitional convergence accounted for about half of the growth in the Philippines during the 2000s.

The Philippine economy underwent structural reforms but not all of these had a positive impact on economic growth. Between the periods 1996-2000 and 2006-2010 an increase of the population's education, a reduction in the GDP share of government consumption, and a substantial expansion of telecommunication infrastructure positively contributed to growth. Adverse developments that reduced growth was the decrease in financial development and the decline in trade openness. Overall, structural reforms raised GDP per capita growth in the Philippines by less than 1 percentage point per annum on

average during the 2000s.

The 2000s was a decade of relatively stable prices. During the 1990s the Philippine inflation rate was around 10 percent; during the 2000s it was around half that number. The Philippine Peso lost value in the first half of the 2000s but then recovered its value in the later part of the decade. Relative to the 1990s, where in the later part of that decade there was a significant financial crisis, the 2000s were calm times for the Philippines. Overall the model's estimates show that successful stabilization policies positively contributed to growth in the Philippines by about one-half of a percentage point per annum during the 2000s.

During the 2000s changes in the terms of trade and the commodity price super-cycle played a minor role for growth of the Philippine economy. One reason for this is the insulating role of migrant remittances. Consider the boom in the international price of oil during the 2000s: the international oil price underwent a more than fourfold increase between 1996-2000 and 2006-2010. The Philippines is a net-importer of oil. The increase in the international oil price was a negative terms of trade shock for the Philippines. However, a countervailing effect is that a part of the Philippine population works abroad, in other countries; some of these countries, e.g. Gulf countries, are net-exporters of oil. Income earned by Philippinos living abroad in countries that experienced positive terms of trade shocks should have been higher during the 2000s. During the 2000s migrant remittances of Philippinos living abroad exceeded 10 percent of the GDP of the Philippines. Net exports relative to GDP were around -4 during the 2000s – but nevertheless, the Philippines's current account during the 2000s was positive, around 2 percent of GDP.[1]

The paper discusses the Philippines's growth performance relative to comparator countries. One group of comparator countries that is of interest are ASEAN countries. Another comparator group of countries are the lower middle income countries. A third group of comparator countries are those

1 The current account is a broad measure of the change in a country's net foreign assets: it is the sum of net-exports, net factor income, and net current transfers.

economies where migrant remittances comprise a large share of national income. A fourth group are young democracies, i.e. those countries that transited at the turn of the 90s from autocracy to democracy and remained democracies thereafter. The main message from the comparative analysis is that during the 2000s GDP per capita growth in the Philippines was relatively modest; and it was relatively modest because the Philippines were lagging behind their peers in implementing growth-enhancing structural reforms.

The rest of the paper is organized as follows. Section 2 describes the estimation framework. Section 3 presents estimates of the econometric model. Section 4 compares the model's predicted growth to observed growth during the 2000s, for the Philippines and for comparator countries. Section 5 discusses model-based estimates of the drivers of economic growth in the Philippines during the 2000s. Section 6 compares the driving forces of economic growth in the Philippines during the 2000s to groups of countries that are of particular interest, such as ASEAN, lower middle income countries, remittance-receiving countries, young democracies, regional peers, and structural peers. Section 7 compares the growth performance of the Philippines during the 1980s and 1990s to regional peers. Sections 8 presents model-based estimates of the drivers of economic growth in the Philippines for recent years since 2010, i.e. 2011 to 2015; Section 9 presents estimates for the period 2000-2015.

Section 10 concludes the paper by discussing projections of economic growth for three scenarios of structural reforms and stabilization policies: a best-case scenario where the Philippines implements structural reforms and stabilization policies at par with the best-performing regional peer; a mediocre-reform scenario; and a worst-case scenario. The key message of the projections is that living standards could rise substantially in the Philippines if growth enhancing structural reforms are implemented – but living standards could also fall if policies are implemented that adversely affect the structure of the macroeconomy. For example, under the best-case scenario the average Philippino could experience living standards, within two to three decades, equivalent to the living standards that the

average Malay experienced in the year 2015. Under the worst-case scenario GDP per capita in the Philippines would shrink by around 2 percent per annum over the next five decades; after about two decades living standards in the Philippines fall below the average living standards that are currently prevalent in Vietnam.

2. Estimation Framework

The econometric model builds on the work of Loayza et al. (2005) and Araujo et al. (2014).[2] The change in the natural logarithm of real GDP per capita between two periods is related to the lagged level of the natural logarithm of GDP per capita and a set of growth determinants, X:

$$(1.0) \qquad lny_{ct} - lny_{ct-1} = \varphi lny_{ct-1} + \Gamma ln(X)_{ct} + a_c + b_t + e_{ct}$$

where $lny_{ct} - lny_{ct-1}$ is the change in the natural logarithm of real PPP GDP per capita in country *c* between period *t* and *t*-1; lny_{ct-1} is the natural logarithm of real PPP GDP per capita of country *c* in period *t*-1; a_c and b_t are country and time fixed effects; and e_{ct} is an error term.

The vector of growth determinants, $X_{ct,}$ includes the natural logarithms of secondary enrolment, the GDP share of domestic credit to the private sector, trade openness, the GDP share of government consumption, telephones lines per capita, inflation, the real exchange rate, an indicator of systemic banking crises, and the growth rate of the terms of trade. Additional variables that we include in X_{ct} are the Polity2 score, which is a measure of the degree of political competition and political constraints, as well as the growth rate of an international commodity export price index that captures windfalls from international commodity price booms.

The natural logarithm of lagged GDP per capita is included in equation (1) in order to account for transitional convergence. In cross-sectional regressions (conditional) convergence is about whether poor countries grow faster than rich countries (conditional on country characteristics). In a panel model

2 The discussion in this Section as well as in Section 3 follows closely Araujo et al. (2014).

that includes country fixed effects transitional convergence is about whether countries' GDP per capita reverts to the country-specific steady state, a_c. Transitional convergence in the level of GDP per capita requires that $|\varphi|<1$. Note that equation (1) can be re-written as:

(1') $$lny_{ct} = \theta lny_{ct-1} + \Gamma ln(X)_{ct} + a_c + b_t + e_{ct}$$

where $\theta=1+\varphi$. This formulation makes it clear that, with $-1<\theta<1$, the estimated model is a stationary AR(1) model for the *level* of GDP per capita. In this model a permanent perturbation to the level of X has a temporary (i.e. short-run) effect on GDP per capita growth. There is a permanent (i.e. long-run) effect on the level of GDP per capita but not on the GDP per capita growth rate.

A further issue in the estimation of equation (1) is that some of the growth determinants, X_{ct}, may be a function of GDP per capita growth. We will address this type of endogeneity bias by treating the relevant variables as endogenous regressors in the system-GMM estimation. In particular, we will instrument endogenous variables with their lags. We limit the instrument set to one lag in order to ensure that the number of instruments does not grow too large in the system-GMM estimation.

We use for the estimation of the baseline econometric model 5-year non-overlapping panel data. 5-year non-overlapping panel data are commonly used in growth analysis. In contrast to quarterly or annual data, which are used in business cycle analysis, 5-year non-overlapping data smooth variations of the business cycle. 5-year non-overlapping data are thus useful for analysis of economic growth in the medium run.

The baseline econometric model is estimated for a sample of 126 countries spanning the period 1970-2010. Estimating the model based on the largest possible sample of countries ensures that, given the availability of data, the coefficients are estimated as precise as possible (statistical efficiency). There is trade-off however between statistical efficiency and potential bias that arises from restricting the coefficients to be the same across countries and periods. The Philippines had a different political regime prior to the 1990s, i.e. there was transition from autocracy to democracy. Indeed a number of

countries, so-called "young democracies", transited from autocracy to democracy at the turn of the 1990s (see Appendix Figure 2). For the comparative analysis, it is important to know whether the growth impact of structural reforms and stabilization policies is the same in the group of *Comparator* countries (e.g. ASEAN, Young Democracies, Remittance-Receiving Countries, Structural Peers, Regional Peers) as in the rest of the world. Hence, the two main issues are:

i. Do the coefficients differ for the post-1990 period?

ii. Do the coefficients differ for *Comparator* countries?

The first question can be answered by extending the econometric model to include interaction terms between X and an indicator variable that is unity for the post-1990 period. The extended model is:

$$(1.1) \qquad lny_{ct} = \theta_1 lny_{ct-1} + \Gamma_1 ln(X)_{ct} + \Gamma_2 ln(X)_{ct} * post1990_t + c_c + d_t + u_{ct}$$

In equation (1.1), the vector Γ_1 captures the effects of changes in X on (transitional) GDP per capita growth for the pre-1990 period. The vector Γ_2 captures the difference in the effects that changes in X have on (transitional) GDP per capita growth between the post-1990 period and the pre-1990 period. The effects of changes in X on (transitional) GDP per capita growth for the post-1990 period are given by $\Gamma_1+\Gamma_2$.

The second question can be answered by extending the baseline model to include interaction terms between X and an indicator variable that is unity for *Comparator* countries:

$$(1.2) \qquad lny_{ct} = \theta_3 lny_{ct-1} + \Gamma_3 ln(X)_{ct} + \Gamma_4 ln(X)_{ct} * Comparator_c + e_c + f_t + \varepsilon_{ct}$$

In equation (1.2) the vector Γ_3 captures the effects of changes in X on (transitional) GDP per capita growth for the rest of the world, i.e. countries that are not part of the *Comparator* group. The vector Γ_4 captures the difference in the impact that changes in X have on (transitional) GDP per capita growth between the group of *Comparator* countries and the rest of the world. The effects of changes in X on

(transitional) GDP per capita growth for *Comparator* countries are given by $\Gamma_3+\Gamma_4$.

Table 1 provides a description of the variables used in the econometric analysis and their sources.

3. Estimation Results

3.1 Baseline Estimates

Column (1) of Table 2 presents the baseline system-GMM estimates. The estimated econometric model supports the key feature of neoclassical growth models of convergence in real GDP per capita. The estimated coefficient on lagged (log) GDP per capita is 0.78 and has a standard error of 0.06. One can reject the hypothesis that the coefficient is equal to zero and unity at the conventional significance levels.[3] It is important to note that the estimated coefficient is derived from a 5-year non-overlapping panel. The coefficient thus reflects the persistence of shocks to GDP per capita over a 5-year horizon; measured over a one-year horizon the implied persistence parameter is 0.95 and the implied per annum convergence rate is around 5 percent.

The estimates from the multivariate regression model support the hypothesis that structural reforms are important growth determinants. Variables relating to structural reforms such as financial development, trade openness, and infrastructure enter with a significant positive coefficient while the government burden enters with a significant negative coefficient. Education and political institutions have an insignificant effect. With regard to variables relating to stabilization policies, such as inflation, the real exchange rate and banking crises, the coefficients are negative though not significant. As the coefficients on these variables are obtained from a multivariate regression model, they should be interpreted as conditional effects.[4] These conditional effects may differ from the unconditional effects.

3 The Fisher panel unit root test rejects the null of non-stationarity in GDP per capita at the 5 percent significance level.

4 An F-test on the joint significance of variables in the category of structural reforms (stabilization policies) yields a p-value of 0.00 (0.19) in column (1) and 0.00 (0.08) in column (2).

We will explore unconditional effects in the next sub-section.

Figure 2 facilitates the interpretation of the estimates reported in column (1) of Table 5 by showing a bar plot of the estimated coefficients multiplied with their standard deviations. The magnitude of the impact that variables relating to structural reforms have on economic growth is substantial. For example, a one standard deviation increase in infrastructure, financial development, and trade openness is predicted to increase five-year GDP per capita growth by 27 percentage points, 7 percentage points, and 6 percentage points, respectively; a reduction in the government burden of one standard deviation is predicted to increase five-year GDP per capita growth by 16 percentage points. The effect of stabilization policies is more nuanced: a one standard deviation increase in the real exchange rate, inflation, and the risk of banking crisis is predicted to decrease five-year GDP per capita growth by around 4 percentage points, 1 percentage point, and 1 percentage point, respectively.

The multivariate regression model also shows that external conditions mattered for economic growth. Variations in countries' terms of trade and international commodity export prices are significantly positively related to economic growth. Because both the terms of trade and the international commodity export price index are country-specific variables, the estimated coefficients on these variables capture the country-specific effects of external conditions.

For comparison to the system-GMM estimates, we report in column (2) of Table 2 least squares estimates. The least squares estimates reveal qualitatively a similar pattern as the system-GMM estimates. Structural policies are significantly correlated with economic growth. Also, least squares estimates on variables related to stabilization policies are significant. Quantitatively, the least squares estimates are generally smaller in absolute value than the system-GMM estimates. This could in part reflect classical measurement error that attenuation attenuates least squares estimates but not instrumental variables estimates. Another reason could be endogeneity biases that are corrected for in the system-GMM regression but not in the least squares regression.

3.2 Are the Effects Different in Comparator Countries?

In this section we discuss whether the growth effects of structural reforms and stabilization policies are significantly different for the group of comparator countries. The question whether the growth effects are different in the group of comparator countries can be examined by adding to the econometric model interaction terms between the right-hand-side variables, X, and an indicator variable that is unity for countries that are part of the comparator group. The coefficients on these interaction terms give the differences in the marginal effects of changes in the variables X on GDP per capita between the group of comparator countries and the rest of the world.

The impact of structural reforms and stabilization policies does not significantly differ for the group of ASEAN countries. This can be seen from column (1) of Table 3. The column reports estimated coefficients on the interaction terms (the Γ_4 in equation 1.2) between X and a dummy that is unity for ASEAN countries. (The estimated coefficients on the linear terms on X (the Γ_3 in equation 1.2) are not reported in the table.) As can be seen from column (1), none of the coefficients are significantly different from zero at the 5 percent level. An F-test on the hypothesis that the coefficients on the interactions with variables related to structural reforms (stabilization policies) and the dummy for ASEAN are jointly equal to zero yields a p-value of 0.34 (0.57).

The impact of structural reforms and stabilization policies does not significantly differ for the group of countries that transited at the turn of the 90s from autocracy to democracy, i.e. so-called young democracies. This can be seen from column (2) of Table 3. The column reports estimated coefficients on the interaction terms (the Γ_4 in equation 1.2) between X and a dummy that is unity for young democracies. (The estimated coefficients on the linear terms on X (the Γ_3 in equation 1.2) are not reported in the table.) As can be seen from column (2), none of the coefficients are significantly different from zero at the 5 percent level. An F-test on the hypothesis that the coefficients on the

interactions with variables related to structural reforms (stabilization policies) and the dummy for young democracies are jointly equal to zero yields a p-value of 0.16 (0.42).

Column (3) of Table 3 shows that in countries where the ratio of migrant remittances inflows over GDP exceeded 10 percent during the 2000s, the impact of structural reforms and stabilization policies is not significantly different from countries where migrant remittances are not a large part of economic activity. The coefficients on the interaction between a dummy for remittances countries and variables related to structural reforms and stabilization policies are not significantly different from zero at the 5 percent significance level. An F-test on the hypothesis that the coefficients on the interactions with variables related to structural reforms (stabilization policies) and the dummy for migrant remittances countries are jointly equal to zero yields a p-value of 0.80 (0.12).

3.3 Are the Effects of Structural and Stabilization Policies Different for the Post-1990 and Post-2000 Period?

This Section explores whether the growth effects of structural reforms and stabilization policies significantly vary for the post-1990 period (and the post-2000 period). To do so we estimate a model that interacts the variables relating to structural and stabilization policies with an indicator variable for the post-1990 (post-2000) period. The relevant results are reported in Table 4. In that table we only report estimated coefficients for the interaction terms. (The estimated coefficients on the linear terms on X (the Γ_3 in equation 1.2) are not reported in that table.)

The estimates in column (1) of Table 4 show that the effects of structural and stabilization policies are not significantly different for the 2000s. The coefficients on the post-2000 interaction terms are quantitatively small for the majority of variables. For none of the variables are the coefficients on the post-2000 interaction terms significantly different from zero at the 5 percent level. Column (2) shows that, except for telecommunication infrastructure, the effects of structural reforms and

stabilization policies are not significantly different for the post-1990 period.

3.4 Unconditional Effects

In this section we discuss estimates of unconditional effects that each variable in the category of structural reforms and stabilization policies has on economic growth. The baseline estimates, reported in the section 3.1, were obtained from a multivariate regression model. This model was estimated using the largest possible sample given available data for variables used in the estimation. Because not all variables are available for all countries and years during the 1970-2010 period, the panel in the baseline regression is unbalanced. It is, unfortunately, not practical to present balanced panel regressions for the multivariate model as in that case the number of remaining countries in the panel is drastically reduced (to 36). This section presents balanced panel estimates of unconditional effects.

Column (1) of Table 5 shows estimates from a model that includes the variables of interest one at a time, controlling for lagged GDP as well as country and time fixed effects. Column (2) of Table 5 adds to the model the international commodity export price index in order to control for commodity price windfalls. In columns (3) and (4) the regressions are done using data on real GDP per capita from PWT 8.0 rather than PWT 7.1.[5]

The balanced panel regressions confirm the message of the baseline estimates that structural policies are important for economic growth: schooling, financial depth, trade openness, and infrastructure have significant positive effects on growth, while the government burden has a significant negative effect. The unconditional effects of variables related to stabilization policies are significant as well as. That is, inflation, the real exchange rate and banking crises have a significant effect on GDP per capita growth. These findings hold regardless of whether we use data on GDP per

5 Our main regressions are based on using PPP GDP p.c. data from PWT 7.1. This database provides use with the largest number of country-year observations. It covers the period up to 2010 and 189 countries. In contrast the recently available PPP GDP p.c. data from PWT 8.0 covers the period up to 2011 and 167 countries.

capita from PWT 7.1 or 8.0; or include in the econometric model a measure that captures windfalls from international commodity price shocks.

The estimated unconditional effects are also quantitatively sizeable. It is useful to recall that the coefficients reported in the tables capture the impact elasticity effects; the cumulative long-run effects can be obtained by dividing these coefficients by 1/1-θ, where θ is the coefficient on lagged GDP per capita. For example, with regard to schooling, the estimated coefficient of 0.06 in column (1) of Panel A in Table 5 should be interpreted as a one percent increase in the secondary school enrolment rate leading to an increase in GDP per capita over a five-year period of around 0.06 percent; the cumulative long-run effect of a (permanent) increase in the secondary school enrolment rate is larger, going up to over 0.28 percent.

3.5 Alternative Measures of Schooling and Infrastructure

In this section we discuss robustness of the estimated effects of schooling and infrastructure to alternative schooling and infrastructure measures. In line with the empirical growth literature (e.g. Mankiw et al., 1992; Loayza et al., 2005) our main measure of schooling is the secondary school enrolment rate. We show in Table 6 that there is also a positive effect when we use alternative measures of schooling, such as the primary school enrolment rate or the tertiary enrolment rate. Moreover, there exists a significant positive effect when education is measured by Barro and Lee (2010)'s total years of schooling.[6]

The positive effect of infrastructure on economic growth is robust to using alternative infrastructure measures. Our main measure of telecommunications infrastructure is the number of

6 Unfortunately, it is not viable to examine at the within-country level the effects of school quality on economic growth. The reason is lack of time-series data. Hanushek and Woessman (2012) argue that Latin American countries have experienced relatively low GDP per capita growth rates over the past half century, despite having relatively high levels of school attainment, because of low educational achievement. The empirical analysis in Hanushek and Woessman (2012) is based entirely on cross-sectional data.

telephones lines per capita. An alternative measure of telecommunications infrastructure is mobile phones per capita. We show in column (1) of Table 7 that there exists a significant positive effect on GDP per capita growth when using this alternative measure of telecommunications infrastructure. Going beyond telecommunications infrastructure, columns (2) and (3) of Table 7 show that transportation infrastructure, as captured by roads and railway lines per capita, has also a significant positive effect on GDP per capita growth.

4. Actual vs. Predicted Growth During the 2000s

In this section we evaluate how well the estimated model replicates observed GDP per capita growth. Table 8 reports predictions of economic growth for the 2000s. The table shows predictions for various samples of interest: the Philippines, ASEAN, remittance-receiving countries, lower middle income countries, young democracies, structural peers, regional peers, all countries excluding ASEAN, all countries. The predicted GDP per capita growth is generated using the estimated coefficients in column (1) of Table 2 and the observed changes in each of the right-hand-side variables.

From Table 8 one can see that the predictions from the model have the right sign for the samples of interest. Quantitatively, the predictions are also fairly close to the actual values. For the Philippines, the actual change in GDP per capita between the period 2006-2010 and 1996-2000 is 0.21 logs while the predicted change is 0.22 logs. In per annum terms, this amounts to a growth rate of slightly above 2 percent.

Noteworthy is that during the 2000s, actual average growth of GDP per capita in the Philippines was lower than the average of all the comparator groups. Predicted growth for the Philippines during the 2000s is also lower than the predicted average growth for the comparator groups. That is, the model correctly predicts that over a 10-year window, between the periods 2006-2010 and 1996-2000, average

growth in the Philippines was lower than the average growth rates in ASEAN, migrant remittance countries, lower middle income countries, young democracies, structural peers, and regional peers.

For the group of ASEAN countries, the model's predicted changes in log GDP per capita have the same sign as the actual changes in log GDP per capita. Quantitatively, the predictions are also fairly close to the observed changes in GDP per capita. Over a ten-year window, between 2006-2010 and 1996-2000, the actual average change is 0.34 logs while the predicted change is 0.37 logs.

For the groups of structural and regional peers, the model's predicted changes in log GDP per capita have the same sign as the actual changes in log GDP per capita. Quantitatively, the predictions are also fairly close to the observed changes in GDP per capita. For structural (regional) peers, the actual average change in GDP per capita between 2006-2010 and 1996-2000 is 0.30 (0.40) logs while the predicted change is 0.32 (0.46) logs.

For the group of remittance-receiving countries the predicted changes in GDP per capita have the same sign as the actual changes in log GDP per capita. Over a ten-year window, between 2006-2010 and 1996-2000, the actual average change in GDP per capita is 0.26 logs while the model's predicted change is 0.39 logs. The model thus somewhat over predicts growth over the 10-year window for the comparator group of remittance-receiving countries. Upon further inspection, one sees that the model's prediction of growth during the second part of the 10-year window matches fairly well with actual growth. The over prediction for the 10-year window arises from an over prediction of growth during the first five years of that decade. The actual average change in GDP per capita between 2006-2010 and 2001-2005 is 0.15 logs while the predicted change is 0.14 logs. Between 2001-2005 and 1996-2000 the actual average change in GDP per capita is 0.11 logs; the model's predicted change is 0.25 logs.

For the group of lower middle income countries the predicted changes in GDP per capita have the same sign as the actual changes in log GDP per capita. Quantitatively, the predictions are also fairly

close to the observed changes in GDP per capita. Over a ten-year window, between 2006-2010 and 1996-2000, the actual average change in GDP per capita is 0.26 logs while the model's predicted change is 0.33 logs. The model slightly over predicts growth over that 10-year window. Upon further inspection, one sees that the model's prediction of growth during the second part of the 10-year window matches fairly well with actual growth. The over prediction for the 10-year window arises from an over prediction of growth during the first five years of that decade. The actual average change in GDP per capita between 2006-2010 and 2001-2005 is 0.17 logs and the predicted change is 0.16 logs. Between 2001-2005 and 1996-2000 the actual average change in GDP per capita is 0.10 logs; the model's predicted change is 0.18 logs.

For the group of young democracies, the model's predicted changes in log GDP per capita have the same sign as the actual changes in log GDP per capita. Quantitatively, the predictions are also fairly close to the observed changes in GDP per capita. Over a ten-year time window, between 2006-2010 and 1996-2000 the actual average change is 0.26 logs while the predicted change is 0.27 logs. The actual average change in GDP per capita between 2006-2010 and 2001-2005 is 0.17 logs and the predicted change is 0.15 logs. Between 2001-2005 and 1996-2000 the actual average change in GDP per capita is 0.09 logs; the model's predicted change is 0.12 logs.

For the world sample, the actual average change in GDP per capita over a ten-year window between 2006-2010 and 1996-2000 is 0.27 logs. The model's predicted change is 0.32 logs. Over a five-year window, between the period 2006-2010 and 2001-2005, the actual change in GDP per capita is 0.16 logs while the predicted change is 0.17 log points. For the period between 1996-2000 and 1991-1995, the actual change in GDP per capita is 0.11 logs while the predicted change is 0.16 logs. If ASEAN countries are excluded from the world sample, the actual change in GDP per capita between 2006-2010 and 1996-2000 is 0.26 logs; the predicted change is 0.32 logs.

5. Drivers of Growth in the Philippines During the 2000s

Structural reforms contributed to about two-fifth of the economic growth that the Philippines experienced during the 2000s (see Figure 3). During the 2000s improvements in the structure of the Philippine economy lifted GDP per capita growth by slightly less than 1 percentage point per annum. To better grasp the significance of the contribution of structural reforms to the growth performance of the Philippines during the 2000s, it is useful to compare it to the growth contribution of transitional convergence. Transitional convergence contributed to about 1 percentage point higher GDP per capita growth during the 2000s. Hence, the contribution of structural reforms to the Philippines's GDP per capita growth during the 2000s was nearly as large as the contribution of transitional convergence.

Among the changes in the structure of the Philippine economy that occurred during the 2000s, the increase in telecommunication infrastructure was the most important one in terms of lifting GDP per capita growth (see Figure 4). Between the periods 1996-2000 and 2006-2010, telephone lines per capita increased between the periods 1996-2000 and 2006-2010 by more than 50 percent. As a consequence of the expansion in infrastructure, GDP per capita growth was lifted by over 0.7 percentage points per annum.

Reductions in the government burden also contributed considerably to higher GDP per capita growth. The GDP share of government consumption declined between the periods 1996-2000 and 2006-2010 by about one quarter -- from 18 percent in 1996-2000 to 14 percent in 2006-2010. As a consequence of this decline in the government burden the model predicts that GDP per capita growth increased by more than 0.6 percentage points per annum.

The trend in the increase of education that was present in the Philippines during the 1990s continued throughout the 2000s. Between the periods 1996-2000 and 2006-2010 the secondary school enrolment rate increased by around 8 percentage points -- from 74 percent in 1996-2000 to 82 percent in 2006-2010. The contribution of schooling to the Philippine´s GDP per capita growth during the

2000s was positive. However, quantitatively it was relatively small. GDP per capita growth was lifted by less than 0.1 percentage points per annum during the 2000s due to the increase in schooling.

Not all of the changes in the structure of the Philippine economy were favorable to economic growth. Decreases in financial development and trade openness reduced the Philippines's GDP per capita growth during the 2000s. Between the periods 1996-2000 and 2006-2010, the GDP share of domestic credit to the private sector decreased, from 45 percent in 1996-2000 to 30 percent in 2006-2010. The fifty percent decrease in the GDP share of domestic credit to the private sector reduced GDP per capita growth by about 0.3 percentage points per annum. The decline in trade openness during the 2000s reduced GDP per capita by over 0.1 percentage points per annum.

Stabilization policies had a smaller effect on the Philippines's GDP per capita growth than structural reforms. Between 1996-2000 and 2006-2010 GDP per capita growth was about 0.4 percentage points higher per annum due to improvements in variables that are related to stabilization policies. The decrease in inflation and depreciation of the real exchange rate lifted GDP per capita growth by about 0.1 percentage points per annum during the 2000s. Between 1996-2000 and 2006-2010, inflation decreased in the Philippines by about 5 percentage points, from about 10 percent per annum to 5 percent per annum. The real exchange rate index decreased during that time period by around 2 percent. Growth between 1996-2000 and 2006-2010 was about 0.2 percentage points higher per annum due to a more stable banking sector.

Changes in the terms of trade and the international commodity prices had a minor effect on the Philippines's growth rate during the 2000s. The decline in the terms of trade and the increase in international commodity prices negatively affected growth. Quantitatively the effect was not large, however. Adverse external conditions reduced growth by less than 0.1 percentage points per annum during the 2000s.

6. Comparator Countries

6.1 ASEAN

Economic growth in the Philippines during the 2000s was significantly below the growth rate of leading ASEAN countries, see Figure 5. Between 1996-2000 and 2006-2010, the ASEAN country with the highest GDP per capita growth was Cambodia. Over those ten years, Cambodia experienced a change in real PPP GDP per capita of around 0.6 logs. The Philippines's growth rate during the 2000s was thus only about one-third of the growth rate of ASEAN's top growth performing country. The Philippines's real PPP GDP per capita growth rate was about half of the growth rate of Laos and Vietnam that ranked second and third among ASEAN countries in terms of economic growth during that period. The growth rate of the Philippines during the 2000s was slightly below that of Thailand, and at par with the growth rates of Malaysia and Indonesia. Brunei was the only ASEAN country that during the 2000s witnessed negative growth in PPP GDP per capita.

Figure 6 plots the contribution to economic growth from structural reforms for the group of ASEAN countries. Among ASEAN countries, the Philippines ranks in the middle in terms of the growth contribution from structural reforms. Vietnam is the country in ASEAN where during the 2000s structural reforms had the largest growth effect: favorable structural reforms lifted growth in Vietnam during that decade by over 4 percentage points per annum on average. This is more than four times the growth contribution of structural reforms in the Philippines during that time period. The country with the second largest gain from structural reforms among ASEAN countries is Cambodia. In Cambodia structural reforms caused an increase in the change of PPP GDP per capita between 1996-2000 and 2006-2010 of nearly 0.3 logs. This is sizable and about three times the growth benefit from structural reforms that was achieved by the Philippines during that time period. Structural reforms in the Philippines contributed to growth about as much as in Indonesia and Laos, and slightly more than in Thailand. In Brunei and Malaysia adverse developments in the structure of the economy reduced

growth by around 1 percentage points per annum on average during the 2000s.

The Philippines fared best among ASEAN countries in terms of the growth contribution of stabilization policies. This can be seen from Figure 6. Positive developments in price stability lifted economic growth by about 0.4 percentage points per annum on average during the 2000s. Stabilization policies positively contributed to growth in the majority of ASEAN countries during that time period, with the second and third largest contribution occurring in Malaysia and Thailand. In those countries growth was lifted by around 0.3 percentage points per annum. The only ASEAN country with adverse price developments was Vietnam; in that country growth was reduced by around 0.1 percentage points per annum during the 2000s.

Noteworthy is that for all ASEAN countries the growth impact of structural reforms is larger than that of stabilization policies. For the average ASEAN country the growth effect of structural reforms is about four times the growth effect of stabilization policies. Structural reforms caused an increase in the change of PPP GDP per capita between 1996-2000 and 2006-2010 of nearly 0.08 logs on average among ASEAN countries. For stabilization policies the average effect is around 0.02 logs.

Figure 7 plots the contribution to economic growth from transitional convergence for ASEAN countries during the 2000s. The Philippines had a relatively small gain from growth momentum of the previous decade, amounting to around 1 percentage point per annum. The largest transitional convergence effect materialized in Vietnam where economic growth was boosted by over 4 percentage points per annum. The second and third largest effects were in Cambodia and Laos; in these countries the contribution to growth of transitional convergence exceeded that of the Philippines by around 2 percentage points per annum.

The growth effects of external conditions were small in the Philippines relative to other ASEAN countries. External conditions decreased GDP per capita growth by less than 0.1 percentage points per annum in the Philippines. In absolute value, this is the smallest effect among ASEAN countries. The

commodity price boom and improvements in the terms of trade had substantial positive effects on growth in Malaysia, Indonesia and Brunei during the 2000s. The largest positive growth effect was in Malaysia where 1996-2000 and 2006-2010 GDP per capita increased by around 0.15 logs. In Indonesia and Brunei the effects were around 0.1 and 0.08 logs, respectively. Thailand, Laos, and Vietnam also experienced positive growth effects but quantitatively these effects were much smaller, around 0.3 to 0.1 logs of GDP per capita.

6.2 Remittance-Receiving Countries

In this section, we compare growth effects in the Philippines to a set of countries where migrant remittance inflows are large relative to GDP. Specifically, we choose 10 percent of GDP (as an average during the 2000s) as the threshold above which countries are part of the comparator group.

The Philippines's growth rate during the 2000s was below the average and median growth rate of remittance-receiving countries, see Figure 9. The change between 1996-2000 and 2006-2010 in GDP per capita for the average (median) remittance-receiving country was around 0.26 logs. For the Philippines GDP per capita changed between those periods by around 0.21 logs. The remittance-receiving country with the highest growth rate was Albania. Albania's GDP per capita grew at a rate three times that of the Philippines during the 2000s. About one-quarter of the remittance-receiving countries had growth rates that were at least twice as high as the Philippines's growth rate.

Figure 10 plots the contribution to remittance-receiving countries' economic growth from structural reforms. Structural reforms lifted economic growth in nearly all of the remittance-receiving countries. The growth contribution of structural reforms in the Philippines is below the average (median) remittance-receiving country. For the average (median) remittance-receiving country GDP per capita increased between 1996-2000 and 2006-2010 due to structural reforms by around 0.16 (0.15) logs. Among this group of countries the effect is largest for Albania, the country that also had the

highest GDP per capita growth rate. Structural reforms raised Albania's GDP per capita growth by more than 4 percentage points per annum on average during the 2000s. This is more than four times the growth contribution of structural reforms in the Philippines.

In nearly all of the remittance-receiving countries adverse developments in price stability reduced economic growth, see Figure 10. For the average (median) remittance-receiving country growth was reduced due to adverse developments in price stability by around 0.1 percentage points per annum. The largest positive growth effect was in the Philippines. Noteworthy is that for all remittance-receiving countries the growth impact of stabilization policies is much smaller than the effect of structural reforms. For example, the average (median) growth effect of structural reforms is, in absolute size, about 10 times larger than average (median) growth effect of stabilization policies.

Figure 11 plots the contribution to economic growth from transitional convergence for remittance-receiving countries during the 2000s. The Philippines had a relatively small gain from growth momentum of the previous decade, amounting to around 1 percentage point per annum. The largest transitional convergence effect materialized in Bosnia and Herzegovina where economic growth was boosted by over 10 percentage points per annum. The second largest effect was in Albania, which during the 2000s, had also the highest growth of GDP per capita. In Albania the contribution to growth from transitional convergence exceeded that of the Philippines by around 3 percentage points per annum.

The commodity price booms and changes in the terms of trade had a small growth effect on all of the remittance-receiving countries, see Figure 12. For the average remittance-receiving country the growth effect of these external conditions was negative, amounting in absolute value to less than 0.1 percentage points per annum. For comparison, the average growth effect of structural reforms is, in absolute size, about 15 times larger than the average growth effect of external conditions. The Philippines ranks in the middle of remittance-receiving countries with regard to the effect that external

conditions had on economic growth during the 2000s. The remittance-receiving country with the largest positive growth effect of external conditions was Jamaica. In Jamaica growth was boosted during the 2000s by the commodity price boom and growth in the terms of trade by around 0.4 percentage points per annum. For comparison: in the group of remittance-receiving countries the largest positive growth effect of structural reforms during that period was around 4 percentage points per annum; i.e. about 10 times the maximum of the growth effect of external conditions that was realized in the group of remittance-receiving countries during the 2000s.

6.3 Lower Middle Income Countries

The Philippines's growth rate during the 2000s was below the average growth rate of lower middle income countries. The change between 1996-2000 and 2006-2010 in GDP per capita for the average lower middle income country was around 0.26 logs. For the Philippines GDP per capita changed between those periods by around 0.21 logs. Growth in the Philippines was however close to the median of the lower middle income countries, which was around 0.22 logs over that decade; see Figure 13. The lower middle income country with the highest growth rate was Armenia. Armenia's GDP per capita grew at a rate four times that of the Philippines during the 2000s. The lower middle income countries with the second and third highest growth rates are the Ukraine and Albania. Those countries experienced growth in PPP GDP per capita growth during the 2000s that was three times the growth of the Philippines.

Figure 14 plots the contribution to lower middle income countries' economic growth from structural reforms. Structural reforms lifted economic growth in the majority of these countries. The growth contribution of structural reforms in the Philippines is about equal to the average (median) lower middle income country. For the average (median) lower middle income country GDP per capita increased between 1996-2000 and 2006-2010 due to structural reforms by around 0.1 (0.09) logs.

Among this group of countries the effect is largest for Albania and Vietnam. Structural reforms raised these countries' GDP per capita growth rate by more than 4 percentage points per annum on average during the 2000s. This is more than four times the growth contribution of structural reforms in the Philippines.

In majority of lower middle income countries adverse developments in price stability reduced economic growth, see Figure 14. For the average (median) lower middle income country growth was reduced due to adverse developments in price stability by around 0.1 percentage points per annum. The largest positive growth effect was in the Philippines, followed by Nigeria where stabilization policies raised growth by around 0.4 percentage points per annum on average during the 2000s. Noteworthy is that for all lower middle income countries the growth impact of stabilization policies is much smaller than the effect of structural reforms. For example, the average (median) growth effect of structural reforms is, in absolute size, over 10 times larger than average (median) growth effect of stabilization policies.

The commodity price booms and changes in the terms of trade had heterogenous effects on economic growth of lower middle income countries, see Figure 15. Substantial positive growth effects materialized during the 2000s in those countries where natural resource exports are large relative to GDP. Examples are Guyana, Iraq, Nigeria, Papua New Guinea, The Republic of Congo, and Zambia. In those countries, growth in real PPP GDP per capita was lifted during the 2000s due to the commodity price boom and growth in the terms of trade by more than 3 percentage points per annum. For the group of lower middle income countries the average growth effect of external conditions was positive, amounting to about 0.8 percentage points per annum. However, for the median country the effect is much smaller amounting to about 0.1 percentage points per annum. The Philippines is in the bottom quartile of middle income countries in terms of the growth contribution of the commodity price boom and the change in the terms of trade. At the bottom 25th percentile, external conditions reduced growth

during the 2000s by around 0.1 percentage points per annum on average.

Figure 16 plots the contribution to economic growth from transitional convergence for lower middle income countries during the 2000s. The Philippines ranks slightly below the median lower middle income country in terms of the growth contribution of transitional convergence. In the median lower middle income country transitional convergence lifted growth by around 1.2 percentage points per annum. The average growth contribution of transitional convergence in lower middle income countries was around 1.5 percentage points per annum.

6.4 Young Democracies

The Philippines is among a group of 9 countries that at the turn of the 1990s completed their transition to democracy, see Appendix Figure 2. According to Polity IV, countries are classified as democracies if their Polity2 score is above 6; countries with Polity2 scores between 5 and -5 are anocracies, i.e. transition countries; countries with Polity2 scores between -6 and -10 are autocracies. In this section we compare the Philippines's growth performance to young democracies, i.e. those countries that at the turn of the 1990s completed their transition to democracy and remained democracies throughout the 2000s.

The Philippines's growth rate during the 2000s was below the average and median growth rate of young democracies, see Figure 17. The change between 1996-2000 and 2006-2010 in GDP per capita for the average (median) young democracy was around 0.26 (0.28) logs. The country among the young democracies with the highest growth rate was Bulgaria. Bulgaria's GDP per capita grew during the 2000s at over five percent per annum. This is more than twice the growth rate of the Philippines during that time period. Three other young democracies had growth rates of around four percent per annum. The majority of young democracies had positive growth rates during the 2000s, with the exception being Ivory Coast and Madagascar. Those two countries experienced decreases in their GDP

per capita during that time period of around 1.4 and 0.6 percentage points per annum, respectively,

Figure 18 shows the contribution to economic growth of structural reforms among the young democracies. Structural reforms lifted economic growth in the majority of these countries. The growth contribution of structural reforms in the Philippines is about equal to the average and median in the group of young democracies. For the average (median) country, GDP per capita increased between 1996-2000 and 2006-2010 due to structural reforms by around 0.1 (0.09) logs. Among this group of countries the effect is largest for Mongolia. Structural reforms raised Mongolia's GDP per capita growth rate by around 1.8 percentage points per annum on average during the 2000s. This is about two times the growth contribution of structural reforms in the Philippines.

In majority of young democracies adverse developments in price stability reduced economic growth, see Figure 18. For the average (median) young democracy growth was reduced due to adverse developments in price stability by less than 0.1 percentage points per annum. The largest positive growth effect was in the Philippines where stabilization policies raised growth by around 0.4 percentage points per annum on average during the 2000s. Noteworthy is that for all young democracies the growth impact of stabilization policies is much smaller than the effect of structural reforms. For example, the average (median) growth effect of structural reforms is, in absolute size, about 10 times larger than the average (median) growth effect of stabilization policies.

The commodity price booms and changes in the terms of trade had heterogenous effects on economic growth of young democracies, see Figure 19. Substantial positive growth effects materialized during the 2000s in those countries where natural resource exports are large relative to GDP. In Chile, growth in real PPP GDP per capita was lifted during the 2000s due to the commodity price boom and growth in the terms of trade by more than 2 percentage points per annum. The country with the second largest contribution from external conditions is Mongolia. In Mongolia growth in real PPP GDP per capita was lifted during the 2000s due to the commodity price boom and growth in the terms of trade

by around 1.5 percentage points per annum. For the group of young democracies the average growth effect of external conditions was positive, amounting to about 0.5 percentage points per annum. However, for the median country the effect is much smaller amounting to about 0.2 percentage points per annum.

Figure 20 plots the contribution to economic growth from transitional convergence for young democracies during the 2000s. The Philippines ranks slightly below the median country in the group of young democracies in terms of the growth contribution of transitional convergence. In the median country transitional convergence lifted growth by around 1.1 percentage points per annum. The average growth contribution of transitional convergence in the group of young democracies was around 1.3 percentage points per annum. On average, transitional convergence contributed slightly more to economic growth than structural reforms in the group of young democracies during the 2000s.

6.6 Structural Peers

The Philippines's growth rate during the 2000s was below the average growth rate of structural peers, see Figure 21. The change between 1996-2000 and 2006-2010 in GDP per capita for the average (median) structural peer was around 0.30 (0.32) logs. For the Philippines GDP per capita changed between those periods by around 0.21 logs. The structural peer with the highest growth rate was Vietnam. Vietnam's GDP per capita grew at a rate nearly three times that of the Philippines during the 2000s. Structural peer countries that grew at a rate nearly twice that of the Philippines were Bangladesh, Morocco, and Sri Lanka. Pakistan grew at about the same rate as the Philippines while growth in Kenya was significantly below the Philippines's growth rate during that period.

Figure 22 plots the contribution to economic growth from structural reforms. Structural reforms lifted economic growth in all of the structural peers. The growth contribution of structural reforms in the Philippines is below the average (median) structural peer – the difference is around half a

percentage point per annum. For the average (median) structural peer GDP per capita increased between 1996-2000 and 2006-2010 due to structural reforms by around 0.17 (0.16) logs. Among this group of countries the effect is largest in Vietnam. Structural reforms raised Vietnam's GDP per capita growth rate by more than 4 percentage points per annum on average during the 2000s. Structural peers where the growth contribution of structural reforms were nearly twice as large as in the Philippines are Bangladesh, Morocco, and Sri Lanka.

In majority of structural peers adverse developments in price stability reduced economic growth, see Figure 22. For the median country growth was reduced due to adverse developments in price stability by less than 0.03 percentage points per annum. The largest positive growth effect was in the Philippines, where stabilization policies raised growth by around 0.4 percentage points per annum on average during the 2000s. Noteworthy is that for all structural peers the growth impact of stabilization policies is much smaller than the effect of structural reforms. For example, the median growth effect of structural reforms is, in absolute size, over 80 times larger than the median growth effect of stabilization policies.

In the majority of structural peers the commodity price booms and decline in the terms of trade had small effects on economic growth, see Figure 23. For the median country the growth effect of these external conditions was negative, amounting in absolute value to less than 0.2 percentage points per annum. For comparison, the median growth effect of structural reforms is, in absolute size, about 8 times larger than the median growth effect of external conditions. The Philippines ranks in the middle of structural peers with regard to the effect that external conditions had on economic growth during the 2000s. The country with the largest positive growth effect of external conditions was Morocco. In Morocco growth was boosted during the 2000s by the commodity price boom and growth in the terms of trade by around 0.2 percentage points per annum. The country with the largest negative growth effect of external conditions was Pakistan. Due to the decline in the terms of trade during the 2000s,

Pakistan's GDP per capita growth rate was reduced by around 0.8 percentage points per annum. For comparison: in the group of structural peers the largest growth effect of structural reforms during that period was around 4 percentage points per annum; i.e. about 20 (5) times the maximum of the positive (negative) growth effect of external conditions that was realized in the group of structural peers during the 2000s.

Figure 24 plots the contribution to economic growth from transitional convergence. The Philippines ranks slightly below the median structural peer in terms of the growth contribution of transitional convergence. In the median country transitional convergence lifted growth by around 1.1 percentage points per annum. The average growth contribution of transitional convergence in structural peers was around 1.7 percentage points per annum on average during the 2000s. The structural peer with the largest growth contribution of transitional convergence was Vietnam. In Vietnam the growth contribution of transitional convergence was about four times the growth contribution of transitional convergence of the Philippines.

6.7 Regional Peers

The Philippines's growth rate during the 2000s was below the average growth rate of regional peers, see Figure 25. The change between 1996-2000 and 2006-2010 in GDP per capita for the average (median) structural peer was around 0.40 (0.33) logs. For the Philippines GDP per capita changed between those periods by around 0.21 logs. The regional peer with the highest growth rate was China. China's GDP per capita grew at a rate of more than four times that of the Philippines during the 2000s. Vietnam grew at a rate nearly three times that of the Philippines. The growth rates of Thailand, Indonesia, and Malaysia were slightly above the growth rate of the Philippines during the 2000s.

Figure 26 plots the contribution to economic growth from structural reforms. Structural reforms lifted economic growth in all of the peer countries, except Malaysia. The growth contribution of

structural reforms in the Philippines is below the average of the regional peers. For the average regional peer GDP per capita increased between 1996-2000 and 2006-2010 due to structural reforms by around 0.13 logs. The Philippines's growth contribution of structural reforms is at the median of regional peers, about the same as that of Indonesia. Among regional peers, the country where structural reforms had the largest growth effect is Vietnam. Structural reforms raised Vietnam's GDP per capita growth rate by more than 4 percentage points per annum on average during the 2000s. China's growth contribution of structural reforms was about 2.5 percentage points per annum. This is nearly three times the growth contribution of structural reforms of the Philippines. In Thailand GDP per capita was lifted by around half a percentage point per annum, while in Malaysia adverse developments in the structure of the economy reduced growth during the 2000s by around 1 percentage point per annum on average.

In the majority of regional peers stabilization policies positively contributed to economic growth, see Figure 26. For the average regional peer stabilization policies lifted growth by around 0.1 percentage point per annum. The largest positive growth effect was in the Philippines where stabilization policies raised growth by around 0.4 percentage points per annum on average during the 2000s. The second and third largest growth effects of stabilization policies materialized in Malaysia and Thailand, around 0.3 percentage points per annum. Noteworthy is that for all regional peers the growth impact of stabilization policies is (in absolute size) smaller than the effect of structural reforms. The average growth effect of structural reforms is, in absolute size, over 10 times larger than the average growth effect of stabilization policies.

In the majority of regional peers the commodity price boom and changes in the terms of trade had small effects on economic growth, see Figure 27. For the median country the growth effect of these external conditions was positive, amounting to about 0.2 percentage points higher growth per annum on average during the 2000s. For comparison, in the group of regional peers the median growth effect of structural reforms is, in absolute size, about 5 times larger than the median growth effect of external

conditions. In the Philippines and China the commodity price boom and decline in the terms of trade had a negative but small effect on economic growth. The commodity price boom and increase in the terms of trade had small positive growth effects in Vietnam and Thailand. In Indonesia and Malaysia the commodity price boom and increase in the terms of trade had more substantial effects on economic growth: in those countries growth was lifted by around 1.0 and 1.6 percentage points per annum, respectively.

Figure 28 plots the contribution to economic growth from transitional convergence. The Philippines is the country that among regional peers experienced the smallest growth contribution from transitional convergence. In the median regional peer transitional convergence lifted growth by around 1.1 percentage points per annum. The average growth contribution of transitional convergence in regional peers was around 1.6 percentage points per annum. The regional peer with the largest growth contribution of transitional convergence was China. In China the growth contribution of transitional convergence was over six times the growth contribution of transitional convergence of the Philippines. Transitional convergence accounted for nearly two-thirds of China's growth during the 2000s.

7. Growth During the 1990s and 1980s

Hill (2017) notes that the Philippines had: "favourable initial conditions, ahead of most East Asian countries in the 1950s but began to falter from late 1970s, with a deep economic-political crisis in mid-1980s: The 1980s and 1990s were two lost decades – The Philippines missed out on the East Asian Growth Miracle". The 1990s and 1980s were indeed unusual decades in the sense that: (i) the country experienced significant political change (see Appendix Figure 2); (ii) economic growth was close to zero (see Figures 29A and 29B). Between 1996-2000 and 1986-1990 the Philippines's GDP per capita increased by around 0.11 logs. This amounts to a per annum growth rate of around 1 percent. Between 1986-1990 and 1976-1980, the Philippine economy shrank: GDP per capita decreased by around 0.07

logs. The Philippines's growth performance was significantly below the average (median) regional peer where GDP per capita expanded during the 1990s and 1980s by around 0.24 (0.26) and 0.17 (0.18) logs, respectively. Thus, over those two decades, average per annum growth in GDP per capita of the Philippines was around 2 to 3 percentage points below that of the average and median regional peer.

One can also see from Figures 29A and 29B that during the 1980s and 1990s the Philippines was among regional peers the country with the lowest growth rate of GDP per capita. And, the gap to the fastest growing regional peer was large: China's GDP per capita growth rate exceeded that of the Philippines by around 8 to 9 percentage points.

The Philippines was the country that among regional peers made least progress during the 1990s and 1980s in terms of growth-enhancing structural reforms (see Figures 30A and 30B). During the 1990s the growth contribution of structural reforms in the Philippines was about half a percentage point below the median growth contribution of structural reforms of regional peers. During the 1980s that gap was quite a bit larger, around one and a half percentage points. The regional peers that during the 1990s had the largest growth contribution from structural reforms were Vietnam and China: In those countries economic growth was lifted by nearly 5 percentage points per annum. This is about two percentage points more than the growth contribution of structural reforms in the Philippines during those decade. During the 1980s the growth contribution of structural reforms of the leading regional peer exceeded the growth contribution of structural reforms in the Philippines by nearly three percentage points per annum.

The Philippines is the country that during the 1980s and 1990s was among the worst-performing regional peers in terms of the growth contribution of stabilization policies. This is different to the 2000s when the Philippines was the country that among regional peers was the best performer in terms of the growth contribution of stabilization policies.[7] However, as was also the case for the 2000s,

7 Hill (2017) notes that in the Philippines there was the establishment of a high-quality central bank in 1993, the BSP; and successful transition to floating rate and inflation targeting regimes.

Figures 30A and 30B show that for the 1990s and 1980s the growth contribution of stabilization policies is small relative to structural reforms.

8. Growth During 2011-2015

Economic growth in the Philippines is picking up: there was negative growth in the 1980s; small positive growth in the 1990s; modest growth in the 2000s – and, for the first half of the 2010s, more substantial growth, around 4 percent per annum on average.

This section analyses the driving forces of economic growth in the Philippines during the first five years of the 2010s. The change in the Philippines's real PPP GDP per capita between 2011 to 2015 was around 0.2 logs. The model's predicted change of GDP per capita between 2011 to 2015 is very close to the actual change, around 0.2 logs. As in the previous sections, the model's predicted change in GDP per capita is the sum of the growth contribution of structural reforms, stabilization policies, transitional convergence, and external conditions for the relevant country and time period of interest.

Appendix Figure 3 shows the contribution to the Philippines's growth during the first half of the 2010s from structural reforms, stabilization policies, external conditions and transitional convergence. Transitional convergence had the largest growth effect, amounting to around 2.4 percentage points per annum. The terms of trade barely changed during 2011 to 2015 having a near zero effect on economic growth. Structural reforms contributed to about one-third of the economic growth that the Philippines experienced between 2011 and 2015. During that time period improvements in the structure of the Philippine economy lifted GDP per capita growth by about 1.4 percentage points per annum. Stabilization policies had a smaller effect on the Philippines's GDP per capita growth during 2011 to 2015 than structural reforms. GDP per capita growth was about 0.4 percentage points higher per annum due to improvements in variables that are related to stabilization policies.

Appendix Figure 4 shows that among structural reforms the three most significant are the

expansions of telecommunication infrastructure, financial development and the reduction in the government burden. These structural reforms lifted growth by around 0.7, 0.5, and 0.4 percentage points per annum, respectively. The increase in schooling of the population lifted growth by around 0.1 percentage points per annum. The reduction in trade openness that occurred during 2011-2015 slowed the Philippines's growth by around 0.4 percentage points per annum. Among stabilization policies, the decrease in inflation lifted growth by around 0.6 percentage points per annum; the appreciation of the real exchange rate reduced growth by around 0.2 percentage points per annum.

Appendix Figures 5A and 5B show that the Philippines's growth performance during 2011 to 2015 was at the median of the structural and regional peers. The regional peer with the highest growth rate was China where GDP per capita grew at around 7 percent per annum on average. Among the structural peers the highest growth rates were in Sri Lanka and Bangladesh; those countries had growth rates of around 5 percent per annum. From Appendix Figure 6 one can see that the growth contribution of structural reforms exceeded that of stabilization policies for the majority of countries. The Philippines ranks at about the median of structural and regional peers in terms of the growth contribution of structural reforms. Appendix Figure 7 shows that external conditions had a small effect on growth in the Philippines when compared to regional and structural peers. From Appendix Figure 8 one can see that in the group of regional and structural peers the Philippines's rank is at about the median with regard to the growth contribution of transitional convergence.

9. Growth During 2000-2015

Appendix Figure 9 shows results for the period 2000 to 2015. As can be seen from the figure, the message is the same as in the previous sections: structural reforms had a much larger effect on growth than stabilization policies. Between 2000-2015 improvements in the structure of the macroeconomy increased the Philippines's GDP per capita by around 0.17 logs. This means that due to favourable

structural reforms per annum growth was lifted in the Philippines between 2000 to 2015 by around 1 percentage point. Stabilization policies positively contributed to growth, lifting GDP per capita by around 0.06 logs. One can say that in the Philippines the effect of structural reforms on economic growth during that time period is about three times larger than the effect of stabilization policies. External conditions had minuscule effects on growth in the Philippines while transitional convergence accounted for nearly half of the growth in the Philippines during 2000 to 2015.

10. Growth Projections

This section discusses projections of economic growth in the Philippines for three scenarios of structural reforms and stabilization policies.

- Best-Case Scenario: Table 8A shows the growth projection for a best-case scenario: the Philippines implements structural reforms and stabilization policies that are at par with the best-performing regional peer in the year 2015. In this scenario, the Philippines's GDP per capita would grow substantially – by around 0.4 logs over a 5-year period; in the long run by around 1.8 logs. A discussion of this best-case scenario is presented in Section 9.1.
- Mediocre-Reform Scenario: Table 8B shows the growth projection for a scenario where the Philippines implements structural reforms and stabilization policies that are at par with the average regional peer in the year 2015. In this scenario, the Philippines's GDP per capita would grow by around 0.2 logs over a 5-year period; in the long run by around 0.8 logs. A discussion of this mediocre-reform scenario is presented in Section 9.2.
- Worst-Case Scenario: Table 8C shows the growth projection for a worst-case scenario:

the Philippines implements structural reforms and stabilization policies that are at part with the worst-performing regional peer in the year 2015. In this scenario the Philippines's GDP per capita would shrink by around 0.1 logs over a 5-year period; in the long run by around 0.4 logs. A discussion of this worst-case scenario is presented in Section 9.3 below.

10.1 Best-Case Scenario

One can see from Table 8A that in the best-case scenario the Philippines's GDP per capita increases substantially. In this scenario, the Philippines's GDP per capita is projected to increase over the first 5-year window by around 0.39 logs; this is an average per annum growth rate of around 8 percentage points. About two-fifth of the growth is due to transitional convergence. Three-fifth is due to structural reforms and stabilization policies. Structural reforms and stabilization policies increase GDP per capita in the best-case scenario by around 0.23 logs over the first 5-year window.

The effects of structural reforms and stabilization policies on the level of GDP per capita cumulate over time. Over a decade the effect on GDP per capita amounts to around 0.4 logs. In the subsequent decade GDP per capita is lifted by an additional 0.3 logs so that after two decades GDP per capita is higher by around 0.7 logs due to structural reforms and stabilization policies. The additional contribution to GDP per capita is positive but declining over time. After 40 (100) years, GDP per capita is higher by around 0.9 (1.0) logs due to the Philippines implementing structural reforms and stabilization policies that are at part with the best-performing regional peer. Figure 31 illustrates these dynamic effects graphically; for structural reforms and stabilization policies, separately.

As can be seen from Figure 31, the growth effects of structural reforms are much larger than the growth effects of stabilization policies. If the Philippines were to have an inflation rate and real exchange rate equal to the best-performing regional peer, this would boost the Philippines's GDP per

capita over a 5-year period by around 0.01 logs; over a 100-year period the effect would amount to around 0.06 logs. Structural reforms that increase schooling, reduce the government burden, improve infrastructure, increase financial development and lead to greater trade openness so that the Philippines is at par with the best-performing regional peer would, in sum, increase GDP per capita over a 5-year period by around 0.22 logs; over 100 years the effect would be around 0.97 logs.

The structural reforms in the best-case scenario that have the largest growth effects are financial development and trade openness, followed by infrastructure. If the Philippines catches up in financial development to the best-performing regional peer, then this would increase the Philippines's GDP per capita over a 5-year window by 0.09 logs; over 100 years the effect would be around 0.42 logs. A catch up to the best-performing regional peer in international trade openness has similar effects. If the Philippines catches up in infrastructure to the best-performing regional peer, then this would increase the Philippines's GDP per capita over a 5-year window by 0.04 logs; over 100 years the effect would be around 0.18 logs.

In the best-case scenario the Philippines's GDP per capita expands substantially: by around 0.7 logs over 10 years, and by around 1.1 logs over 20 years. To set these numbers into perspective, Table 9 tabulates PPP GDP per capita for regional peers for the year 2015. The Philippines has a year 2015 PPP GDP per capita of around 6900USD; this is equal to about 8.8 logs. In the best-case scenario, the Philippines's GDP per capita in the year 2025 is projected to be around 9.5 logs. Thailand's GDP per capita is around 9.6 logs. Thus, in the best-case scenario, it will take the Philippines about one decade to achieve the average living standards that are currently prevalent in Thailand. Malaysia's GDP per capita is around 10.1 logs. In the best-case scenario, it will take the Philippines about two decades to achieve the average living standards that are currently prevalent in Malaysia.

10.2 Mediocre-Reform Scenario

Table 8B shows that in the mediocre-reform scenario nearly all of the growth is driven by transitional convergence. Structural reforms and stabilization policies that are mediocre -- in the sense, that schooling, the government burden, infrastructure, financial development, trade openness, inflation and the real exchange rate are equal to the average regional peer in the year 2015 – have a near-zero effect on economic growth. Over 100 years, mediocre structural reforms would lift GDP per capita by merely 0.03 logs; the effect of mediocre stabilization policies on GDP per capita is around 0.01 logs. Transitional convergence lifts GDP per capita over a 100-year period by around 0.72 logs.

The growth projection in the mediocre-reform scenario is an increase of the Philippines's GDP per capita by around 0.16 logs over the first 5-year window. In this scenario it would take the Philippines nearly a century to attain the average living standards that are currently prevalent in Thailand. It is transitional convergence that makes the Philippines, in the long run (i.e. in about 100 years), attain the average living standards that are currently prevalent in Thailand. And the Philippines would stagnate there. The Philippines would never be able to attain average living standards that are comparable to the current average living standards of Malaysia. Such is the projection of the mediocre-reform scenario.

10.3 Worst-Case Scenario

One can see from Table 8C that in the worst-case scenario there is a substantial decline of the Philippines's GDP per capita. GDP per capita is projected to decrease by around 0.1 logs over a 5-year period – i.e., during the first five years growth would be around -2 percentage points per annum on average. The effects on the level of GDP per capita cumulate over time. Over a decade the effect on GDP per capita amounts to around -0.16 logs. In the subsequent decade GDP per capita decreases further by an additional 0.1 logs so that after two decades GDP per capita is lower by around 0.26 logs; at that stage average living standards in the Philippines's would have fallen below the average living

standards that are currently prevalent in Vietnam.

The growth effects of structural reforms are much larger than the growth effects of stabilization policies. If the Philippines were to have an inflation rate and real exchange rate equal to the worst-performing regional peer, this would decrease the Philippines's GDP per capita over a 5-year period by around 0.01 logs; over a 100-year period the effect would amount to around -0.04 logs. Structural reforms that decrease schooling, increase the government burden, lead to a deterioration of infrastructure, reduce financial development and decrease international trade openness so that the Philippines is at par with the worst-performing regional peer would, in sum, decrease GDP per capita over a 5-year period by around 0.24 logs; over 100 years the effect would be around -1.09 logs. Figure 32 illustrates graphically the dynamic growth effects of structural reforms and stabilization policies in the worst-case scenario.

References

Arezki, R. and M. Brueckner (2012). "Commodity Windfalls, Democracy, and External Debt." *Economic Journal* 122: 848-866.

Araujo, J., M. Brueckner, M. Clavijo, E. Vostroknutova, and K. Wacker (2014). Benchmarking the Determinants of Economic Growth in Latin America and the Caribbean. World Bank Publications, The World Bank, number 91015, December.

Barro, R. and J.W. Lee (2010). "A New Data Set of Educational Attainment in the World, 1950-2010." NBER Working Paper No. 15902.

Barro, R. and X. Sala-i-Martin (2003). Economic Growth. 2nd Edition MIT Press; Cambridge, MA.

Durlauf, S., P. Johnson, and J. Temple (2005). "Growth Econometrics." Handbook of Economic Growth (Aghion and Durlauf, eds.), North-Holland, 2005.

Hanushek, E. and L. Woessman (2012). "Schooling, Educational Achievement, and the Latin American Growth Puzzle." Journal of Development Economics 99: 497-512.

Heston, A., R. Summers and B. Aten (2012). "Penn World Table Version 7.1." Center for International Comparisons of Production, Income and Prices at the University of Pennsylvania.

Hill, Hal (2017). “The Philippine Economy: No Longer the East Asian Exception?” Presentation to Arndt Corden Department of Economics Seminar, June 2017.

Loayza, N., P. Fajnzylber and C. Calderón (2005). "Economic Growth in Latin American and the Caribbean: Stylized Facts, Explanations, and Forecasts." World Bank Publications, The World Bank, number 7315, April.

Mankiw, G., D. Romer, and D. Weil (1992). "A Contribution to the Empirics of Economic Growth." Quarterly Journal of Economics 107: 407–37.

Polity IV (2012). "Political Regime Characteristics and Transitions." Online Database. http://www.systemicpeace.org/polity/polity4.htm

Reinhart, C. and K. Rogoff (2011). "From Financial Crash to Debt Crisis." American Economic Review 101: 1676-1706.

World Bank (2017). World Development Indicators. Online Database. http://data.worldbank.org/indicator

Wooldridge, J. (2002). Econometric Analysis of Cross Section and Panel Data. Cambridge, MIT Press.

Table 1. Description of Variables

Variable	Description	Source
Growth Rate of GDP per capita	The change in the natural logarithm of real PPP GDP per capita between period t and t-1.	PWT 7.1
Lagged GDP per capita	The natural logarithm of real PPP GDP per capita in period t-1.	PWT 7.1
Schooling	The natural logarithm of the secondary school enrolment rate.	WDI (2017)
Financial Development	The natural logarithm of the ratio of domestic credit to the private sector divided by GDP. Domestic credit to private sector refers to financial resources provided to the private sector, such as through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment.	WDI (2017)
Trade Openness	The natural logarithm of the ratio of exports plus imports over PPP GDP adjusted for countries' population size.	PWT 7.1
Telecommunication Infrastructure	The natural logarithm of main telephone lines per capita. Telephone lines are fixed telephone lines that connect a subscriber's terminal equipment to the public switched telephone network and that have a port on a telephone exchange. Integrated services digital network channels and fixed wireless subscribers are included.	WDI (2017)
Government Burden	The logarithm of the ratio of government consumption expenditures over GDP.	PWT 7.1
Political Institutions	The polity2 score measures the degree of political constraints, political competition, and executive recruitment. It ranges between -10 to 10 with higher values denoting more democratic institutions.	Polity IV
Inflation	The natural logarithm of 100+consumer price inflation rate. CPI inflation reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services.	WDI (2017)
Real Exchange Rate	The natural logarithm of the GDP price level divided by the nominal exchange rate.	PWT 7.1
Financial Crisis	Indicator variable that is unity in period t if the country experienced a banking crisis.	Reinhart and Rogoff (2011)
Terms of Trade Growth	The change in the natural logarithm of the net barter terms of trade index. The net barter terms of trade index is calculated as the percentage ratio of the export unit value indexes to the import unit value indexes, measured relative to the base year 2000.	WDI (2017)
ComPI Growth	The change in an international commodity export price index. The index is constructed as $$\mathrm{ComPI}_{ct} = \prod_{i \in I} \mathrm{ComPrice}_{it}^{\theta_{ic}}$$ where $ComPrice_{it}$ is the international price of commodity i in year t, and θ_{ic} is the average (time-invariant) value of exports of commodity i in the GDP of country c. Data on international commodity prices are from UNCTAD Commodity Statistics and data on the value of commodity exports are from the NBER-United Nations Trade Database (Feenstra et al., 2004). The commodities included in the index are aluminum, beef, coffee, cocoa, copper, cotton, gold, iron, maize, oil, rice, rubber, sugar, tea, tobacco, wheat, and wood.	Arezki and Brueckner (2012)

Table 2. Economic Growth Model
(Baseline)

Dependent Variable: Δln(GDP p.c.)		
	(1)	(2)
	SYS GMM	FE OLS
Transitional Convergence		
ln(GDP p.c.), t-1	-0.22***	-0.25***
	(0.06)	(0.03)
Structural Policies and Institutions		
Schooling	0.02	-0.03
	(0.05)	(0.03)
Financial Development	0.07***	0.02
	(0.03)	(0.02)
Trade Openness	0.08*	0.10***
	(0.05)	(0.03)
Government Burden	-0.26***	-0.13***
	(0.04)	(0.03)
Telecommunication Infrastructure	0.14***	0.08***
	(0.03)	(0.02)
Political Institutions	-0.00	-0.01
	(0.03)	(0.02)
Stabilisation Policies		
Inflation	-0.01	-0.01*
	(0.01)	(0.01)
Real Exchange Rate	-0.06	-0.02
	(0.04)	(0.03)
Financial Crisis	-0.04	-0.05*
	(0.03)	(0.03)
External Conditions		
ComPI Growth	10.48***	6.96***
	(2.69)	(2.59)
Terms of Trade Growth	0.12***	0.11***
	(0.03)	(0.03)
Country FE	Yes	Yes
Time FE	Yes	Yes
Observations	464	464
Countries	126	126

Note: The dependent variable is real GDP per capita. The method of estimation in column (1) is system-GMM; column (2) least squares. *Significantly different from zero at the 10 percent significance level, ** 5 percent significance level, *** 1 percent significance level.

Table 3. Are the Growth Effects of Structural Reforms and Stabilization Policies Significantly Different in Comparator Countries?

Dependent Variable: Δln(GDP p.c.)			
	(1)	(2)	(3)
	Coefficient (SE) for Interaction with ASEAN Dummy	Coefficient (SE) for Interaction with Young Democracy Dummy	Coefficient (SE) for Interaction with Remittance Country Dummy
Schooling	-0.37 (0.23)	-0.15 (0.22)	-0.12 (0.50)
Financial Development	0.09 (0.13)	-0.05 (0.11)	-0.00 (0.11)
Trade Openness	-0.01 (0.35)	-0.27 (0.35)	-0.16 (0.21)
Government Burden	0.15 (0.26)	-0.45 (0.24)	-0.22 (0.40)
Telecommunication Infrastructure	-0.01 (0.15)	0.02 (0.10)	-0.07 (0.10)
Political Institutions	-0.08 (0.08)	-0.06 (0.08)	-0.11 (0.08)
Inflation	-0.03 (0.07)	0.01 (0.07)	-0.06 (0.07)
Real Exchange Rate	0.10 (0.23)	0.28 (0.23)	0.31 (0.16)
Financial Crisis	-0.10 (0.09)	-0.06 (0.11)	-0.11 (0.15)
Country FE	Yes	Yes	Yes
Time FE	Yes	Yes	Yes
Observations	464	464	464
Countries	126	126	126

Note: The method of estimation is system-GMM. ** Significantly different from zero at 5 percent significance level, *** 1 percent significance level.

Table 4. Are the Growth Effects of Structural Reforms and Stabilization Policies Significantly Different in During the Post-1990 or Post-2000 Period?

Dependent Variable: Δln(GDP p.c.)		
	(1)	(2)
	Interaction with Post-2000 Dummy	Interaction with Post-1990 Dummy
Schooling	-0.03	-0.00
	(0.03)	(0.02)
Financial Development	-0.04	-0.01
	(0.03)	(0.02)
Trade Openness	-0.10	-0.15
	(0.08)	(0.10)
Government Burden	0.02	0.02
	(0.03)	(0.02)
Telecommunication Infrastructure	0.02	0.03***
	(0.01)	(0.01)
Political Institutions	-0.003	-0.001
	(0.002)	(0.002)
Inflation	-0.02	0.01
	(0.19)	(0.14)
Real Exchange Rate	-0.03	0.02
	(0.03)	(0.05)
Financial Crisis	-0.04	-0.04
	(0.06)	(0.05)
Country FE	Yes	Yes
Time FE	Yes	Yes
Observations	464	464
Countries	126	126

Note: The method of estimation is system-GMM. *Significantly different from zero at the 10 percent significance level, ** 5 percent significance level, *** 1 percent significance level.

Table 5. Economic Growth Regressions
(Unconditional Effects)

Dependent Variable: ln(GDP p.c.)				
	(1)	(2)	(3)	(4)
	SYS GMM	SYS GMM	SYS GMM	SYS GMM
	PWT 7.1 Data	PWT 7.1 Data	PWT 8.0 Data	PWT 8.0 Data
		Panel A: Schooling		
ln(Secondary School Enrolment Rate), t	0.06**	0.08***	0.06	0.10**
	(0.03)	(0.03)	(0.05)	(0.05)
ln(GDP p.c.), t-1	0.79***	0.80***	0.72**	0.69***
	(0.04)	(0.04)	(0.04)	(0.05)
ComPI Growth, t		1.69**		2.64***
		(0.69)		(0.88)
AR (1) Test, p-value	0.00	0.00	0.00	0.00
AR (2) Test, p-value	0.13	0.31	0.15	0.37
Sargan Test $\chi^2(2)$, p-value	0.33	0.58	0.76	0.12
Country Fe	Yes	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes	Yes
Observations	760	664	680	608
Countries	95	83	85	76
		Panel B: Financial Development		
ln(Private Domestic Credit/GDP), t	0.10***	0.09***	0.05*	0.06**
	(0.03)	(0.03)	(0.02)	(0.03)
ln(GDP p.c.), t-1	0.68***	0.69***	0.69***	0.67***
	(0.05)	(0.05)	(0.04)	(0.05)
ComPI Growth, t		1.11**		2.67***
		(0.54)		(0.75)
AR (1) Test, p-value	0.00	0.00	0.00	0.00
AR (2) Test, p-value	0.00	0.00	0.00	0.01
Sargan Test $\chi^2(2)$, p-value	0.34	0.55	0.59	0.87
Country Fe	Yes	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes	Yes
Observations	800	744	744	696
Countries	100	93	93	87

Note: The dependent variable is real GDP per capita. The method of estimation is system-GMM. For each panel and column, the system-GMM estimation is based on 2 endogenous variables and 4 instruments. *Significantly different from zero at the 10 percent significance level, ** 5 percent significance level, *** 1 percent significance level.

Table 5. Economic Growth Regressions
(Unconditional Effects)

Dependent Variable: ln(GDP p.c.)				
	(1)	(2)	(3)	(4)
	SYS GMM	SYS GMM	SYS GMM	SYS GMM
	PWT 7.1 Data	PWT 7.1 Data	PWT 8.0 Data	PWT 8.0 Data
		Panel C: Trade Openness		
ln(Structure Adjusted Trade Volume/GDP), t	0.11*** (0.03)	0.11*** (0.03)	0.14*** (0.04)	0.14*** (0.04)
ln(GDP p.c.), t-1	0.82*** (0.03)	0.81*** (0.03)	0.74*** (0.04)	0.71*** (0.04)
ComPI Growth, t		1.53*** (0.56)		2.75*** (0.74)
AR (1) Test, p-value	0.00	0.00	0.00	0.00
AR (2) Test, p-value	0.00	0.00	0.00	0.00
Sargan Test $\chi^2(2)$, p-value	0.56	0.65	0.50	0.91
Country Fe	Yes	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes	Yes
Observations	1272	1032	1096	920
Countries	159	129	137	115
		Panel D: Government Burden		
ln(Government Consumption/GDP), t	-0.09* (0.05)	-0.07 (0.05)	-0.32*** (0.07)	-0.25*** (0.08)
ln(GDP p.c.), t-1	0.82*** (0.03)	0.81*** (0.03)	0.76*** (0.03)	0.73*** (0.03)
ComPI Growth, t		1.76*** (0.55)		2.81*** (0.74)
AR (1) Test, p-value	0.00	0.00	0.00	0.00
AR (2) Test, p-value	0.00	0.00	0.00	0.00
Sargan Test $\chi^2(2)$, p-value	0.41	0.13	0.98	0.63
Country Fe	Yes	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes	Yes
Observations	1272	1032	1096	920
Countries	159	129	137	115

Note: The dependent variable is real GDP per capita. The method of estimation is system-GMM. For each panel and column, the system-GMM estimation is based on 2 endogenous variables and 4 instruments. *Significantly different from zero at the 10 percent significance level, ** 5 percent significance level, *** 1 percent significance level.

Table 5. Economic Growth Regressions
(Unconditional Effects)

Dependent Variable: ln(GDP p.c.)				
	(1)	(2)	(3)	(4)
	SYS GMM	SYS GMM	SYS GMM	SYS GMM
	PWT 7.1 Data	PWT 7.1 Data	PWT 8.0 Data	PWT 8.0 Data
		Panel E: Infrastructure		
ln(Telephone Lines p.c.), t	0.08***	0.08***	0.04**	0.05**
	(0.01)	(0.01)	(0.02)	(0.02)
ln(GDP p.c.), t-1	0.75***	0.73***	0.75***	0.73***
	(0.03)	(0.03)	(0.03)	(0.03)
ComPI Growth, t		0.83*		1.42**
		(0.49)		(0.67)
AR (1) Test, p-value	0.00	0.00	0.00	0.00
AR (2) Test, p-value	0.00	0.00	0.00	0.00
Sargan Test $\chi^2(2)$, p-value	0.22	0.26	0.49	0.20
Country Fe	Yes	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes	Yes
Observations	976	824	896	760
Countries	122	103	112	95
		Panel F: Political Institutions		
ln(Polity2 Score), t	0.003	0.002	0.006	0.006
	(0.003)	(0.003)	(0.004)	(0.004)
ln(GDP p.c.), t-1	0.78***	0.75***	0.73***	0.71***
	(0.04)	(0.04)	(0.03)	(0.03)
ComPI Growth, t		2.10***		3.36***
		(0.61)		(0.86)
AR (1) Test, p-value	0.00	0.00	0.00	0.00
AR (2) Test, p-value	0.00	0.00	0.00	0.00
Sargan Test $\chi^2(2)$, p-value	0.74	0.81	0.32	0.58
Country Fe	Yes	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes	Yes
Observations	920	848	864	792
Countries	115	106	108	99

Note: The dependent variable is real GDP per capita. The method of estimation is system-GMM. For each panel and column, the system-GMM estimation is based on 2 endogenous variables and 4 instruments. *Significantly different from zero at the 10 percent significance level, ** 5 percent significance level, *** 1 percent significance level.

Table 5. Economic Growth Regressions
(Unconditional Effects)

Dependent Variable: ln(GDP p.c.)				
	(1)	(2)	(3)	(4)
	SYS GMM	SYS GMM	SYS GMM	SYS GMM
	PWT 7.1 Data	PWT 7.1 Data	PWT 8.0 Data	PWT 8.0 Data
		Panel G: Lack of Price Stability		
Inflation Rate, t	-0.07**	-0.05*	-0.09**	-0.08**
	(0.03)	(0.03)	(0.04)	(0.04)
ln(GDP p.c.), t-1	0.77***	0.78***	0.70***	0.70***
	(0.03)	(0.03)	(0.04)	(0.04)
ComPI Growth, t		2.16***		4.85***
		(0.71)		(0.95)
AR (1) Test, p-value	0.00	0.00	0.00	0.00
AR (2) Test, p-value	0.00	0.00	0.01	0.08
Sargan Test $\chi^2(2)$, p-value	0.71	0.80	0.52	0.62
Country Fe	Yes	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes	Yes
Observations	784	720	712	656
Countries	98	90	89	82
		Panel H: Real Exchange Rate		
ln(Real Exchange Rate), t	-0.08**	-0.07**	-0.11*	-0.10
	(0.03)	(0.03)	(0.06)	(0.06)
ln(GDP p.c.), t-1	0.79***	0.79***	0.74***	0.72***
	(0.03)	(0.03)	(0.03)	(0.04)
ComPI Growth, t		1.39**		3.82***
		(0.57)		(0.82)
AR (1) Test, p-value	0.00	0.00	0.00	0.00
AR (2) Test, p-value	0.00	0.00	0.00	0.01
Sargan Test $\chi^2(2)$, p-value	0.17	0.11	0.17	0.07
Country Fe	Yes	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes	Yes
Observations	784	720	712	656
Countries	98	90	89	82

Note: The dependent variable is real GDP per capita. The method of estimation is system-GMM. For each panel and column, the system-GMM estimation is based on 2 endogenous variables and 4 instruments. *Significantly different from zero at the 10 percent significance level, ** 5 percent significance level, *** 1 percent significance level.

Table 5. Economic Growth Regressions
(Unconditional Effects)

Dependent Variable: ln(GDP p.c.)				
	(1)	(2)	(3)	(4)
	SYS GMM	SYS GMM	SYS GMM	SYS GMM
	PWT 7.1 Data	PWT 7.1 Data	PWT 8.0 Data	PWT 8.0 Data
		Panel I: Banking Crises		
Banking Crisis, t	-0.08***	-0.07***	-0.06**	-0.06**
	(0.02)	(0.02)	(0.03)	(0.03)
ln(GDP p.c.), t-1	0.83***	0.81***	0.76***	0.74***
	(0.03)	(0.03)	(0.03)	(0.03)
ComPI Growth, t		1.92***		3.34***
		(0.55)		(0.73)
AR (1) Test, p-value	0.00	0.00	0.00	0.00
AR (2) Test, p-value	0.00	0.00	0.00	0.00
Sargan Test $\chi^2(2)$, p-value	0.12	0.09	0.15	0.25
Country Fe	Yes	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes	Yes
Observations	1272	1032	1096	920
Countries	159	129	137	115

Note: The dependent variable is real GDP per capita. The method of estimation is system-GMM. For each panel and column, the system-GMM estimation is based on 2 endogenous variables and 4 instruments. *Significantly different from zero at the 10 percent significance level, ** 5 percent significance level, *** 1 percent significance level.

Table 6. Economic Growth Regressions
(Alternative Measures of Schooling)

Dependent Variable: ln(GDP p.c.)			
	(1)	(2)	(3)
	SYS GMM	SYS GMM	SYS GMM
ln(Primary School Enrolment Rate), t	0.07 (0.06)		
ln(Tertiary School Enrolment Rate), t		0.05*** (0.02)	
Average Years of Schooling, t			0.19* (0.10)
ln(GDP p.c.), t-1	0.80*** (0.04)	0.75*** (0.04)	0.82*** (0.05)
AR (1) Test, p-value	0.00	0.00	0.00
AR (2) Test, p-value	0.08	0.00	0.25
Sargan Test $\chi^2(2)$, p-value	0.16	0.21	0.61
Country Fe	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes
Observations	757	660	632
Countries	95	92	79

Note: The dependent variable is real GDP per capita. The method of estimation is system-GMM. The system-GMM estimations are based on 2 endogenous variables and 4 instruments. *Significantly different from zero at the 10 percent significance level, ** 5 percent significance level, *** 1 percent significance level.

Table 7. Economic Growth Regressions
(Alternative Measures of Infrastructure)

Dependent Variable: ln(GDP p.c.)			
	(1)	(2)	(3)
	SYS GMM	SYS GMM	SYS GMM
ln(GDP p.c.), t-1	0.65***	0.53***	0.66***
	(0.04)	(0.10)	(0.04)
ln(Mobile Phones), t	0.02***		
	(0.00)		
ln(Roads), t		0.31**	
		(0.15)	
ln(Railways), t			0.24***
			(0.08)
AR (1) Test, p-value	0.00	0.00	0.19
AR (2) Test, p-value	0.48	0.68	0.09
Sargan Test $\chi^2(2)$, p-value	0.44	0.27	0.41
Country Fe	Yes	Yes	Yes
Year Fe	Yes	Yes	Yes
Observations	526	626	573
Countries	122	181	110

Note: The dependent variable is real GDP per capita. The method of estimation is system-GMM. The system-GMM estimations are based on 2 endogenous variables and 4 instruments. *Significantly different from zero at the 10 percent significance level, ** 5 percent significance level, *** 1 percent significance level.

Table 7. Actual vs. Predicted Growth in GDP per capita During the 2000s

	(1) Actual Change in Log GDP per capita Between 2006-2010 and 1996-2000	(2) Predicted Change in Log GDP per capita Between 2006-2010 and 1996-2000
Philippines	0.21	0.22
Structural Peers	0.30	0.32
Regional Peers	0.40	0.46
ASEAN	0.34	0.37
Remittance-Receiving Countries	0.26	0.39
Lower Middle Income	0.26	0.33
Young Democracies	0.26	0.27
World, Excluding ASEAN	0.26	0.32
World	0.27	0.32

Note: The predictions are based on the estimates reported in column (1) of Table 2. To convert numbers into per annum (percent) changes, all values have to be multiplied by 10. Remittance-receiving countries are those countries that during the 2000s had migrant remittance inflows exceeding 10 percent of GDP.

Table 8A: Growth Projection

Scenario 1: Catch Up to Best-Performing Regional Peer					
Time Period:	5 Years	10 Years	20 Years	40 Years	100 Years
Schooling	0.00	0.00	0.01	0.01	0.01
Government Burden	0.00	0.00	0.00	0.00	0.00
Infrastructure	0.04	0.07	0.12	0.16	0.18
Financial Development	0.09	0.16	0.26	0.36	0.42
Trade Openness	0.08	0.14	0.23	0.32	0.36
Inflation	0.01	0.01	0.02	0.03	0.04
Real Exchange Rate	0.01	0.01	0.02	0.02	0.03
Structural Reforms	0.22	0.38	0.62	0.85	0.97
Stabilization Policies	0.01	0.03	0.04	0.06	0.06
Transitional Convergence	0.16	0.28	0.46	0.63	0.72
Projected Change of Log GDP p.c.	0.39	0.69	1.12	1.53	1.76

Table 8B: Growth Projection

Scenario 2: Average Regional Peer					
Time Period:	5 Years	10 Years	20 Years	40 Years	100 Years
Schooling	0.00	0.00	0.00	0.00	0.00
Government Burden	-0.09	-0.16	-0.26	-0.36	-0.41
Infrastructure	0.02	0.03	0.05	0.07	0.08
Financial Development	0.05	0.09	0.15	0.21	0.24
Trade Openness	0.03	0.05	0.08	0.11	0.12
Inflation	0.00	0.00	0.00	0.01	0.01
Real Exchange Rate	0.00	0.00	0.00	0.00	0.00
Structural Reforms	0.01	0.01	0.02	0.03	0.03
Stabilization Policies	0.00	0.00	0.01	0.01	0.01
Transitional Convergence	0.16	0.28	0.46	0.63	0.72
Projected Change of Log GDP p.c.	0.16	0.30	0.48	0.66	0.76

Table 8C: Growth Projection

Scenario 3: Backdrop to Worst-Performing Regional Peer

Time Period:	5 Years	10 Years	20 Years	40 Years	100 Years
Schooling	0.00	-0.01	-0.01	-0.02	-0.02
Government Burden	-0.18	-0.32	-0.52	-0.71	-0.82
Infrastructure	-0.03	-0.05	-0.08	-0.10	-0.12
Financial Development	0.00	-0.01	-0.01	-0.02	-0.02
Trade Openness	-0.02	-0.04	-0.07	-0.09	-0.11
Inflation	0.00	-0.01	-0.01	-0.02	-0.02
Real Exchange Rate	0.00	-0.01	-0.01	-0.02	-0.02
Structural Reforms	-0.24	-0.43	-0.69	-0.95	-1.09
Stabilization Policies	-0.01	-0.02	-0.03	-0.04	-0.04
Transitional Convergence	0.16	0.28	0.46	0.63	0.72
Projected Change of Log GDP p.c.	-0.10	-0.16	-0.26	-0.36	-0.41

Table 9. Year 2015 PPP GDP per capita of Regional Peers

Country	PPP GDP per capita	Log PPP GDP per capita
China	13569	9.52
Indonesia	10367	9.25
Malaysia	24988	10.13
Philippines	6874	8.83
Thailand	15236	9.64
Vietnam	5667	8.64

Figure 1A. Changes of Log GDP per capita
(Philippines, 1990s and 2000s)

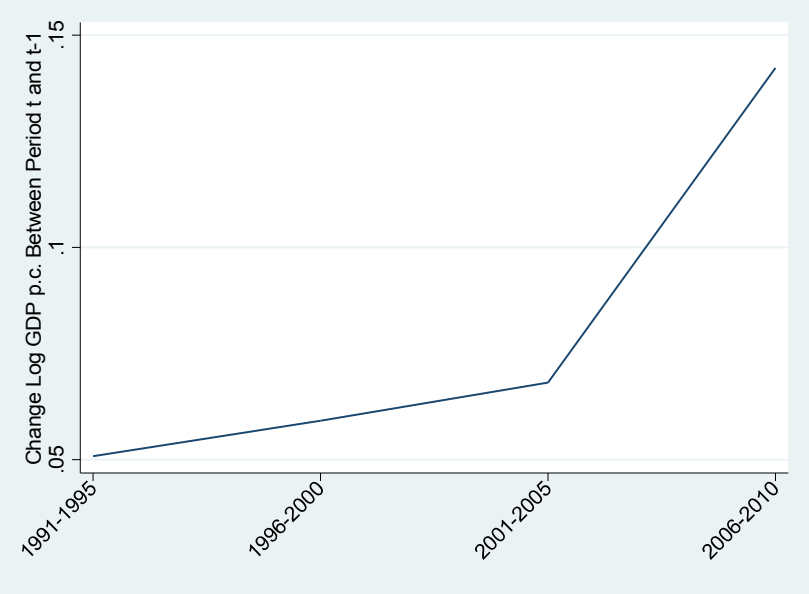


Figure 1B. Political Institutions and Structural Reforms
(Philippines, 1990s and 2000s)

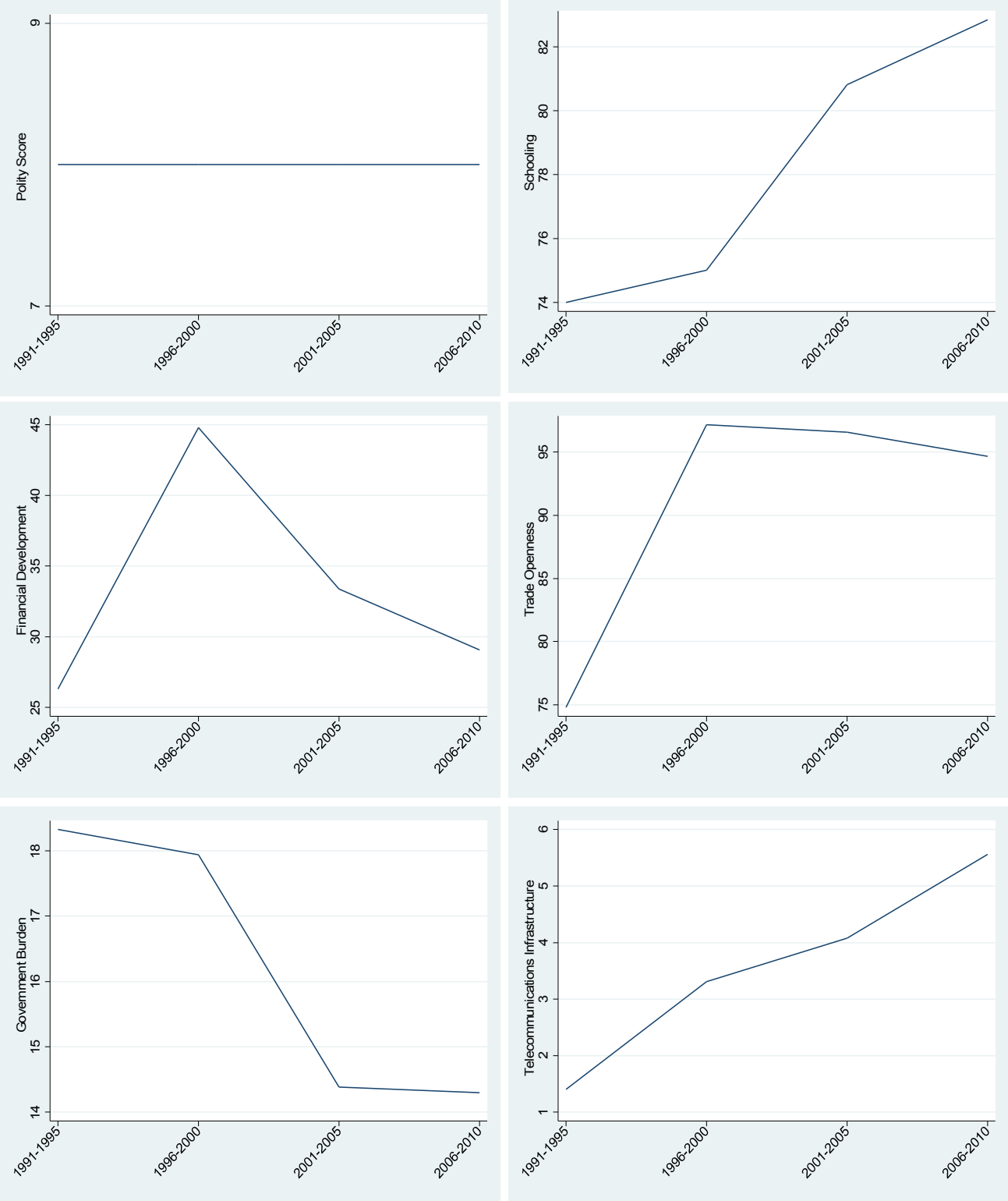


Figure 1C. Stabilization Policies and External Conditions
(Philippines, 1990s and 2000s)

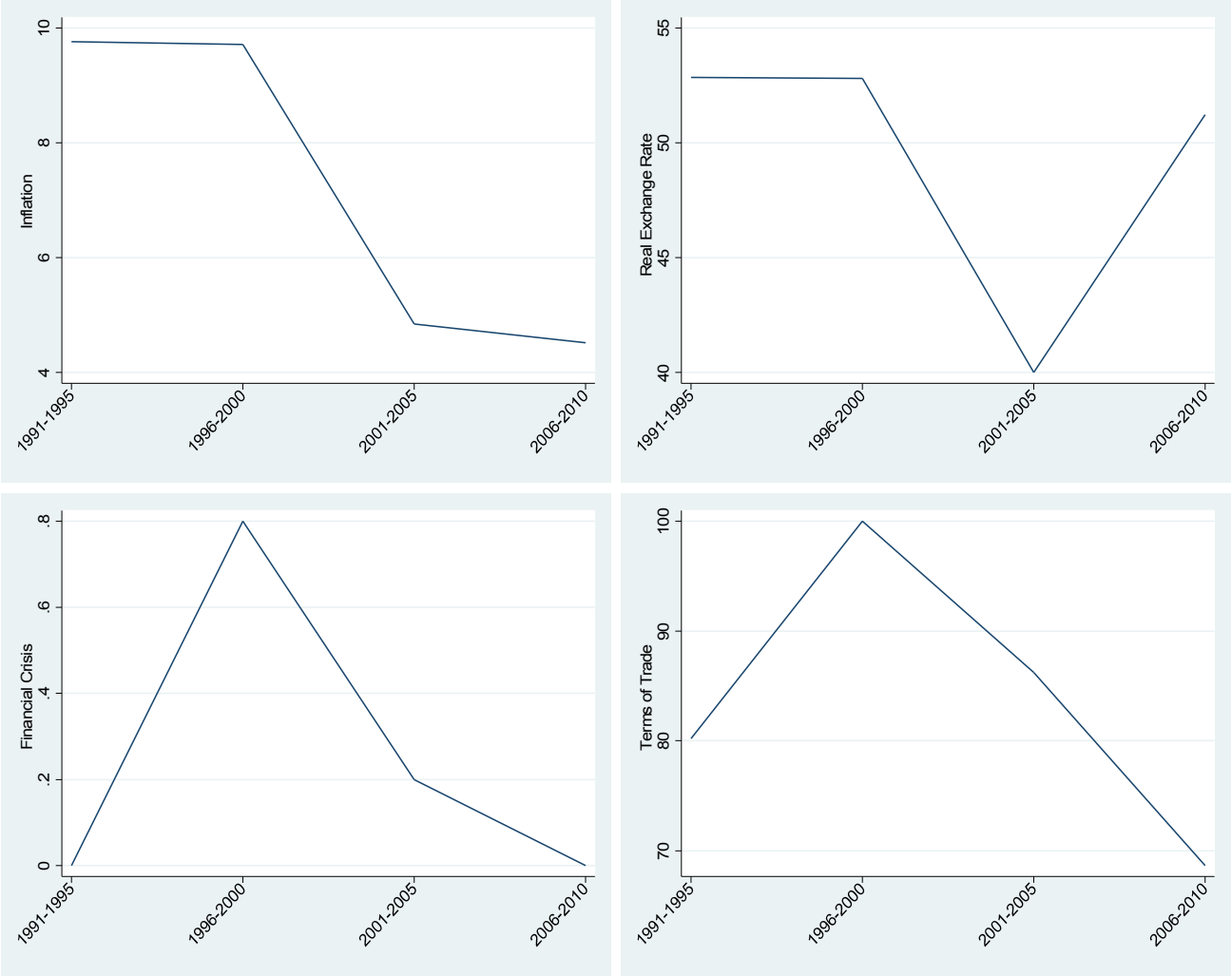
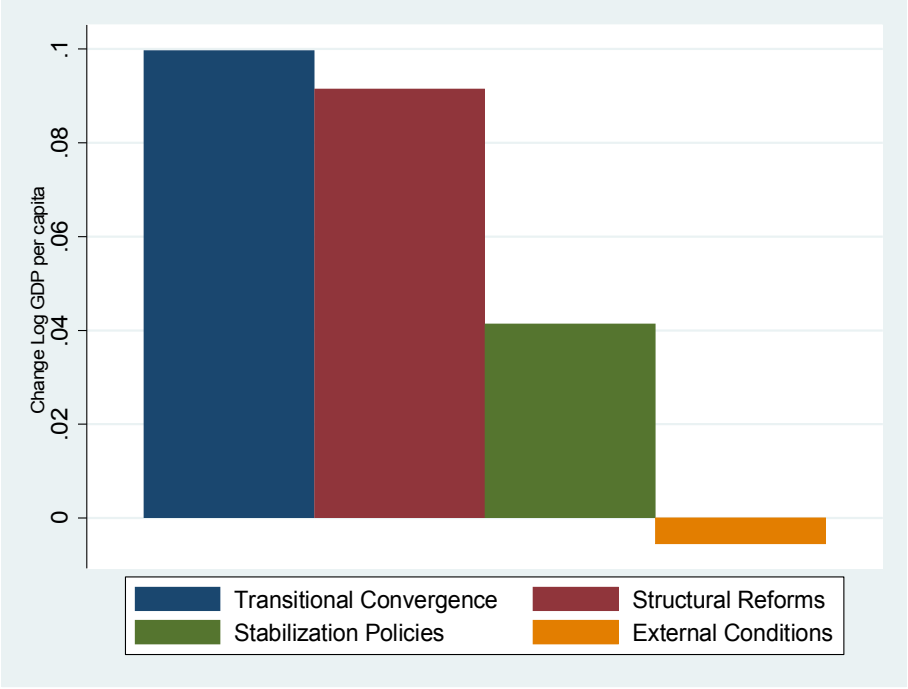


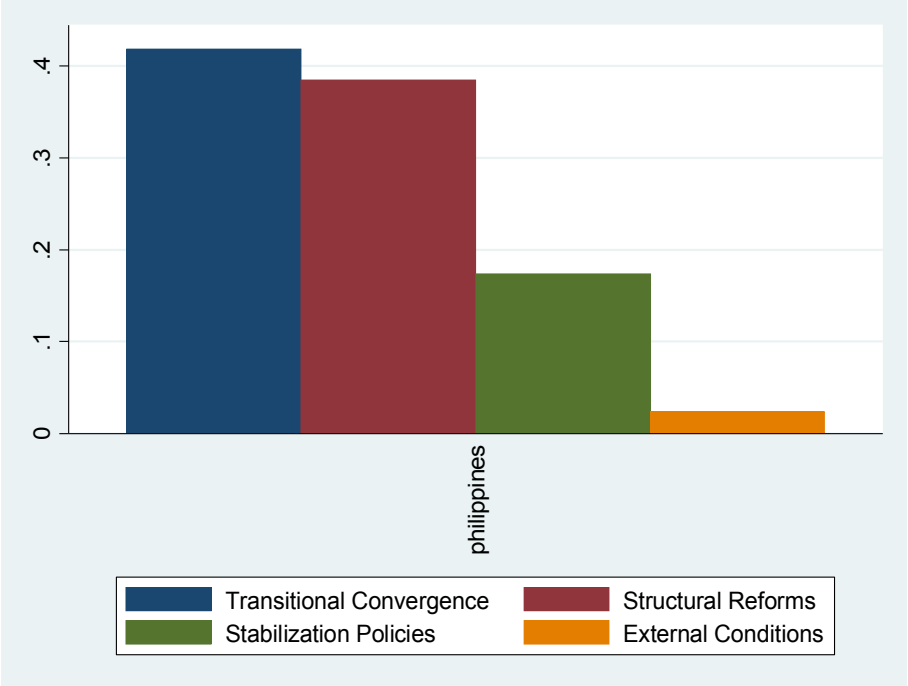
Figure 2. Bar Plot of Estimated Coefficients Reported in Column (1) of Table 2 Multiplied With Standard Deviations

Figure 3. Drivers of Growth in the Philippines During the 2000s

Panel A: Absolute Contribution



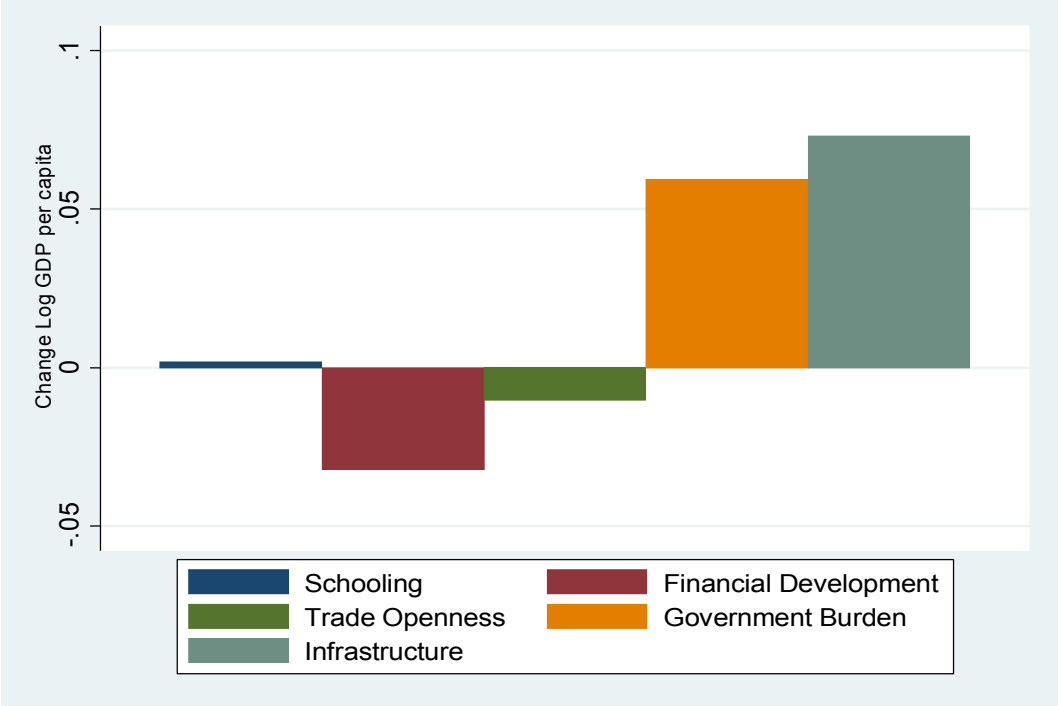
Panel B: Relative Contribution



Note: In Panel A, the per annum growth effect (in percent) can be obtained by multiplying the values by 10. On the y-axis is the change in log GDP per capita is between the periods 1996-2000 and 2006-2010. Panel B plots the ratios of the absolute growth effect of each component divided by the sum of the absolute of each of the component's contribution to growth.

Figure 4. Contribution of Structural Reforms and Stabilization Policies to Growth in the Philippines During the 2000s

Panel A: Structural Reforms



Panel B: Stabilization Policies

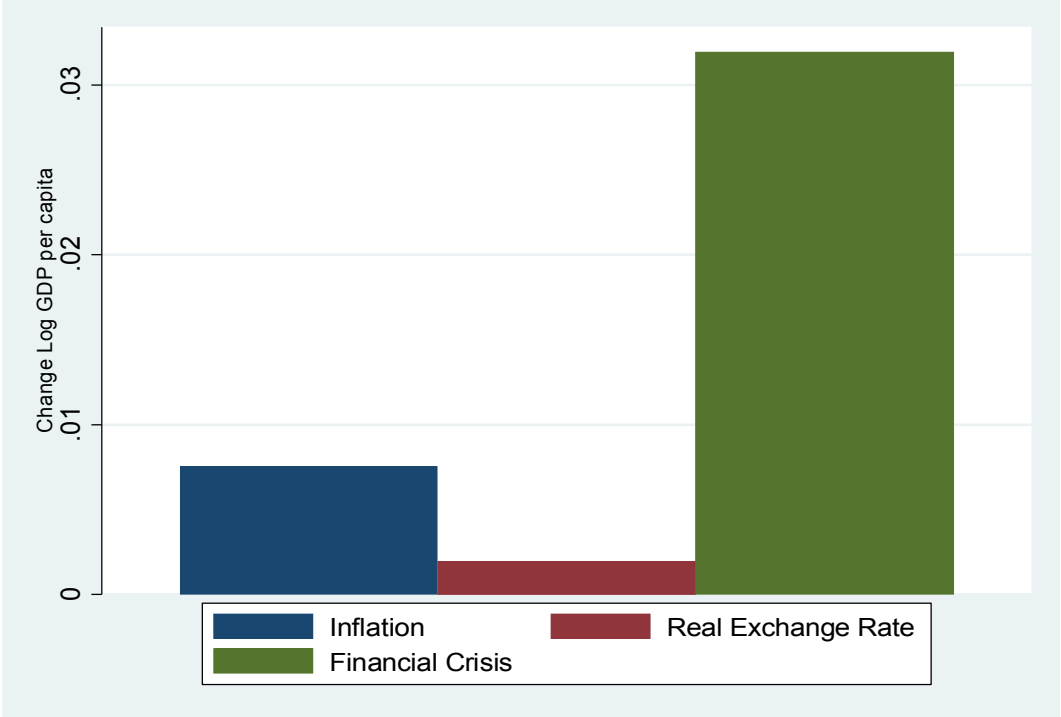


Figure 5. Economic Growth of ASEAN Countries During the 2000s

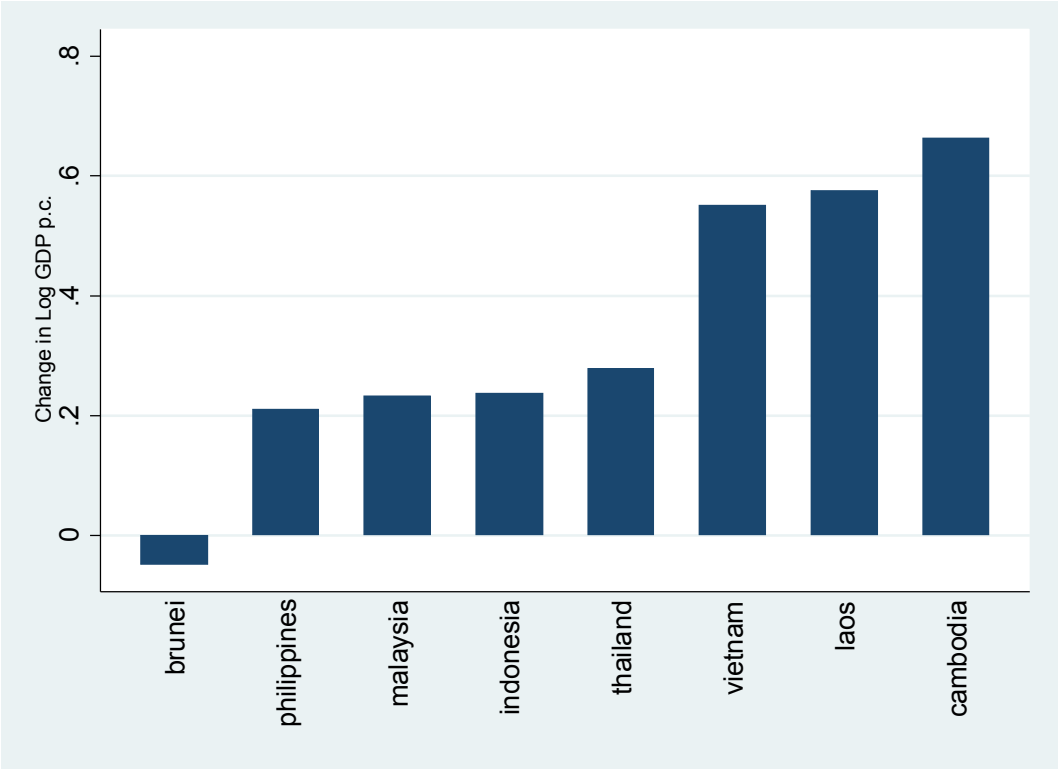
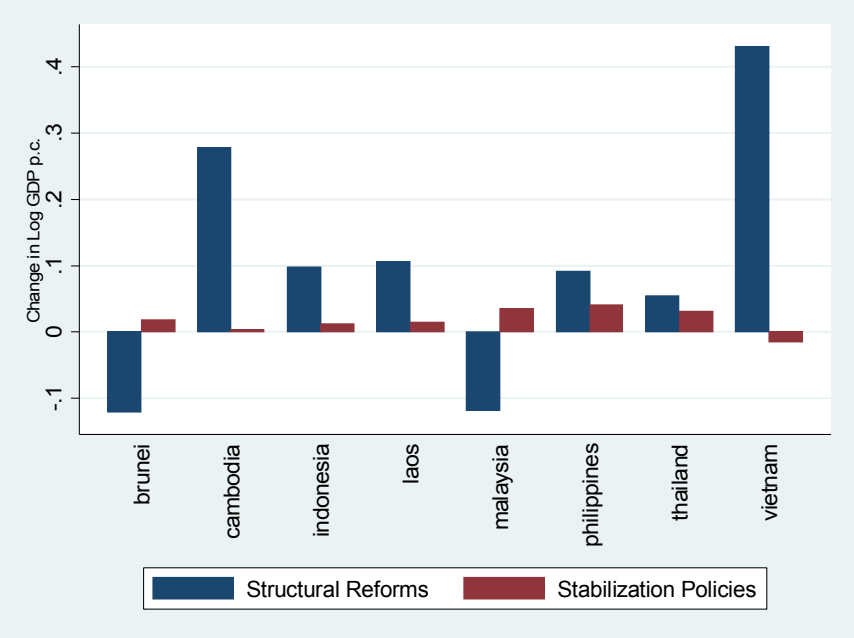


Figure 6. Impact of Structural Reforms and Stabilization Policies on Economic Growth of ASEAN Countries During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

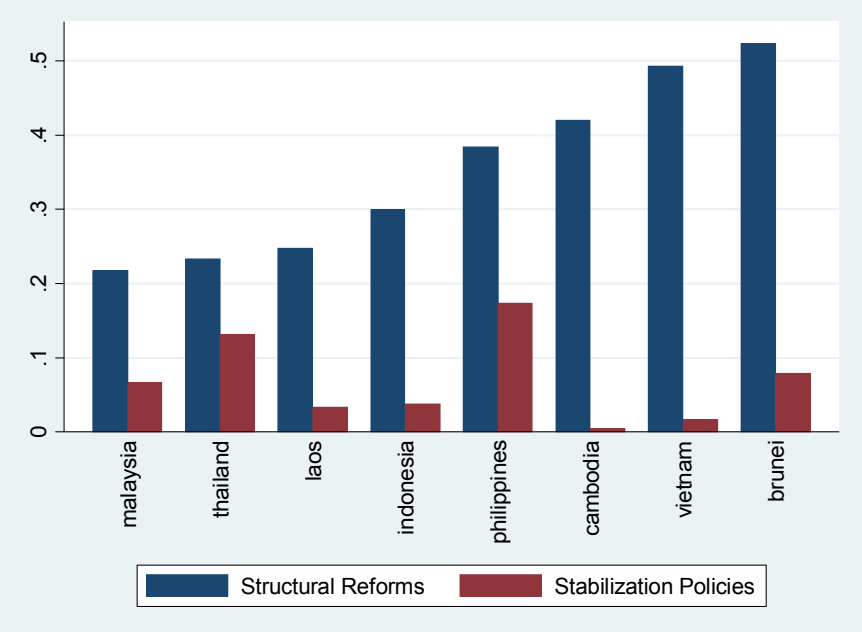
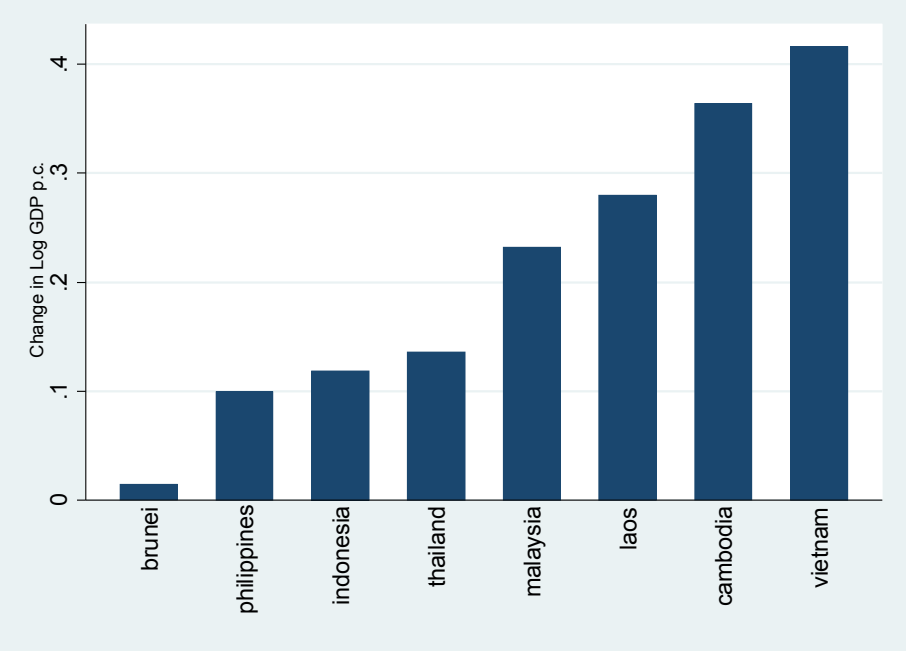


Figure 7. Impact of Transitional Convergence on Economic Growth of ASEAN Countries During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

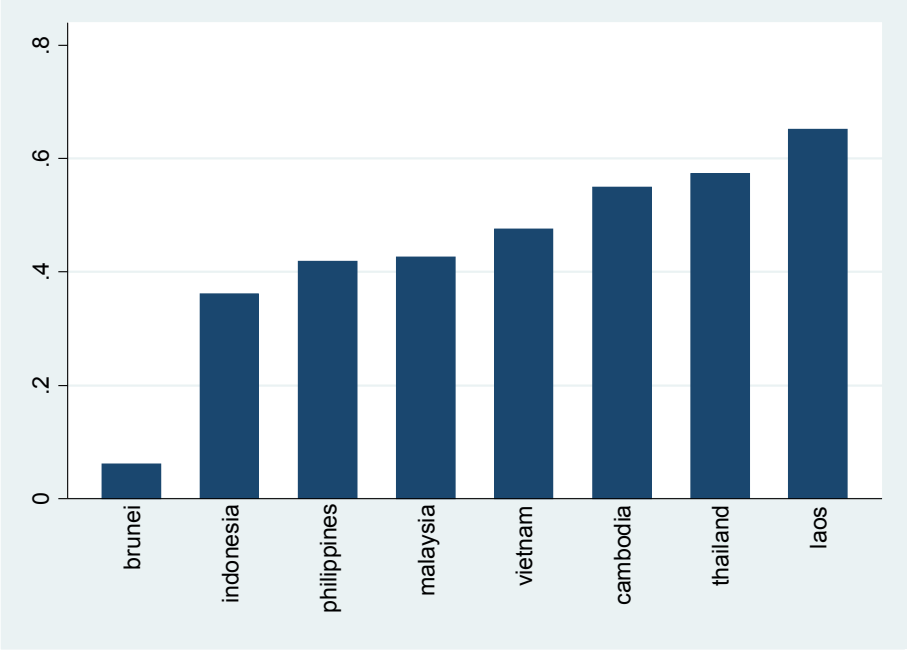
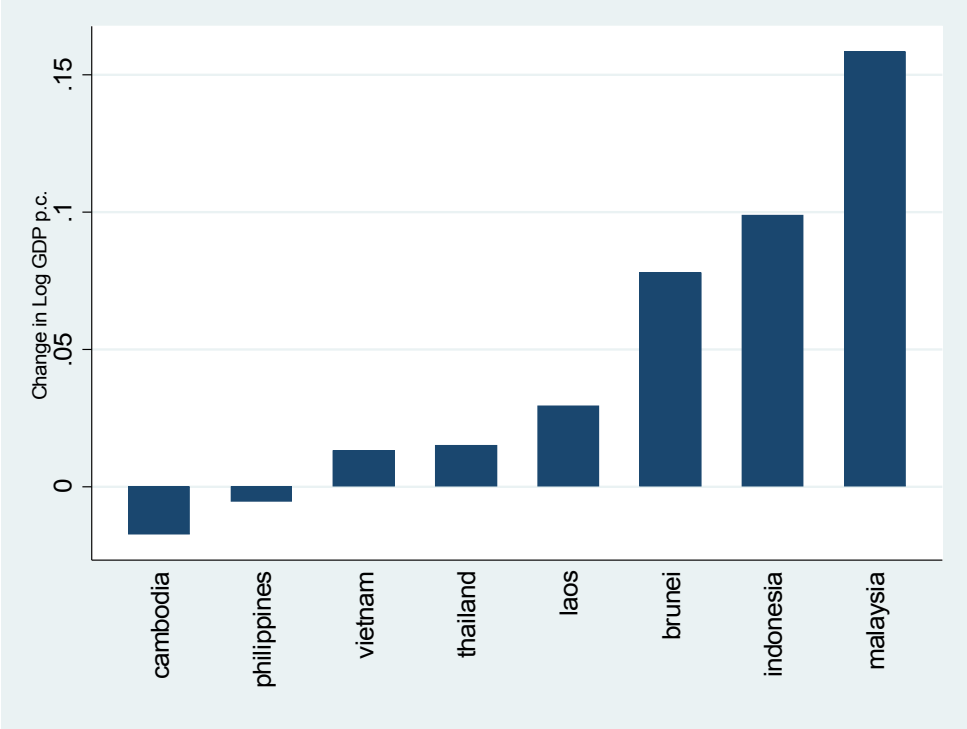


Figure 8. Impact of External Conditions on Economic Growth of ASEAN Countries During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

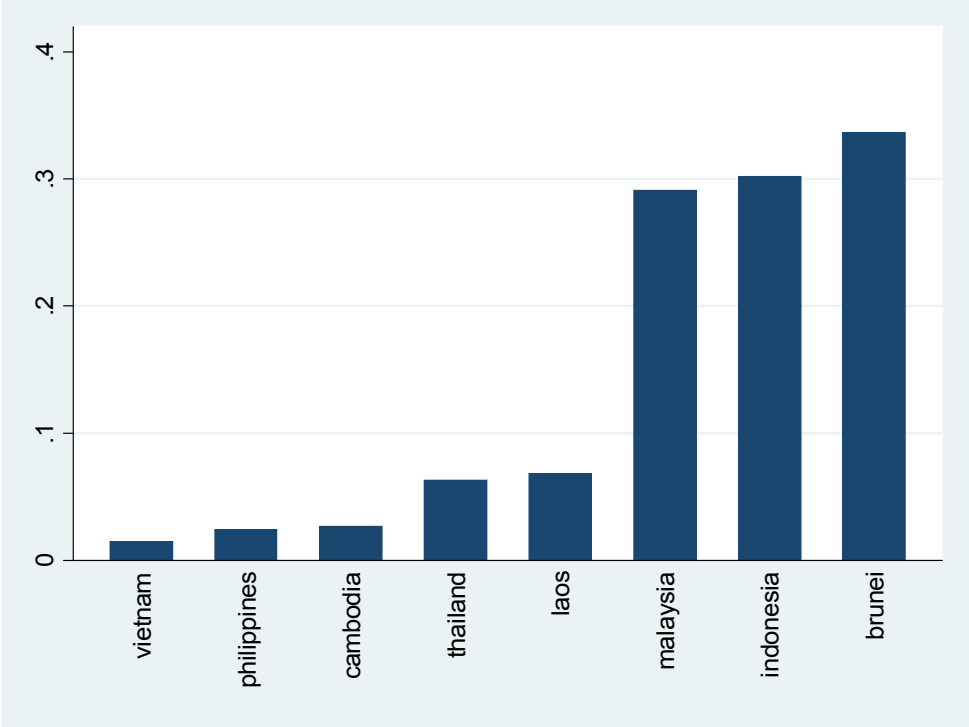
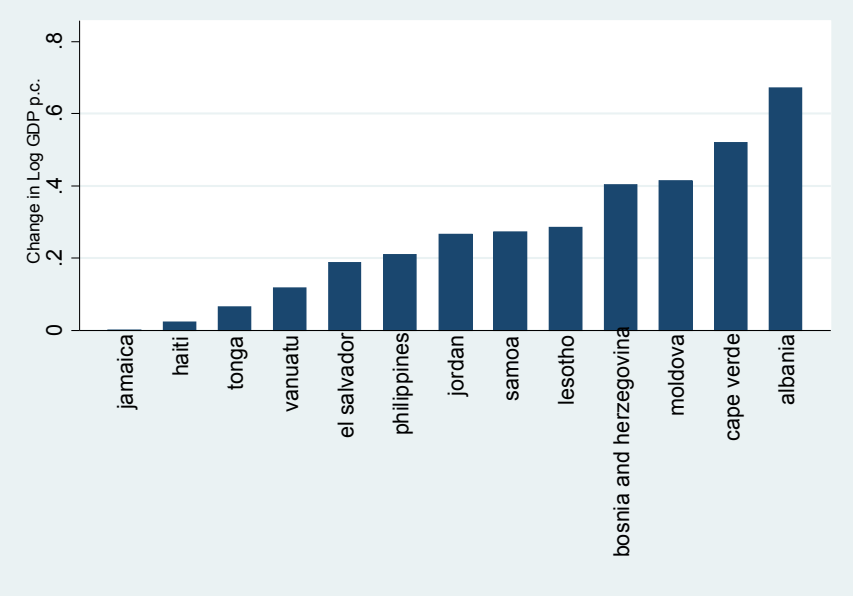


Figure 9. Economic Growth of Remittance-Receiving Countries During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

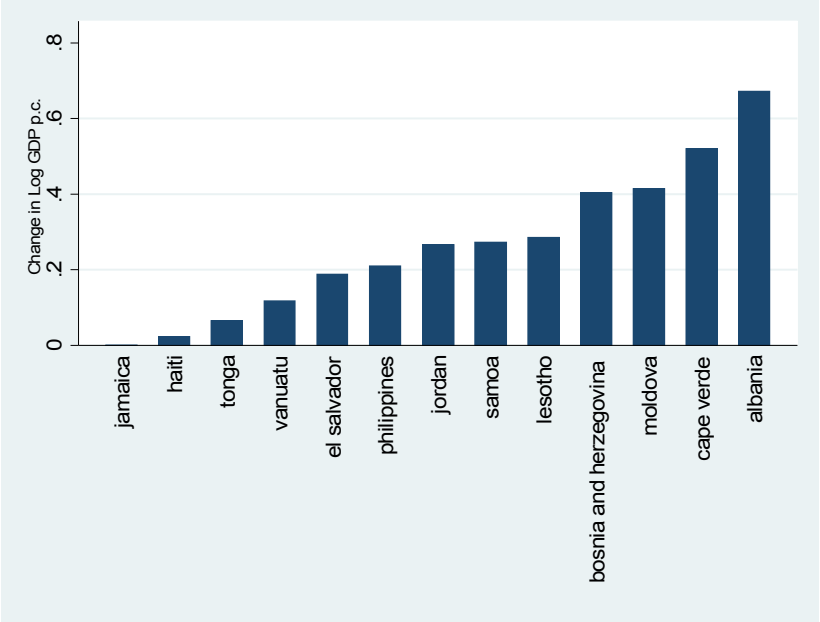
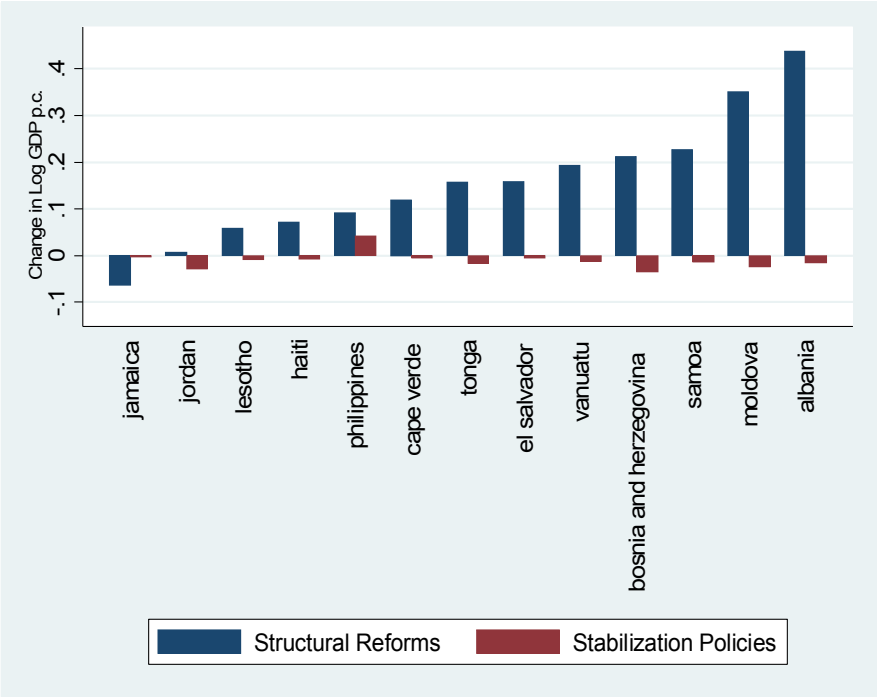


Figure 10. Impact of Structural Reforms and Stabilization Policies on Economic Growth of Remittance-Receiving Countries During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

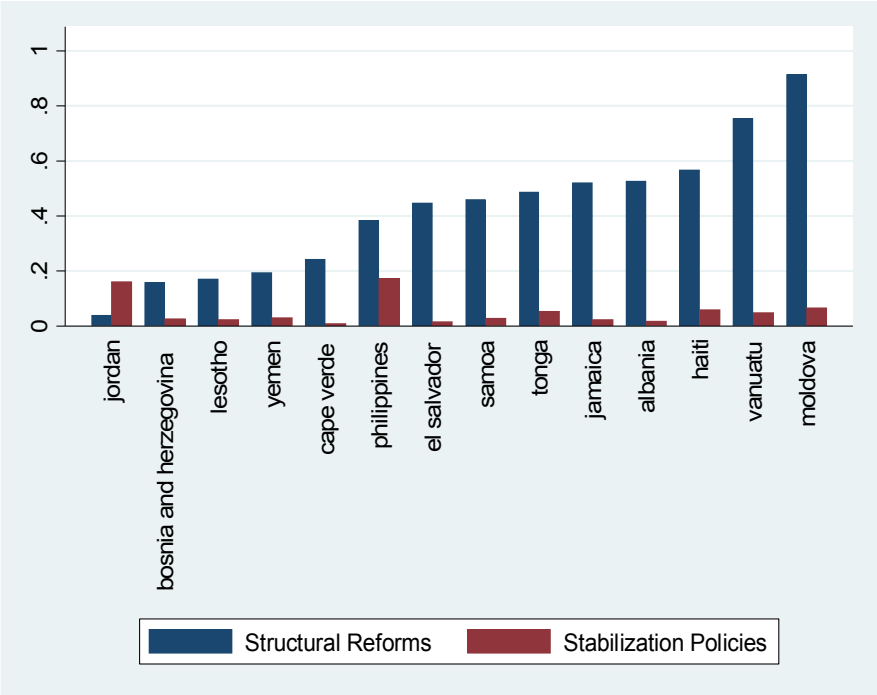
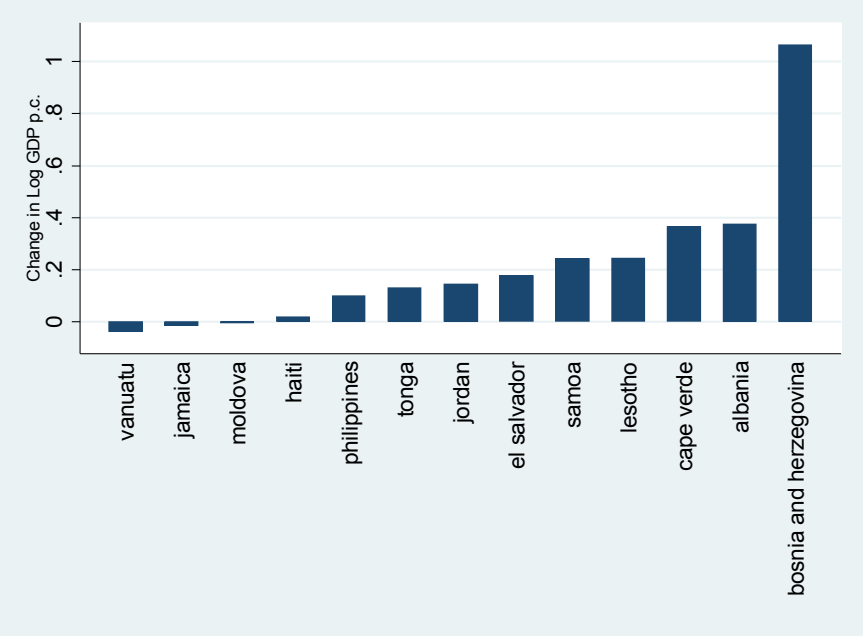


Figure 11. Impact of Transitional Convergence on Economic Growth of Remittance-Receiving Countries During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

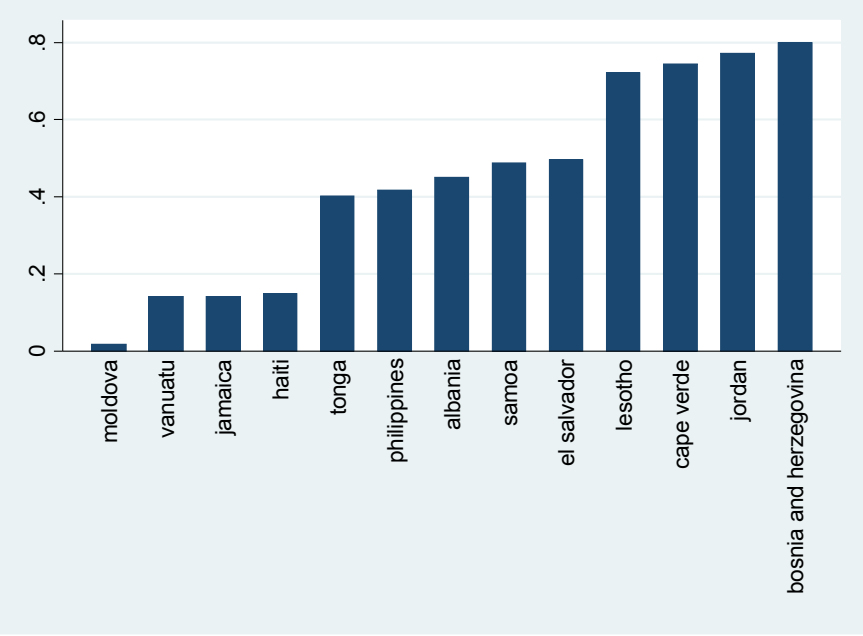
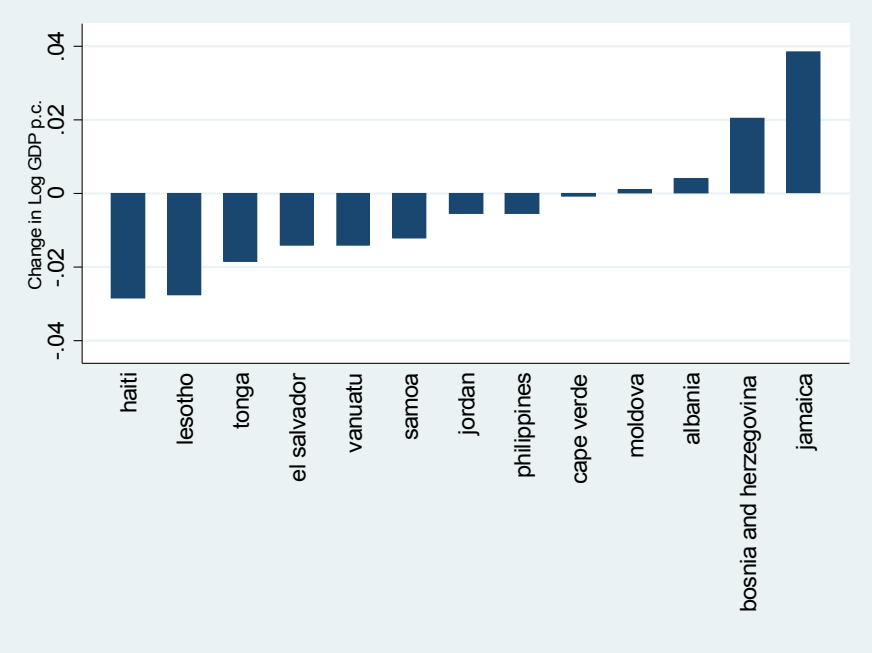


Figure 12. Impact of External Conditions on Economic Growth of Remittance-Receiving Countries During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

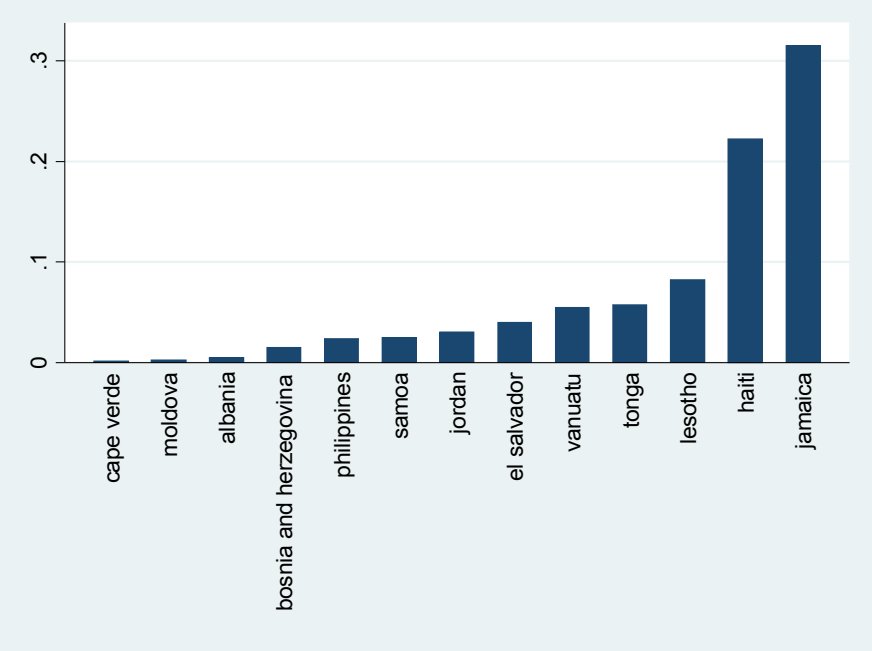


Figure 13. Economic Growth of Lower Middle Income Countries During the 2000s

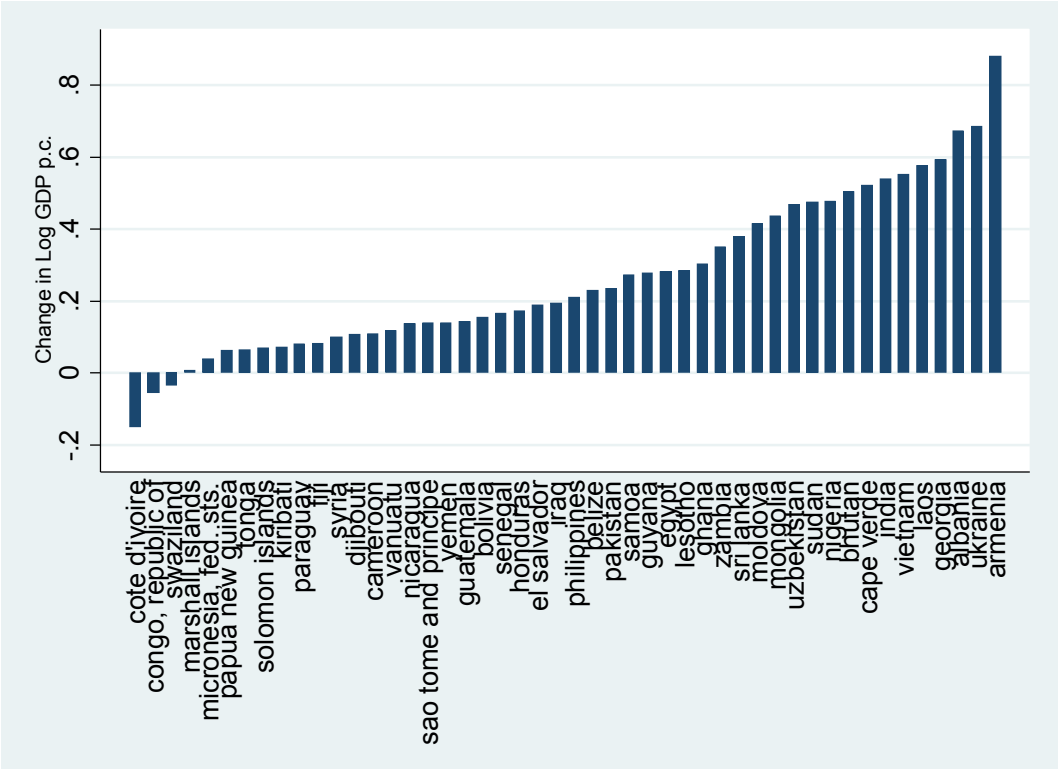
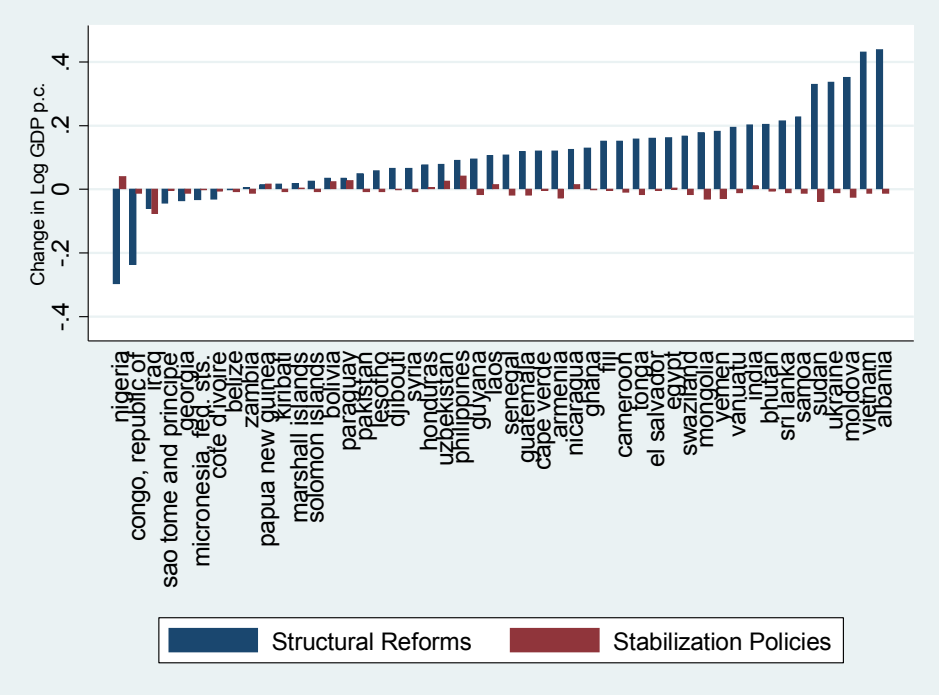


Figure 14. Economic Growth of Lower Middle Income Countries due to Structural Reforms and Stabilization Policies During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

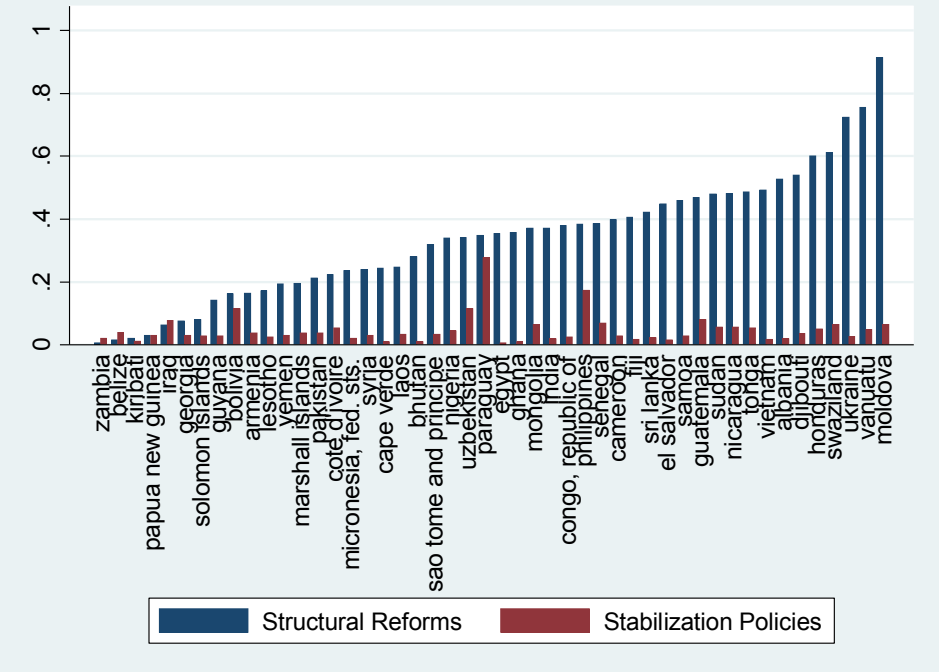
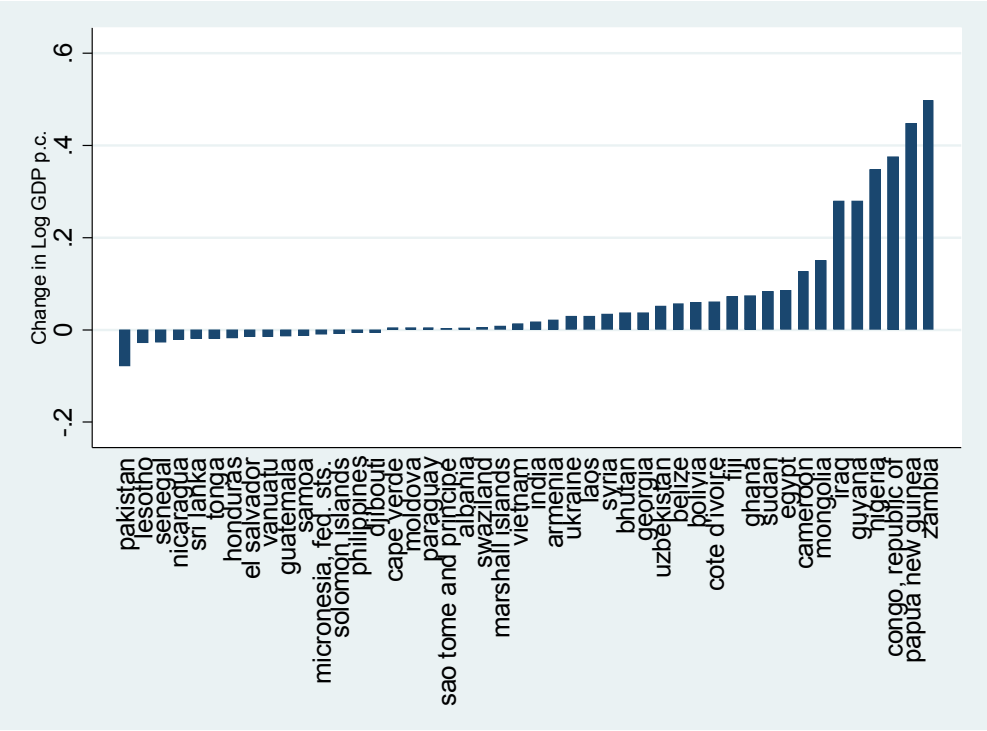


Figure 15. Impact of External Conditions on Economic Growth of Lower Middle Income Countries During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

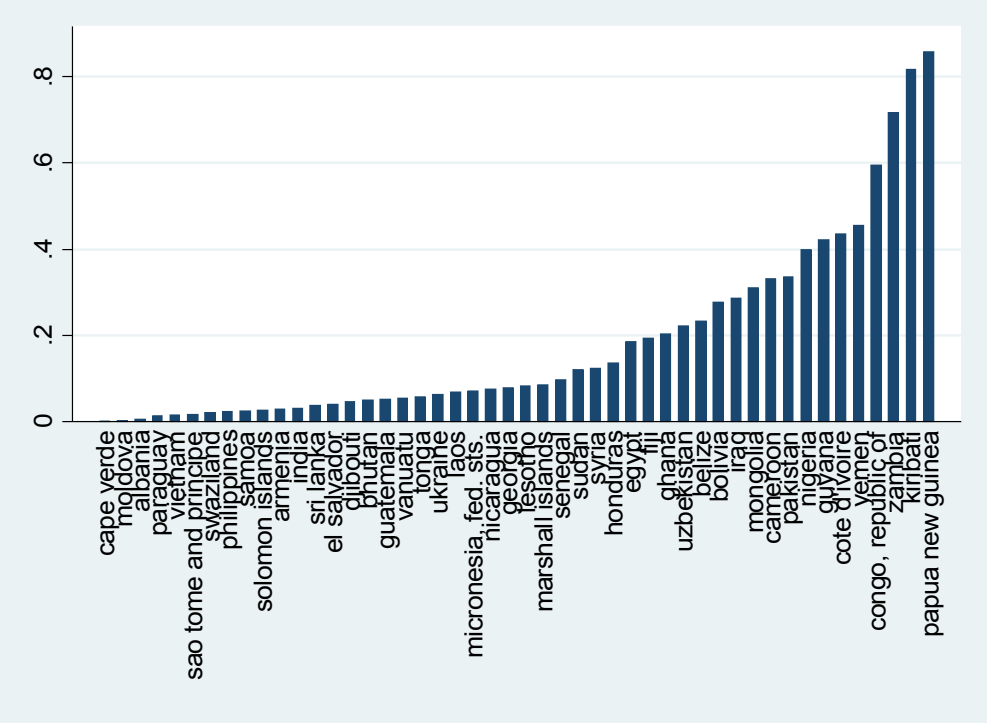
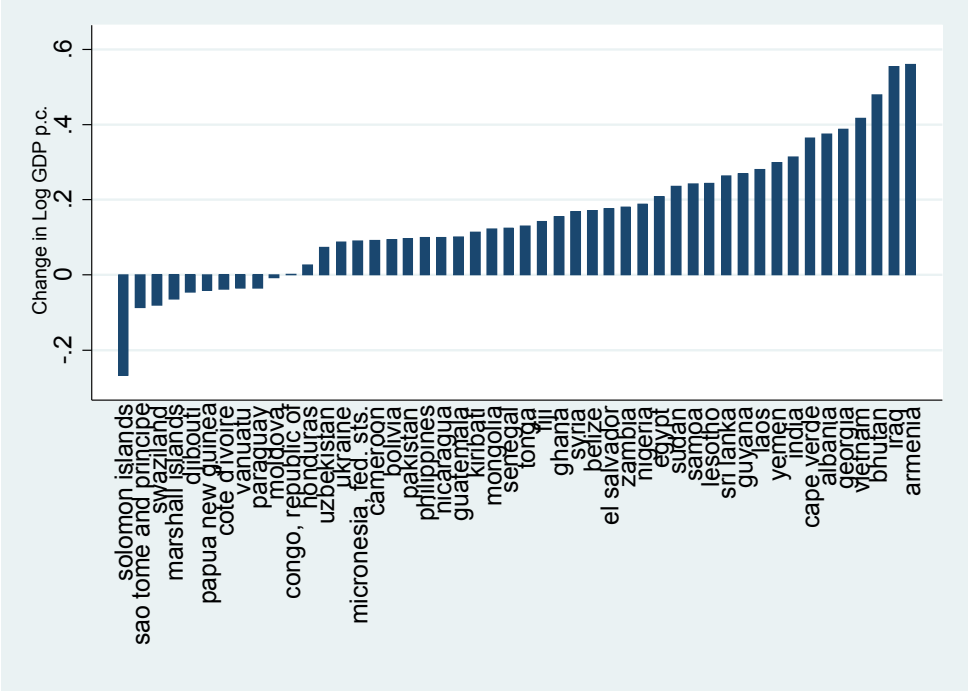


Figure 16. Impact of Transitional Convergence on Economic Growth of Lower Middle Income Countries During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

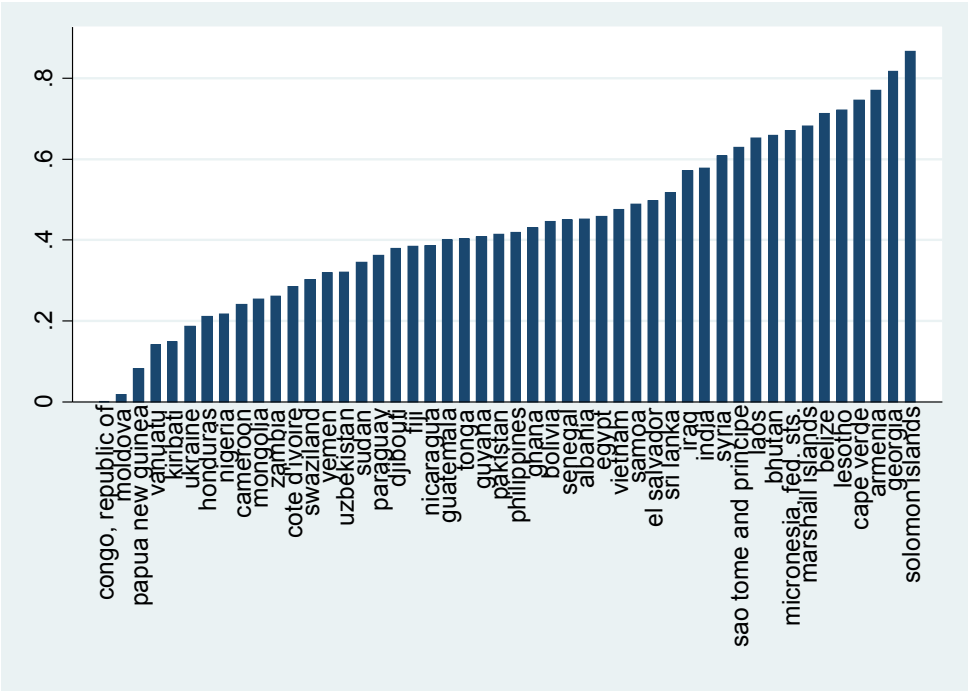


Figure 17. Economic Growth of Young Democracies During the 2000s

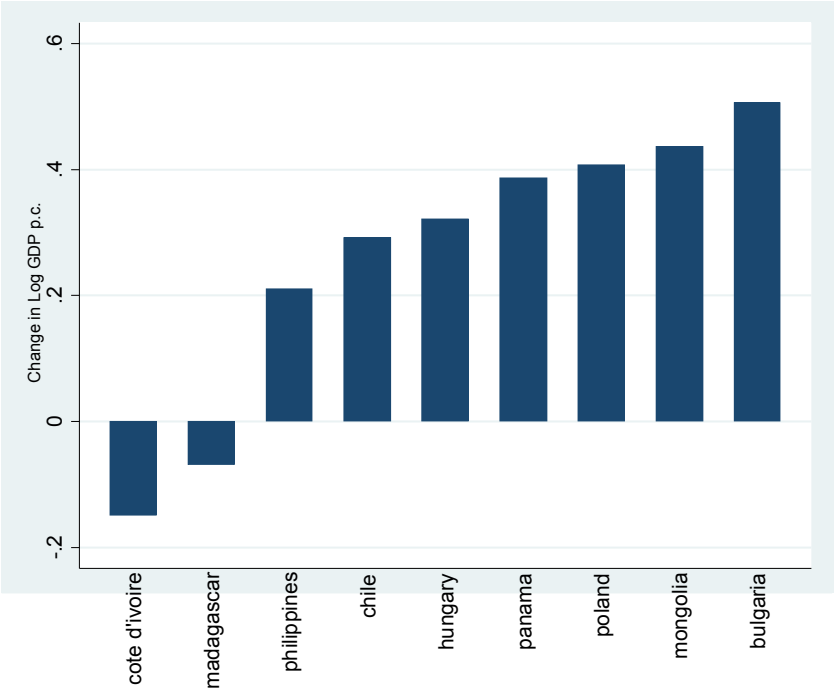
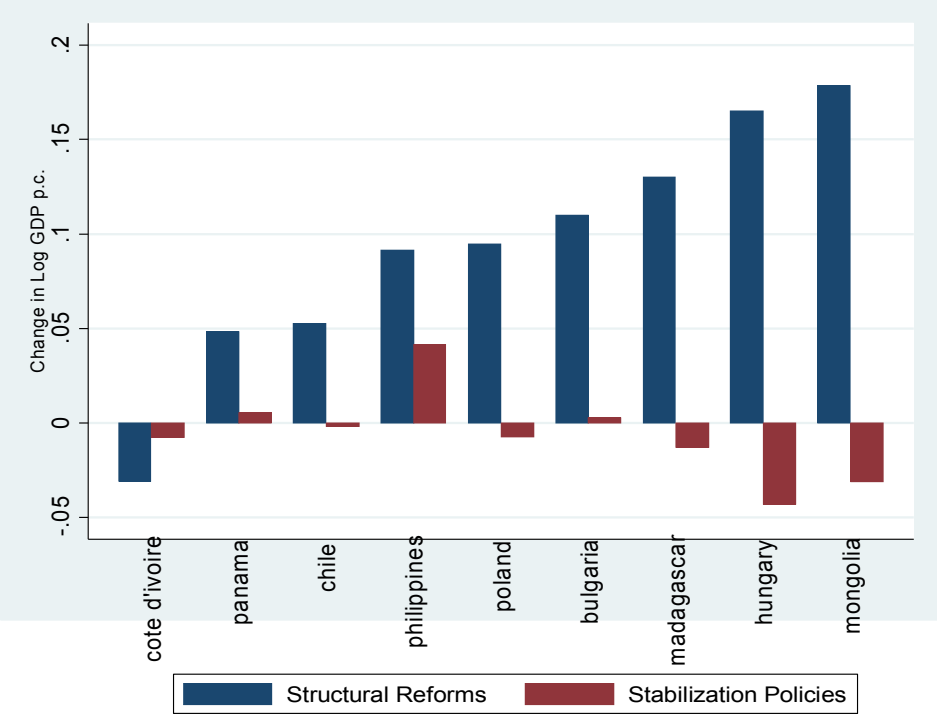


Figure 18. Impact of Structural Reforms and Stabilization Policies on Economic Growth of Young Democracies During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

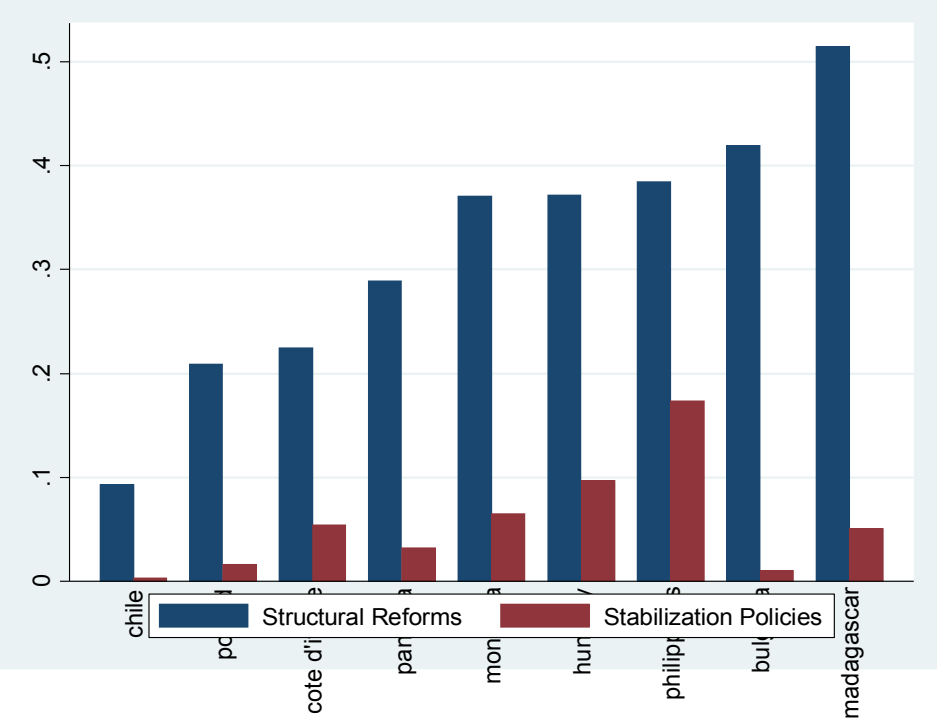
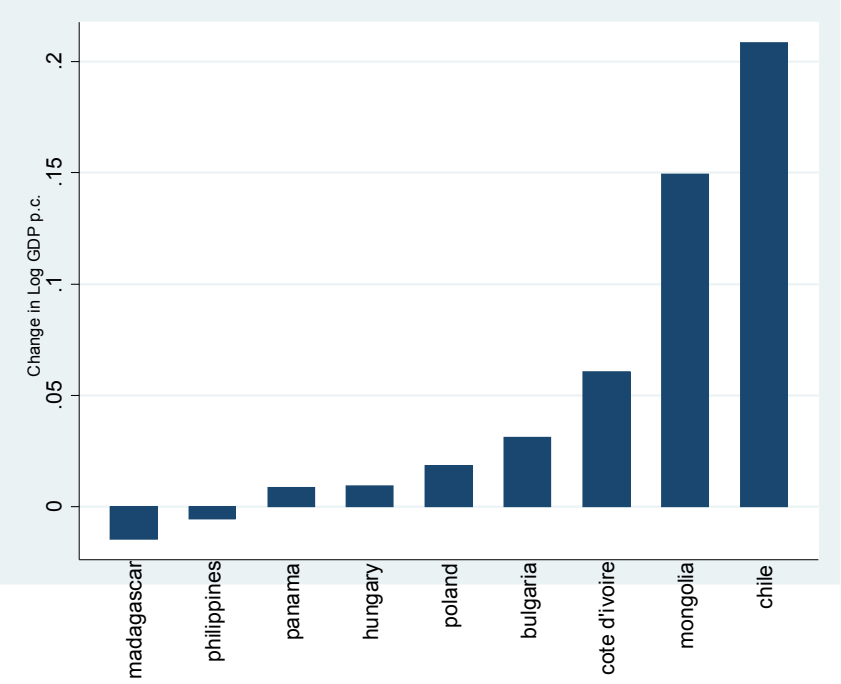


Figure 19. Impact of External Conditions on Economic Growth of Young Democracies During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

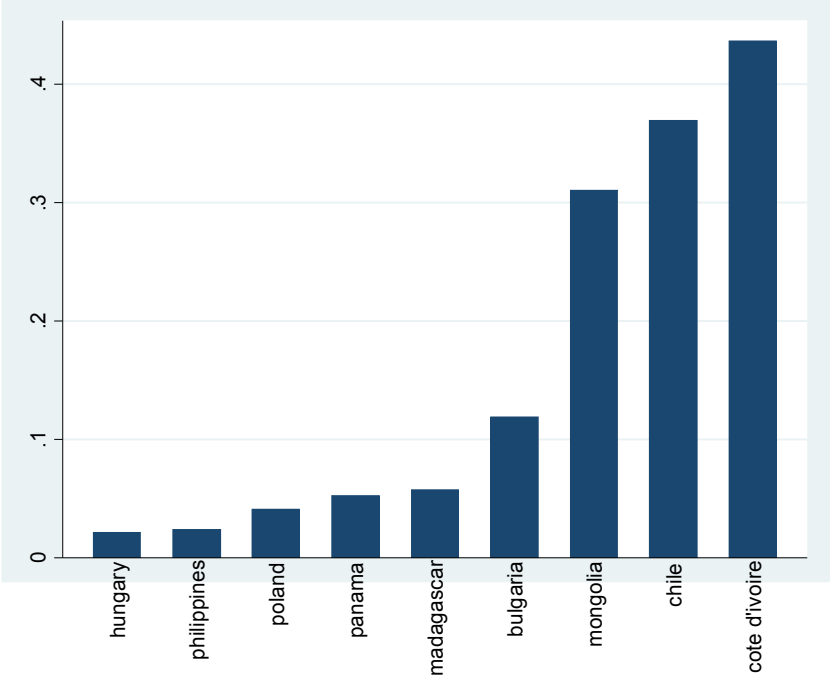
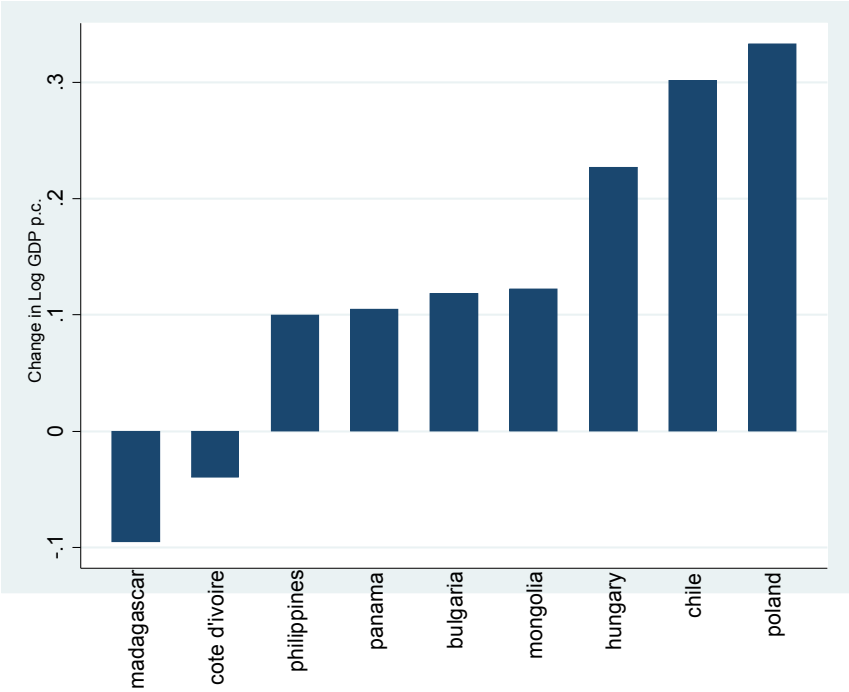


Figure 20. Impact of Transitional Convergence on Economic Growth of Young Democracies During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

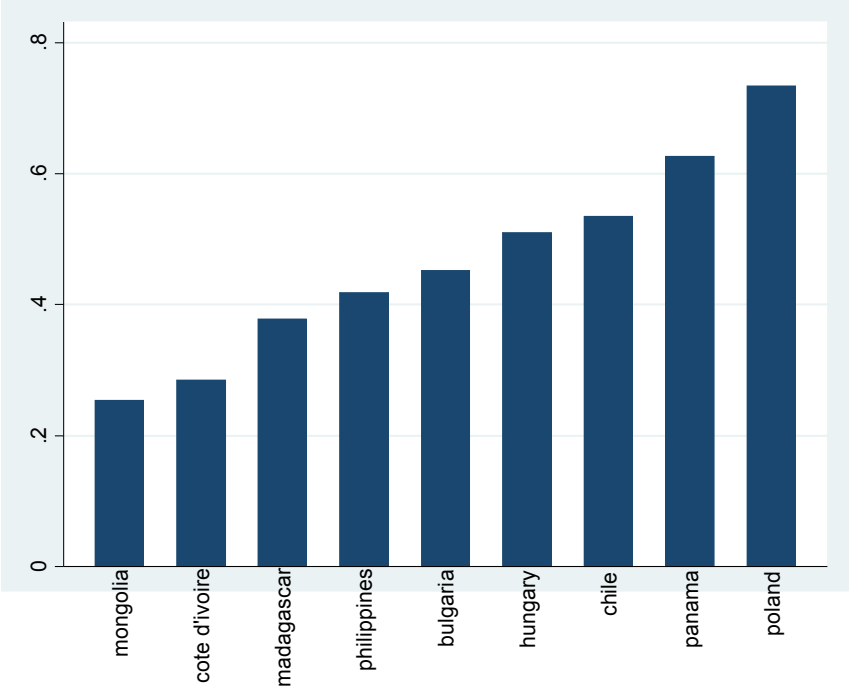


Figure 21. Economic Growth of Structural Peers During the 2000s

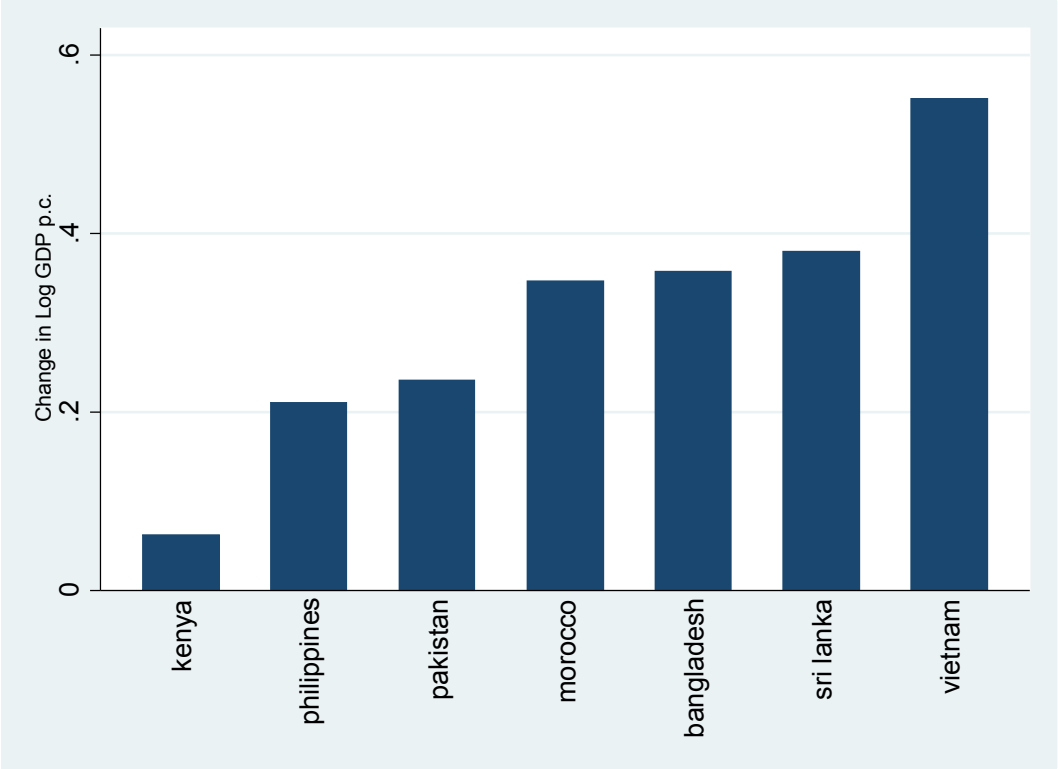
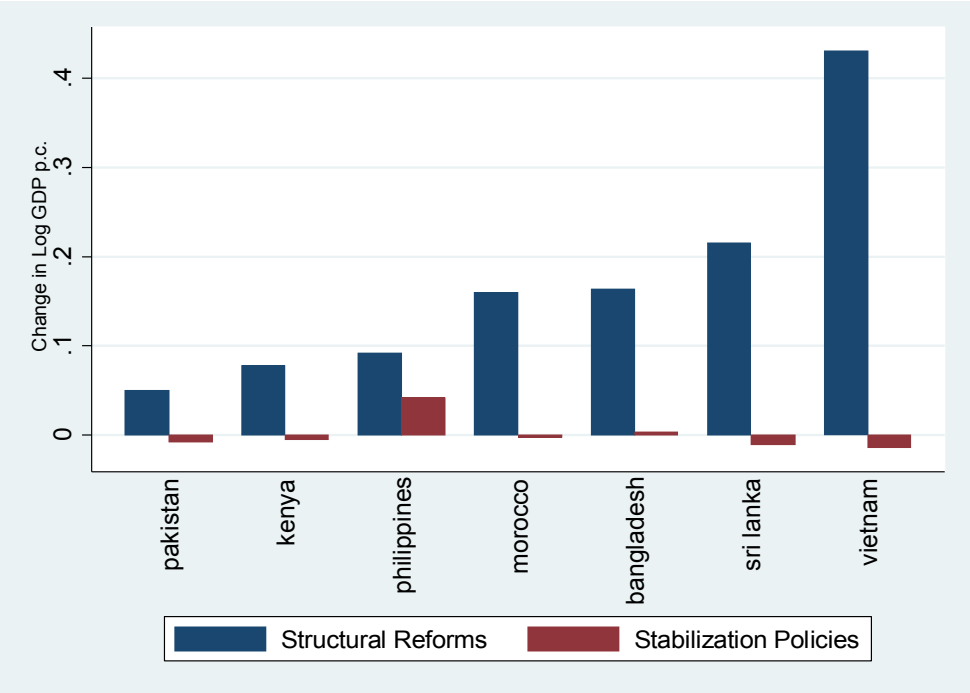


Figure 22. Impact of Structural Reforms and Stabilization Policies on Economic Growth of Structural Peers During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

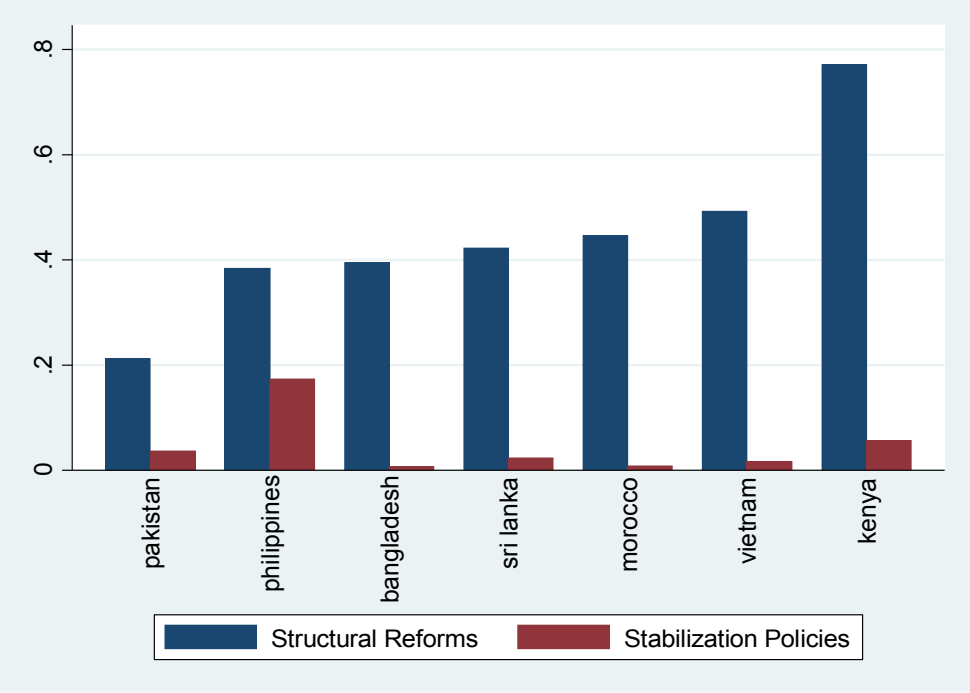
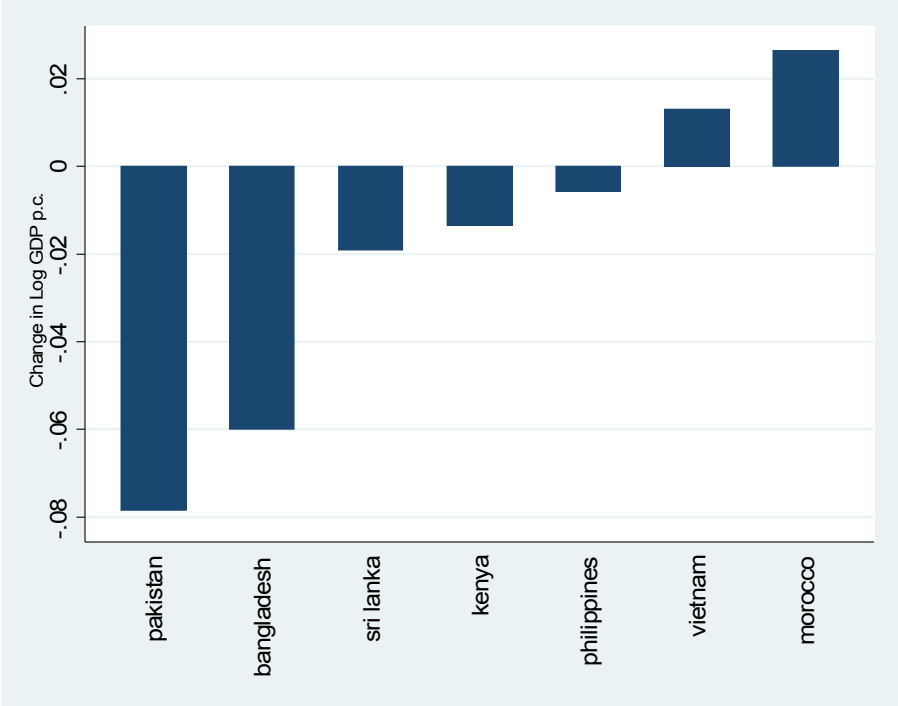


Figure 23. Impact of External Conditions on Economic Growth of Structural Peers During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

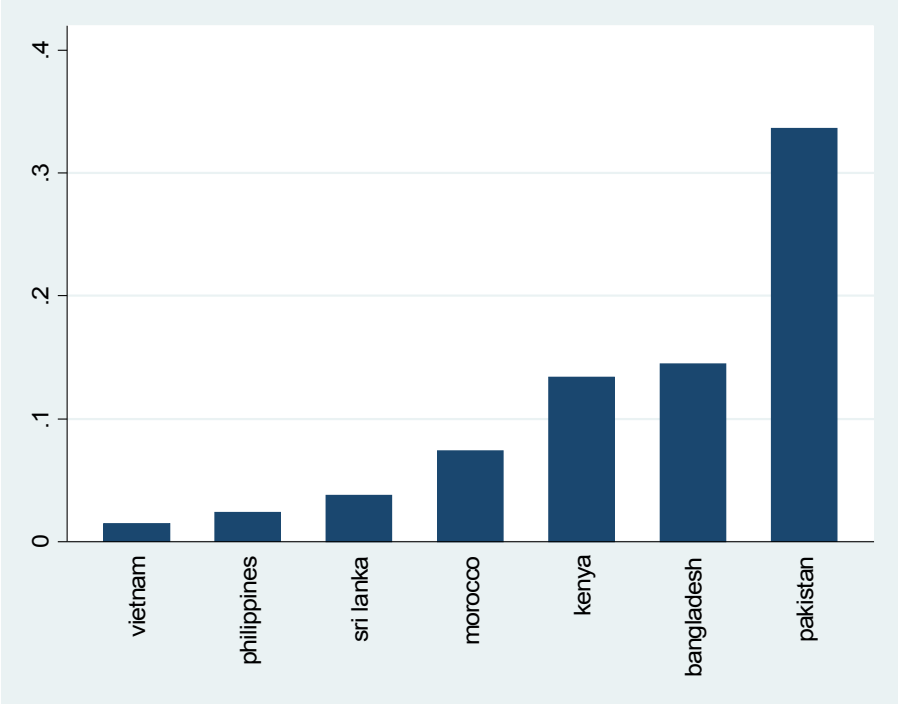
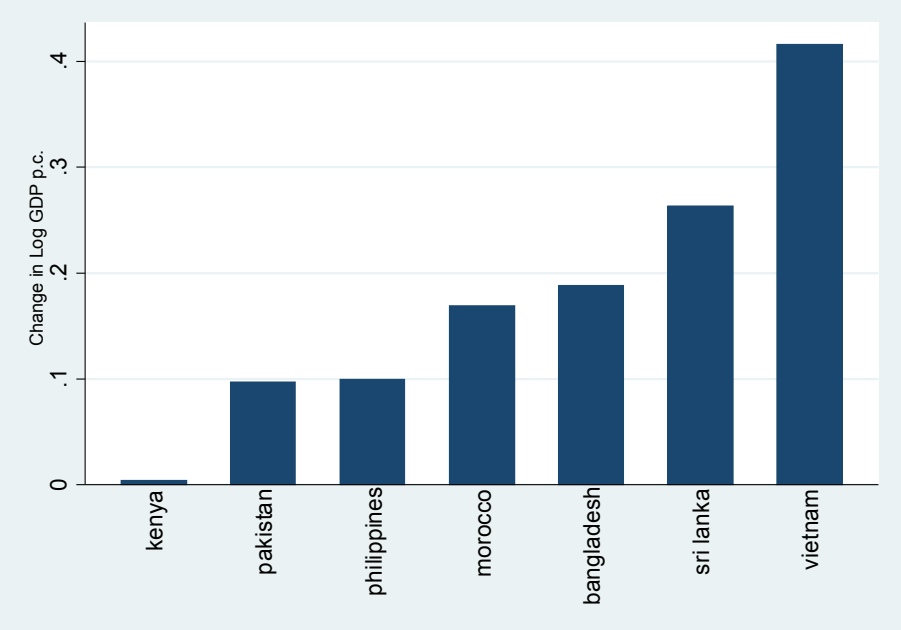


Figure 24. Impact of Transitional Convergence on Economic Growth of Structural Peers During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

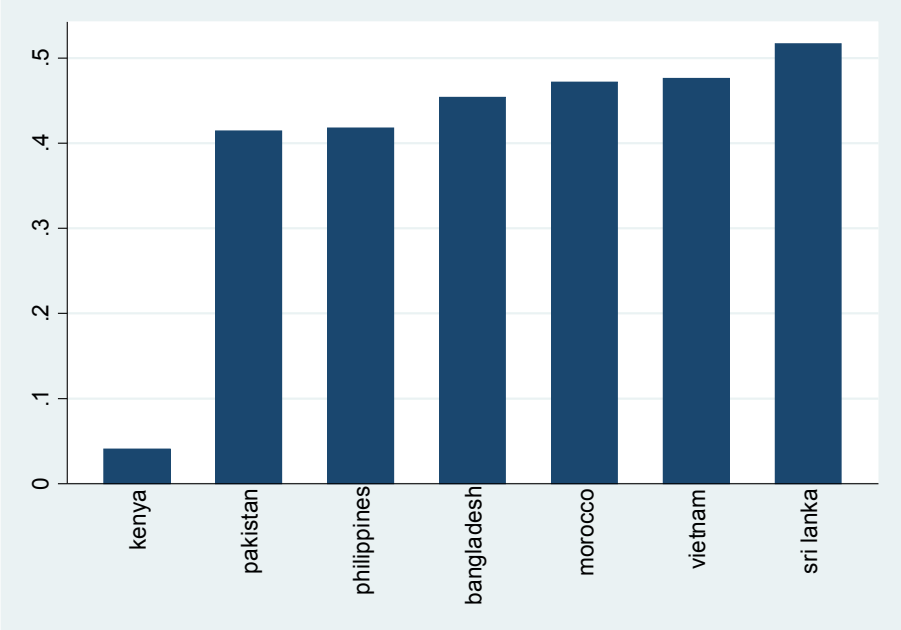


Figure 25. Economic Growth of Regional Peers During the 2000s

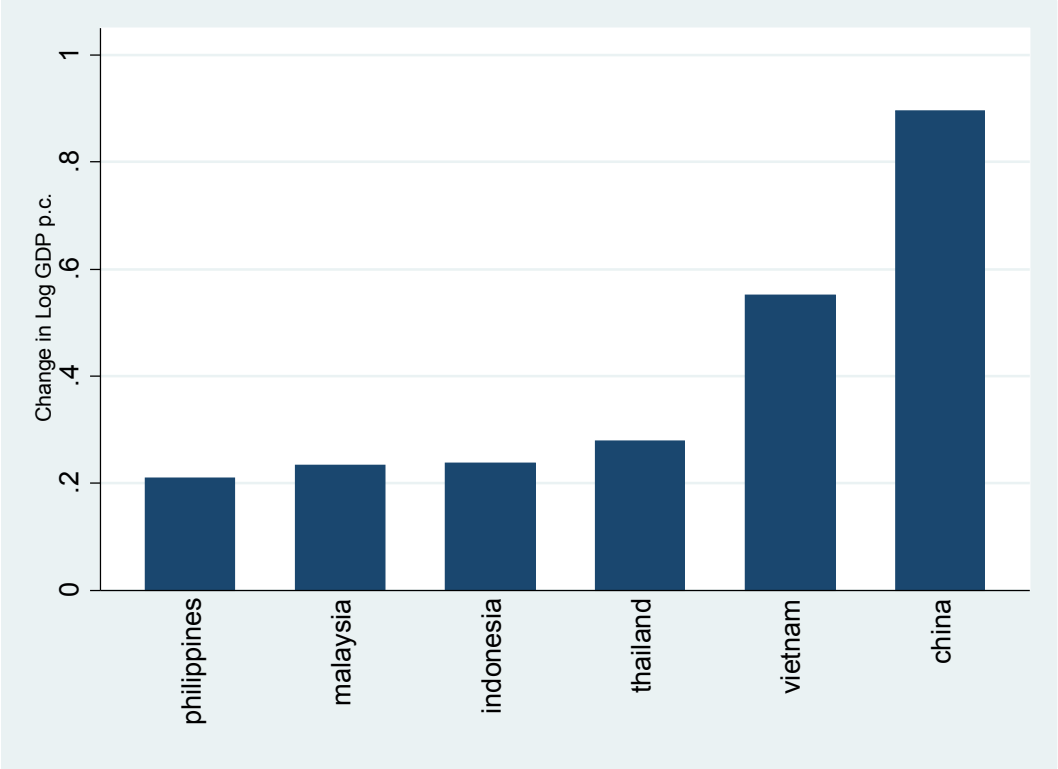
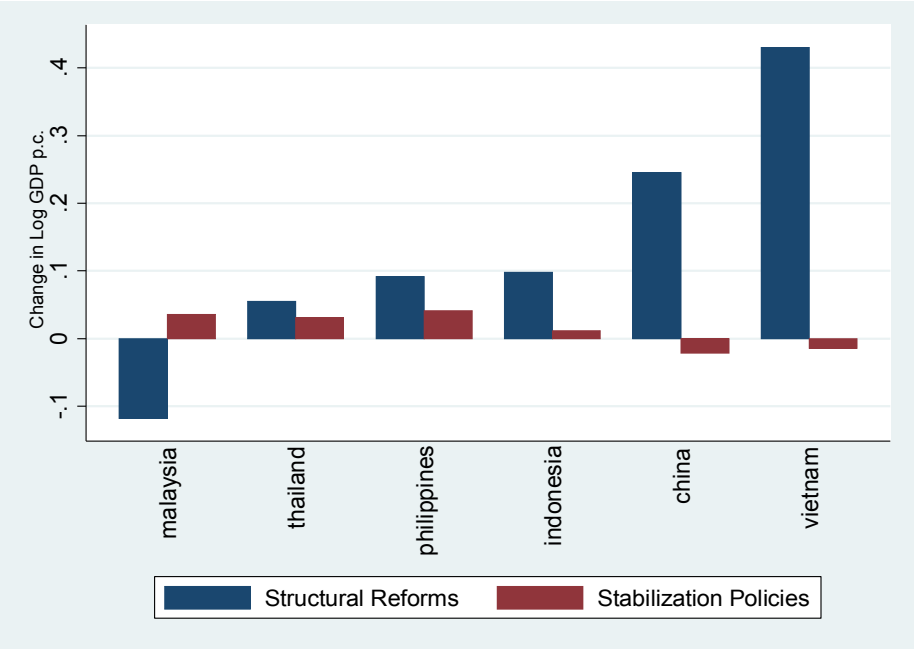


Figure 26. Impact of Structural Reforms and Stabilization Policies on Economic Growth of Regional Peers During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

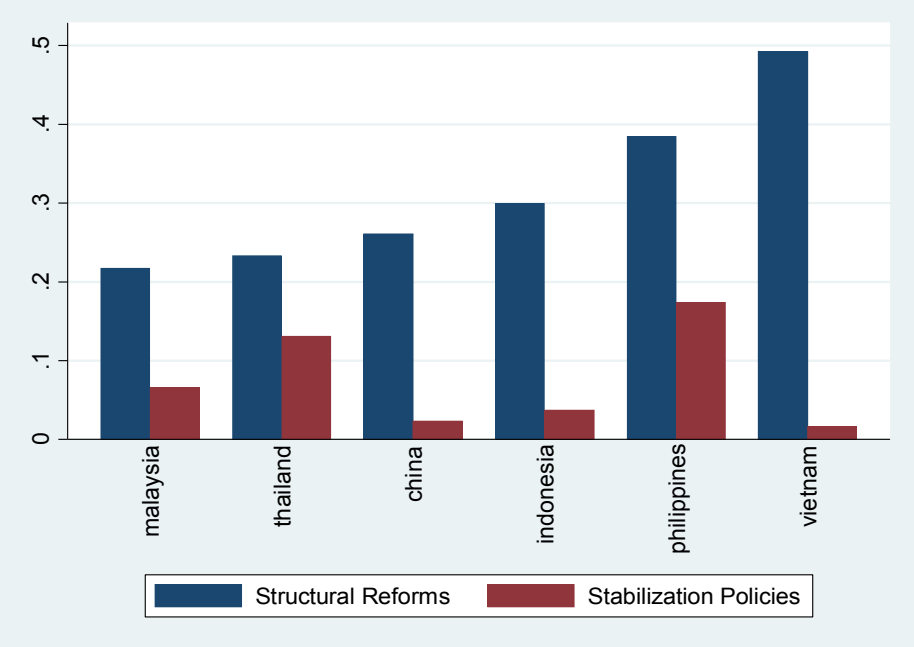
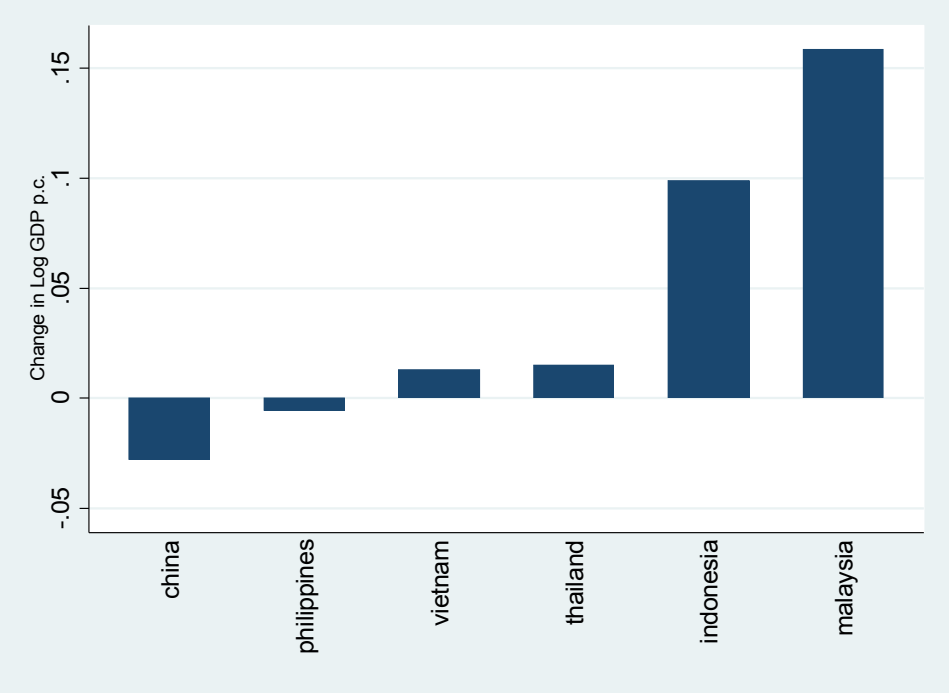


Figure 27. Impact of External Conditions on Economic Growth of Regional Peers During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

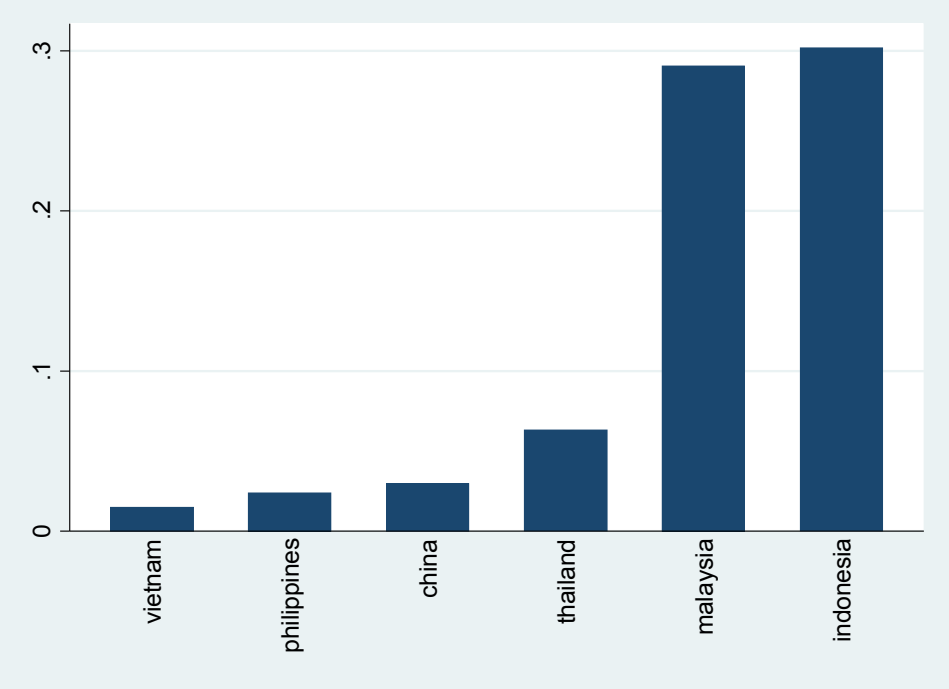
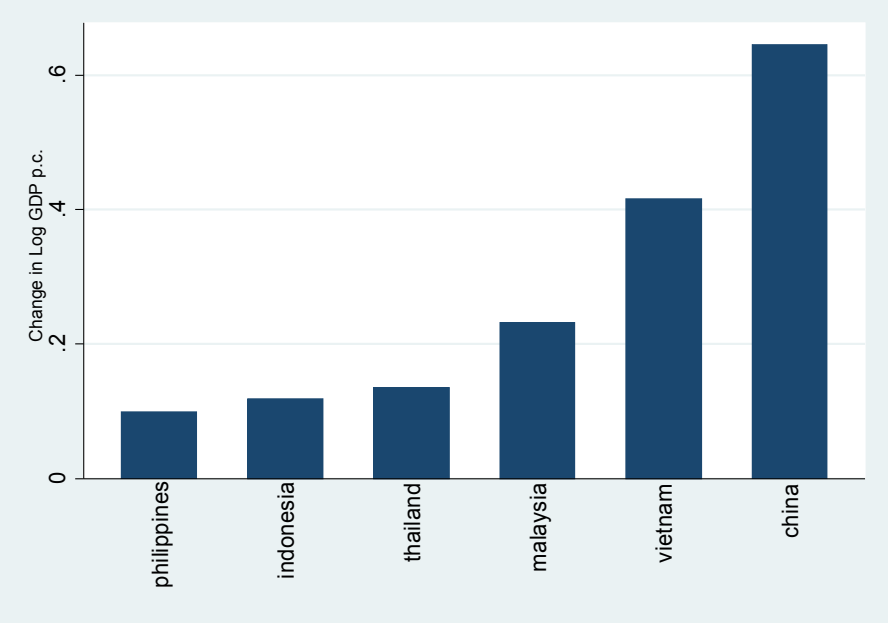


Figure 28. Impact of Transitional Convergence on Economic Growth of Regional Peers During the 2000s

Panel A: Absolute Contribution



Panel B: Relative Contribution

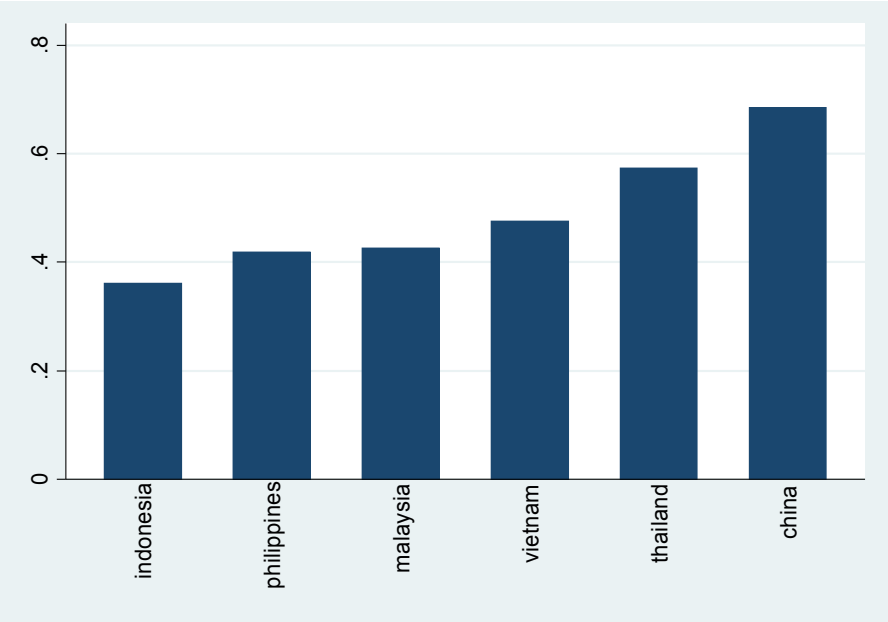
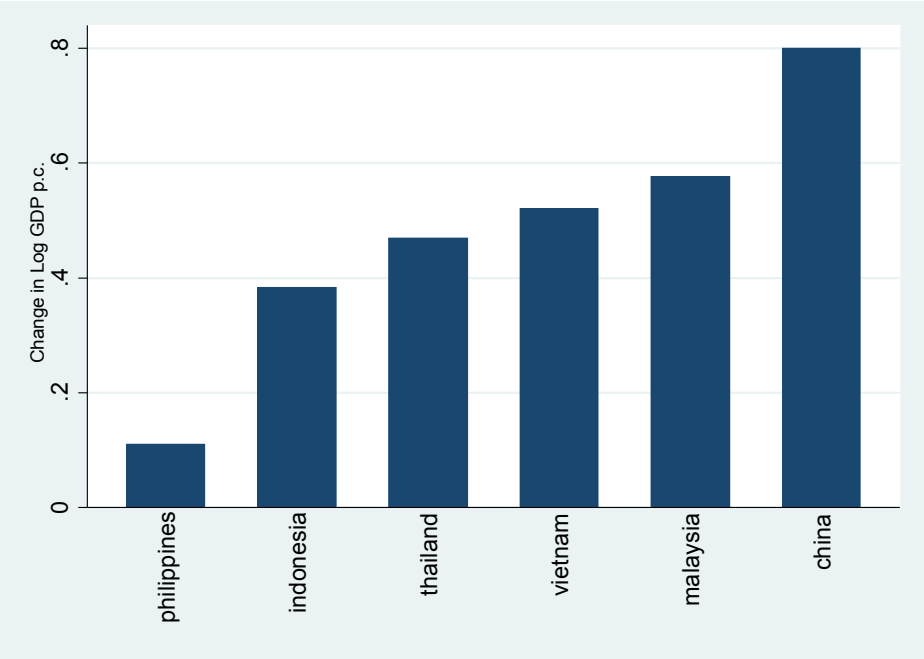


Figure 29. Growth of Regional Peers During the 1990s and 1980s

Panel A: Change in Log GDP per capita between 1986-1990 and 1996-2000



Panel B: Change in Log GDP per capita between 1976-1980 and 1986-1990

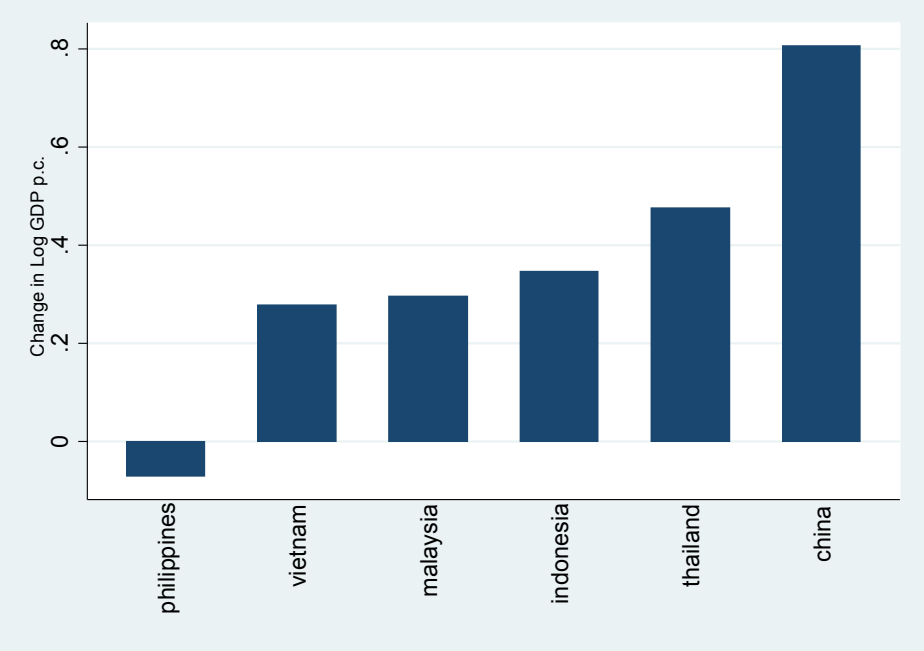
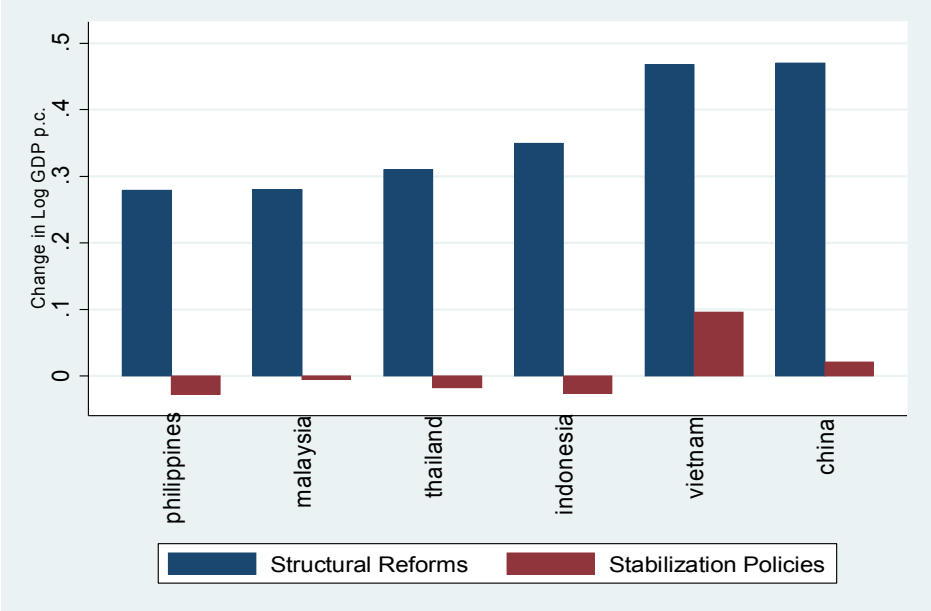


Figure 30. Impact of Structural Reforms and Stabilization Policies on Economic Growth of Regional Peers During the 1990s and 1980s

Panel A: Impact on Change in Log GDP per capita between 1986-1990 and 1996-2000



Panel B: Impact on Change in Log GDP per capita between 1976-1980 and 1986-1990

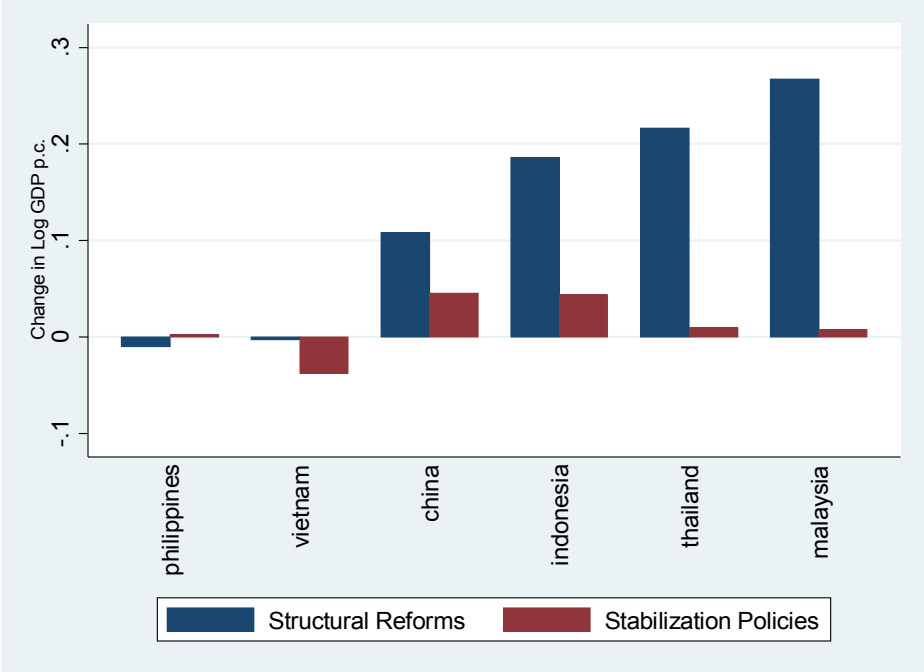


Figure 31. Philippines Implements Structural Reforms and Stabilization Policies at par with Best-Performing Regional Peer

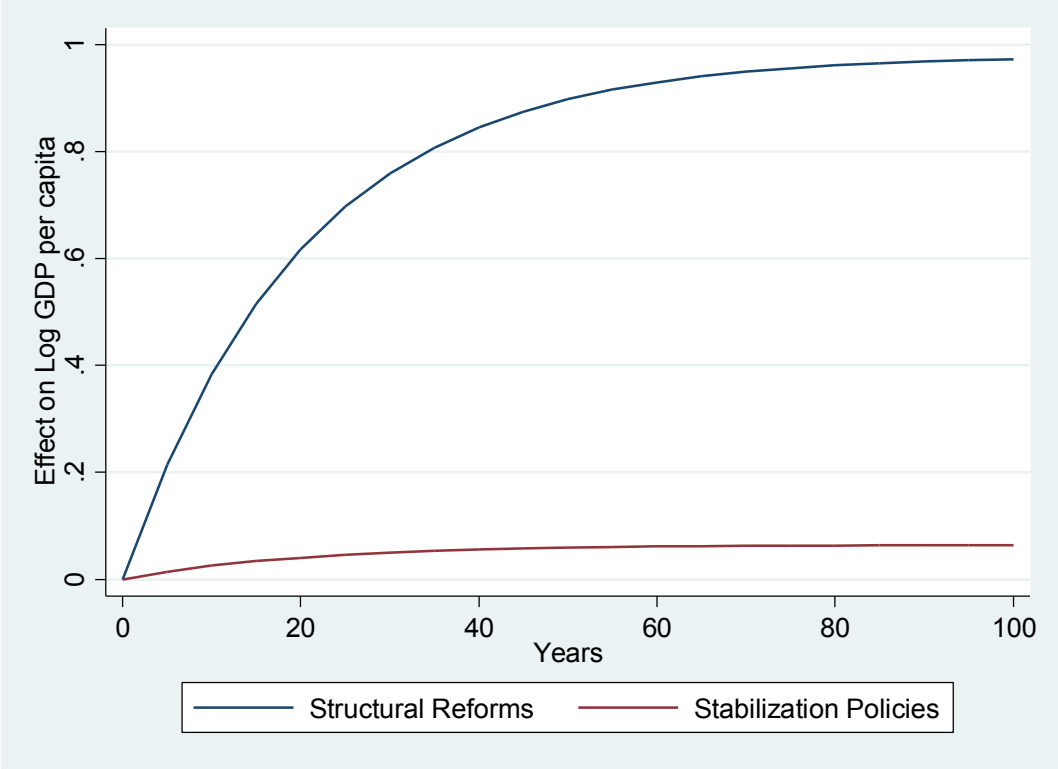
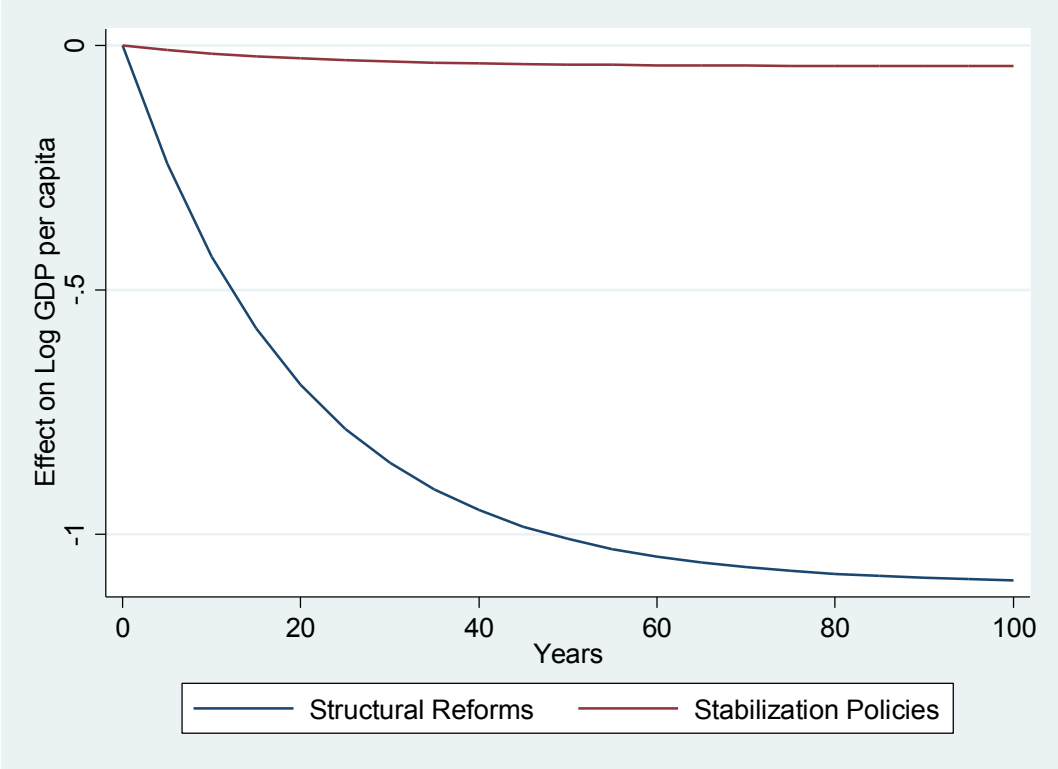
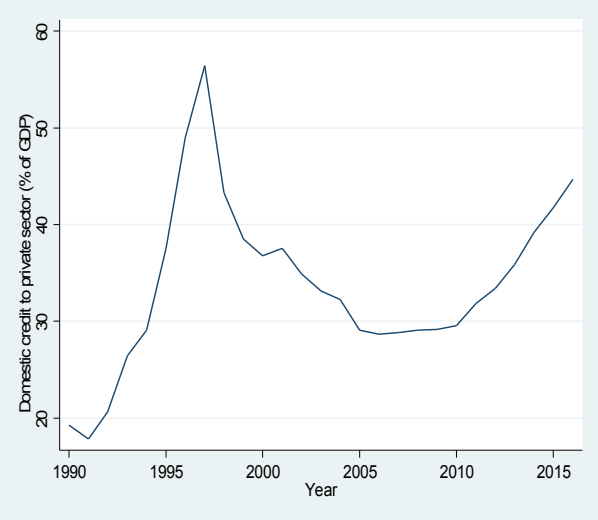
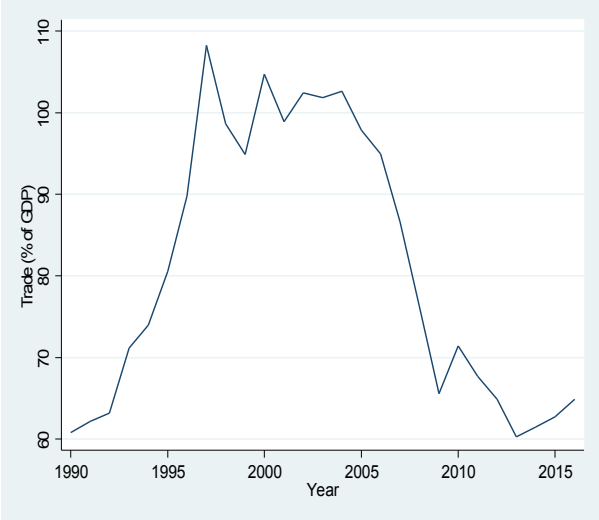


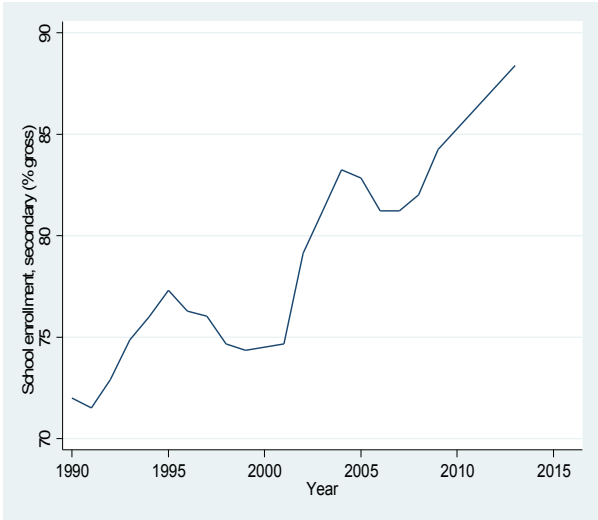
Figure 32. Philippines Implements Structural Reforms and Stabilization Policies at par with Worst-Performing Regional Peer

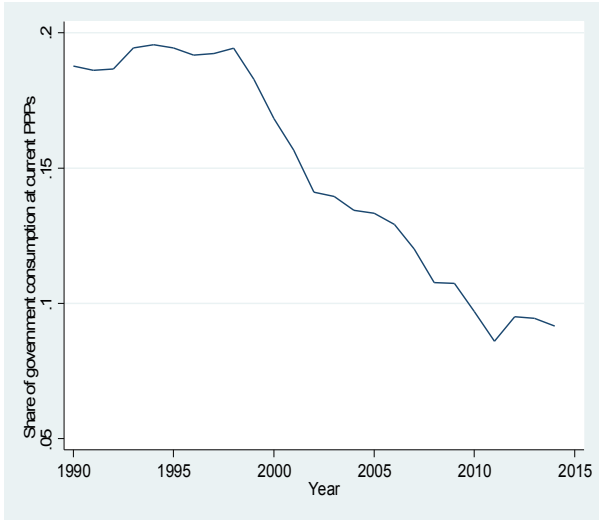


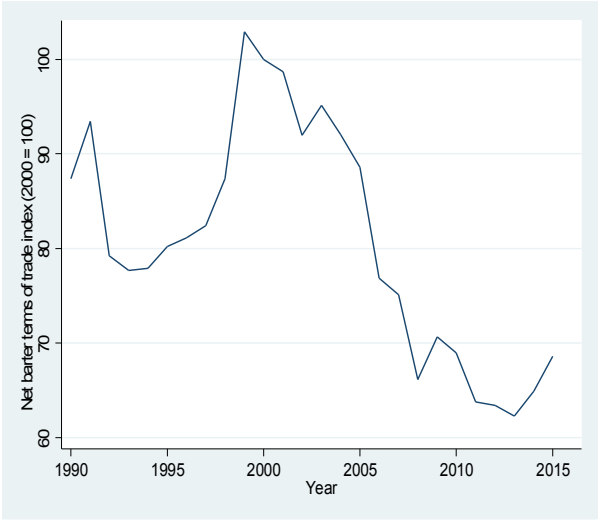
Appendix Figure 1. Annual Time Series Plots 1990-2016

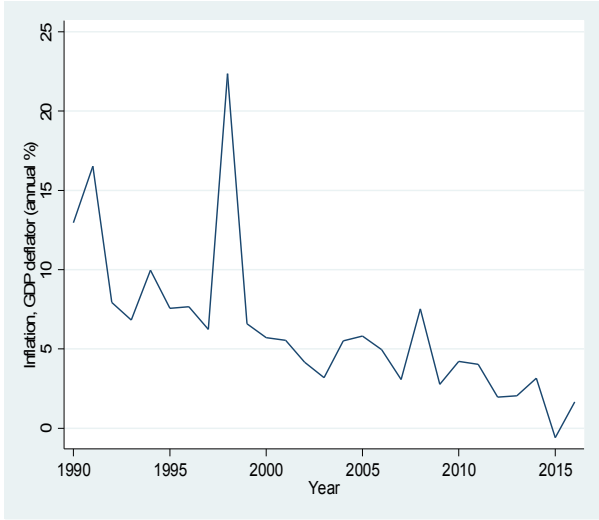


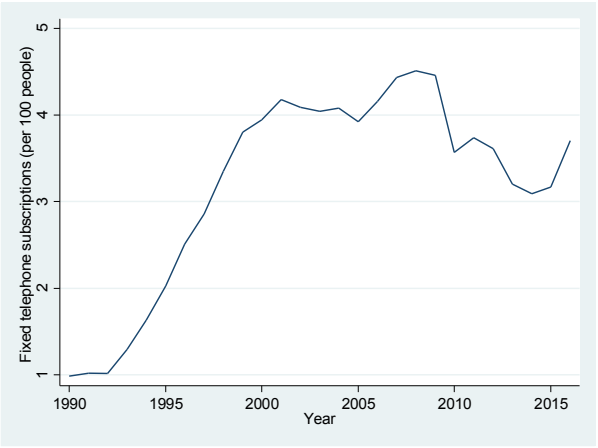


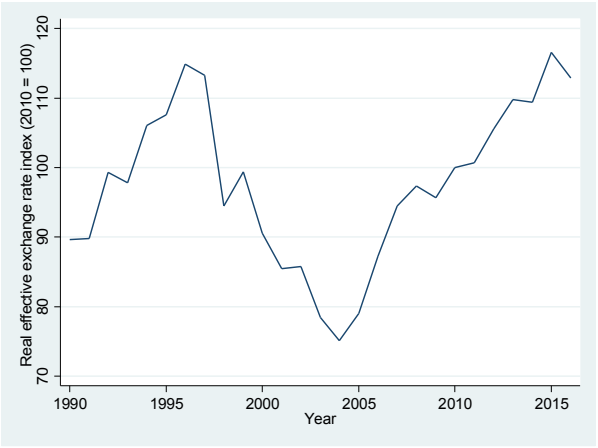


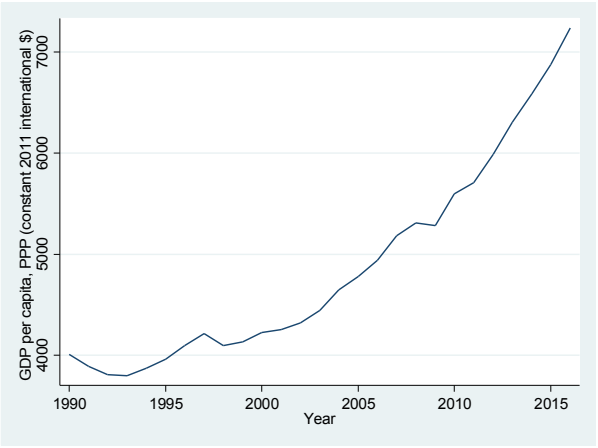


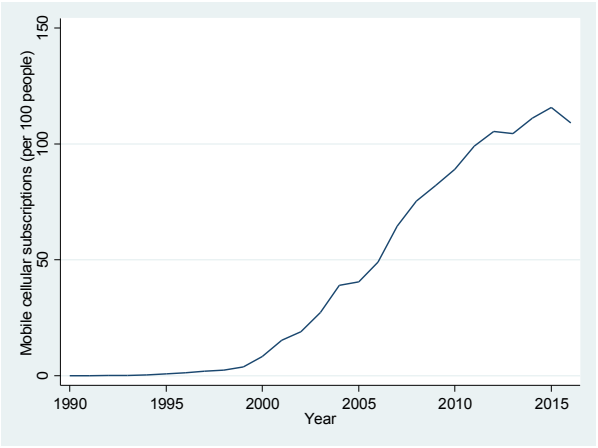


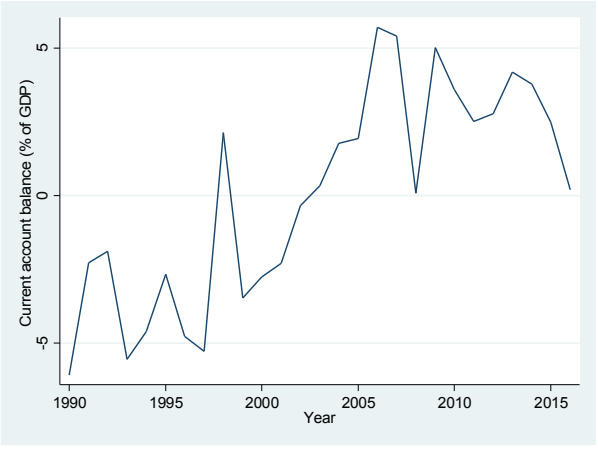


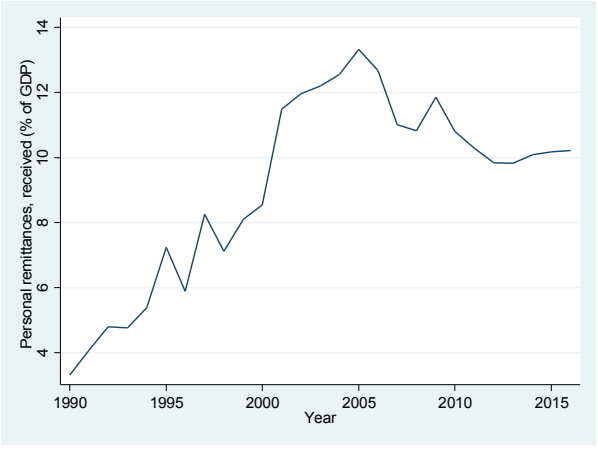

Fixed telephone subscriptions (per 100 people)
1
2
3
4
5
1990
1995
2000
2005
2010
2015
Year

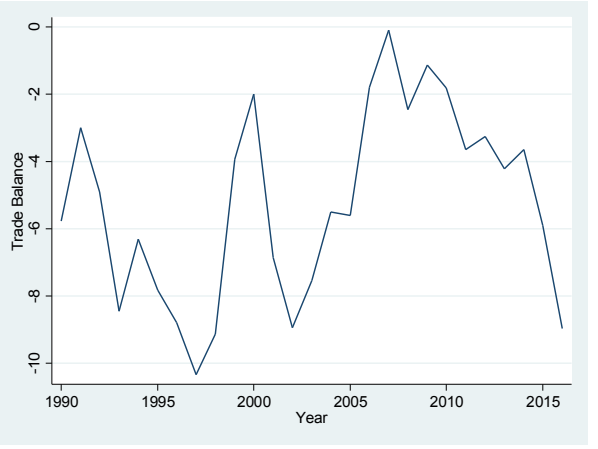

Real effective exchange rate index (2010 = 100)
70
80
90
100
110
120
1990
1995
2000
2005
2010
2015
Year


GDP per capita, PPP (constant 2011 international $)
4000
5000
6000
7000
1990
1995
2000
2005
2010
2015
Year

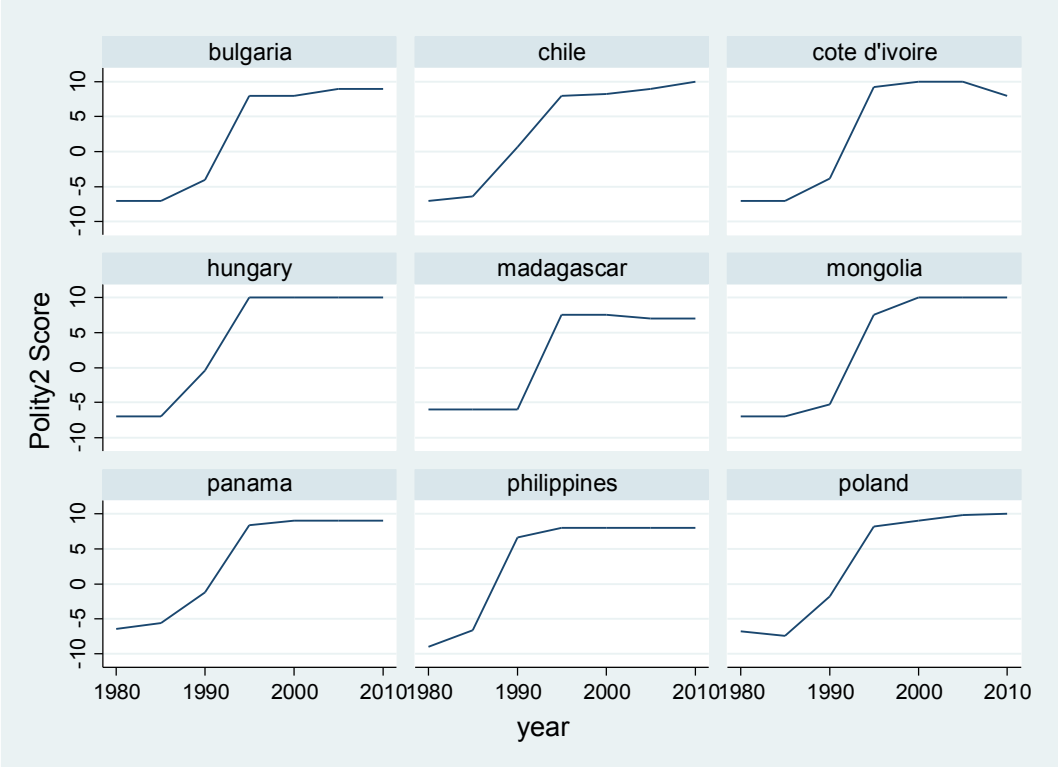

Mobile cellular subscriptions (per 100 people)
0
50
100
150
1990
1995
2000
2005
2010
2015
Year


Current account balance (% of GDP)
-5
0
5
1990
1995
2000
2005
2010
2015
Year


Personal remittances, received (% of GDP)
4
6
8
10
12
14
1990
1995
2000
2005
2010
2015
Year

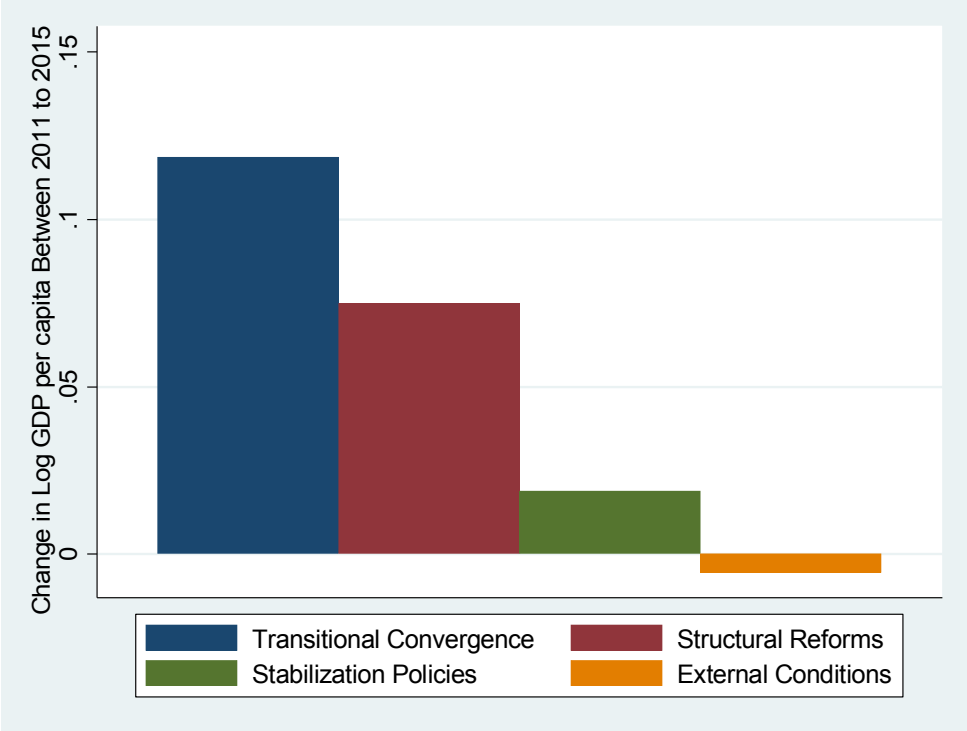

Trade Balance
-10
-8
-6
-4
-2
0
1990
1995
2000
2005
2010
2015
Year

Appendix Figure 2. Young Democracies

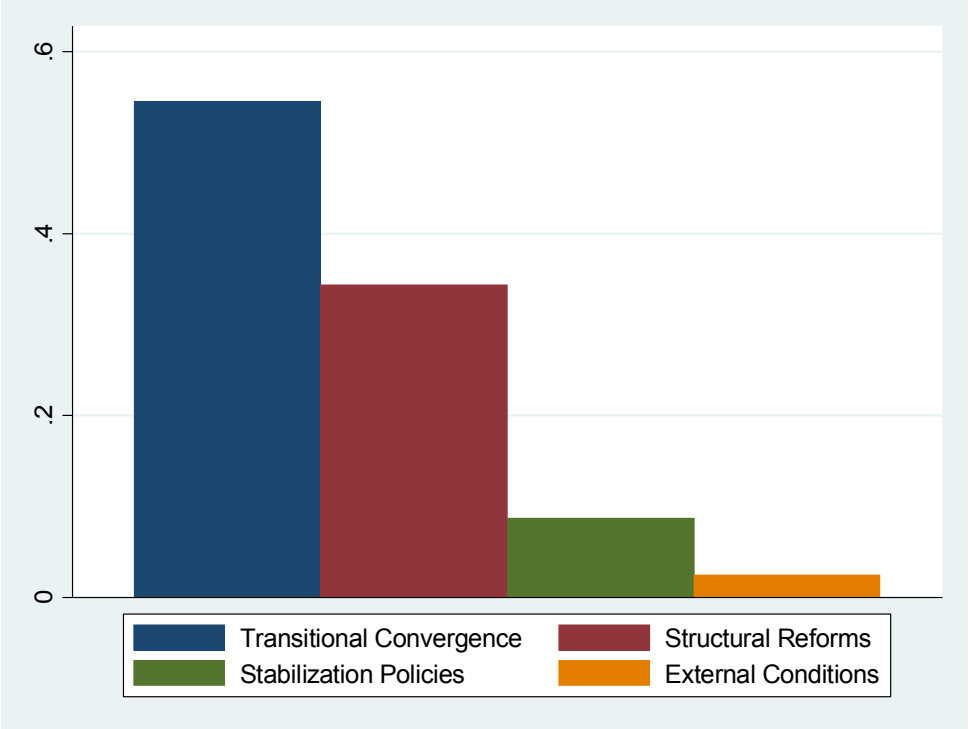


Appendix Figure 3. Drivers of Growth in the Philippines During 2011-2015

Panel A: Absolute Contribution



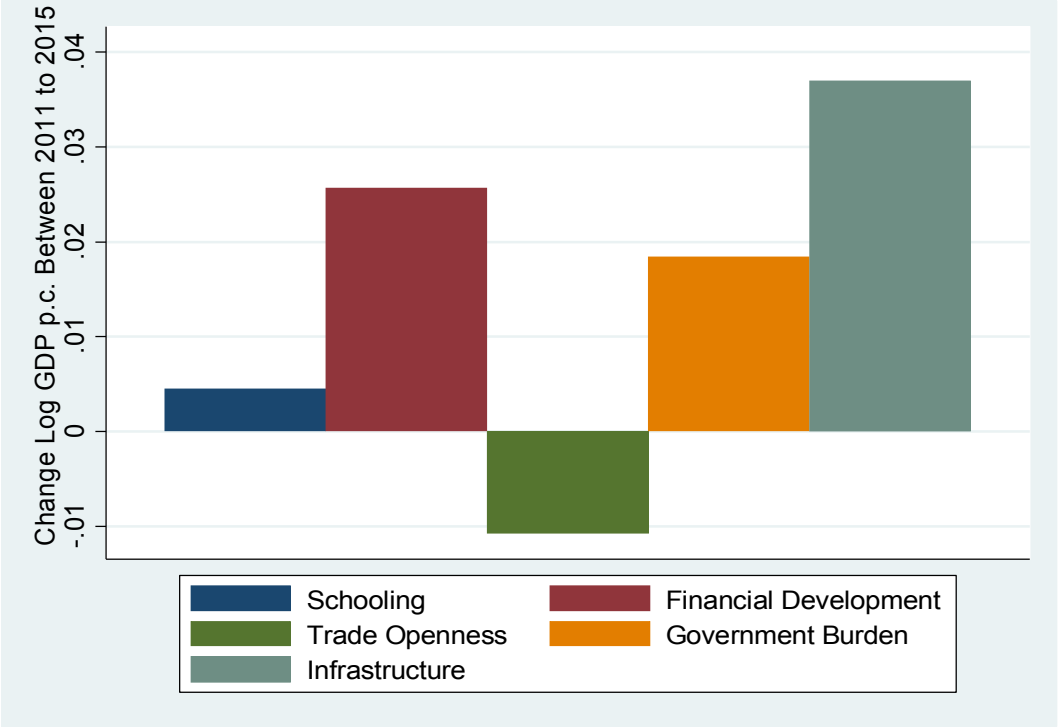
Panel B: Relative Contribution



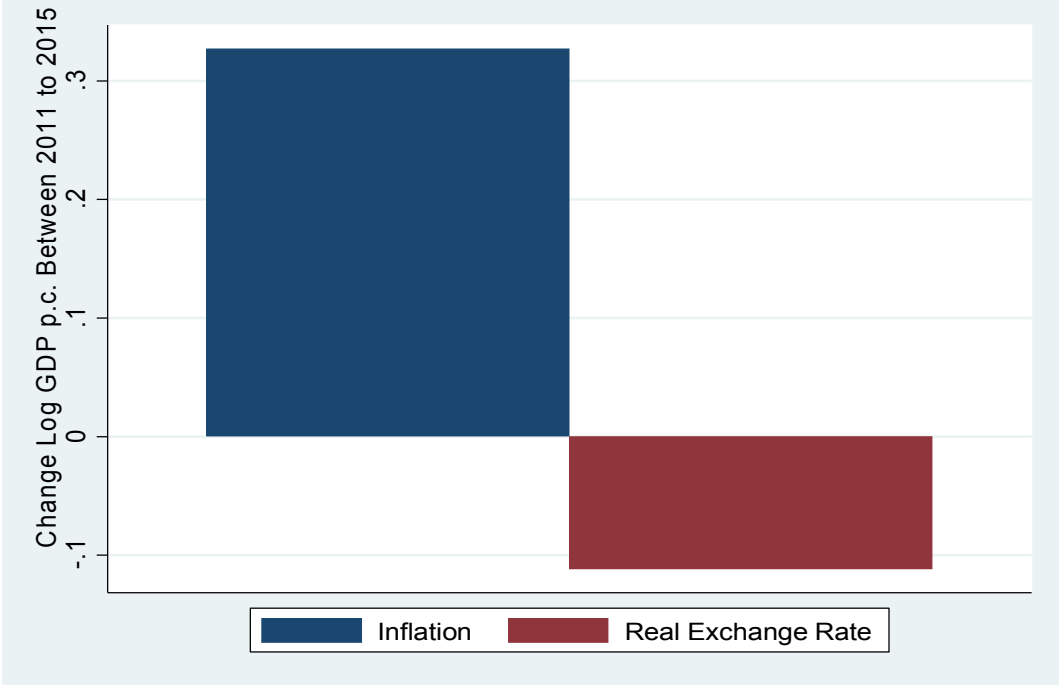
Note: In Panel A, the per annum growth effect (in percent) can be obtained by multiplying the values by 20. Panel B plots the ratios of the absolute growth effect of each component divided by the sum of the absolute of each of the component's contribution to growth.

Appendix Figure 4. Contribution of Structural Reforms and Stabilization Policies to Growth in the Philippines During 2011-2015

Panel A: Structural Reforms

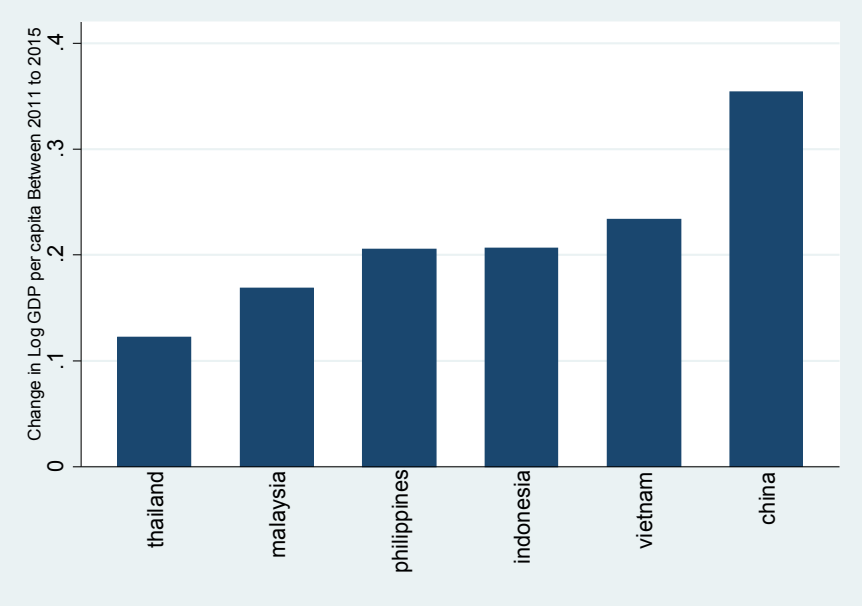


Panel B: Stabilization Policies

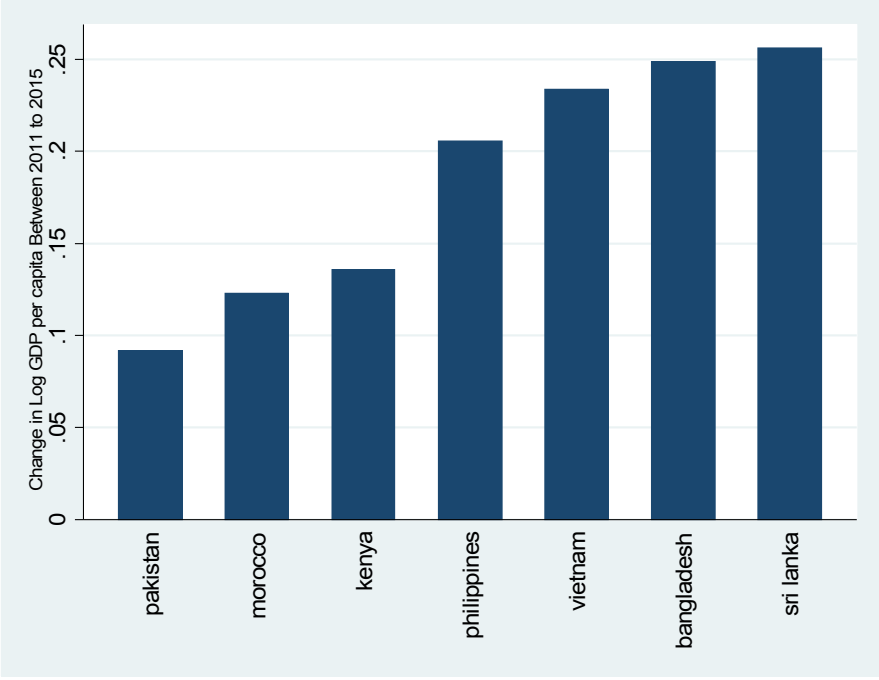


Appendix Figure 5: Growth of Regional and Structural Peers During 2011-2015

Panel A: Regional Peers



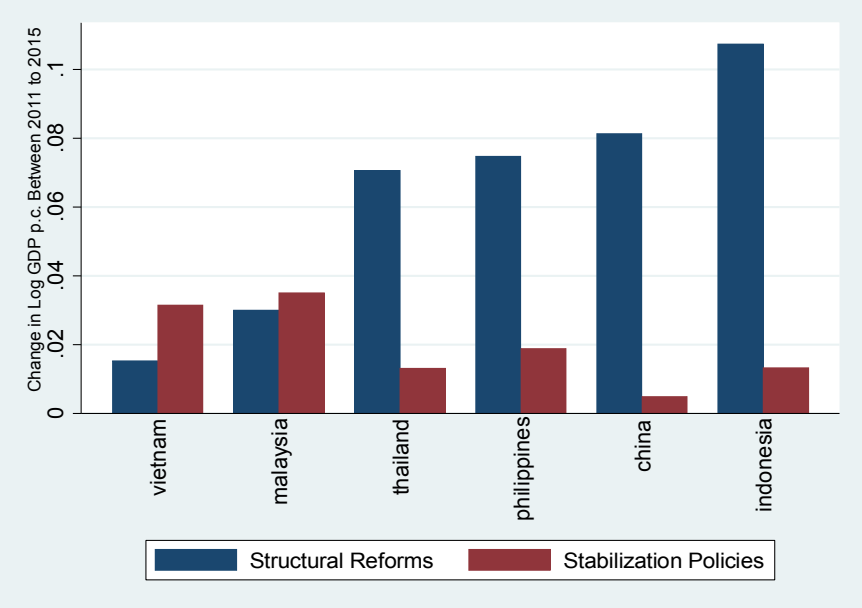
Panel B: Structural Peers



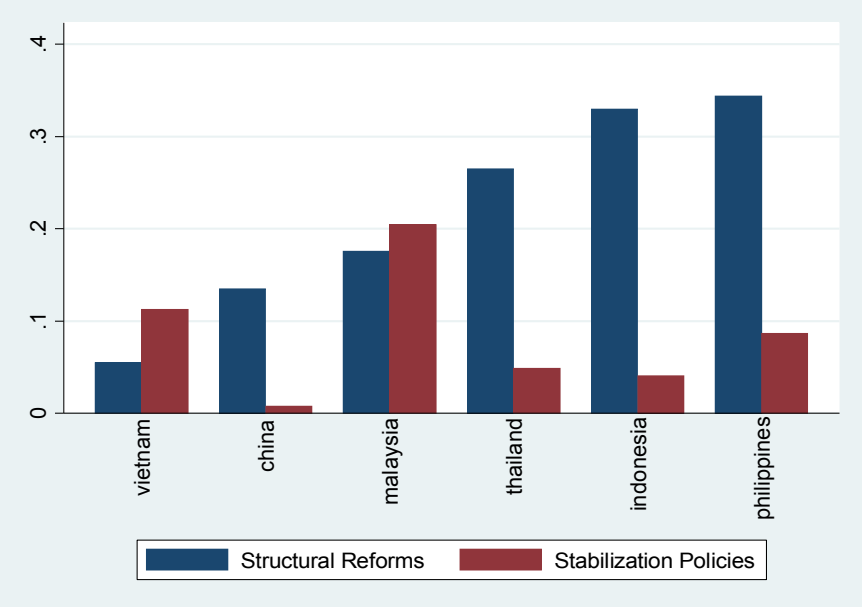
Appendix Figure 6: Impact of Structural Reforms and Stabilization Policies on Economic Growth of Regional and Structural Peers During 2011-2015

Panel A: Regional Peers

Absolute Contribution



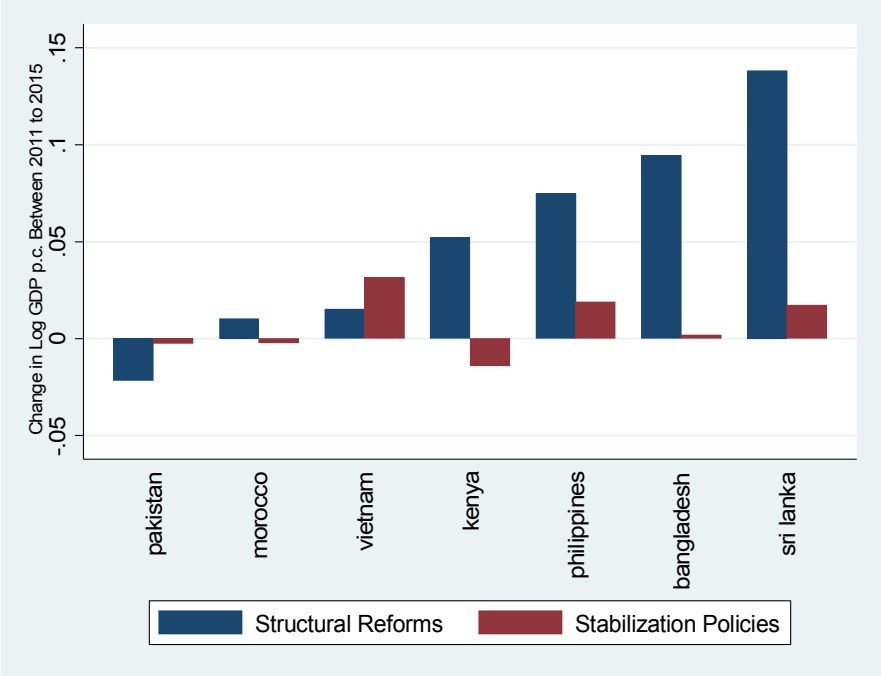
Relative Contribution



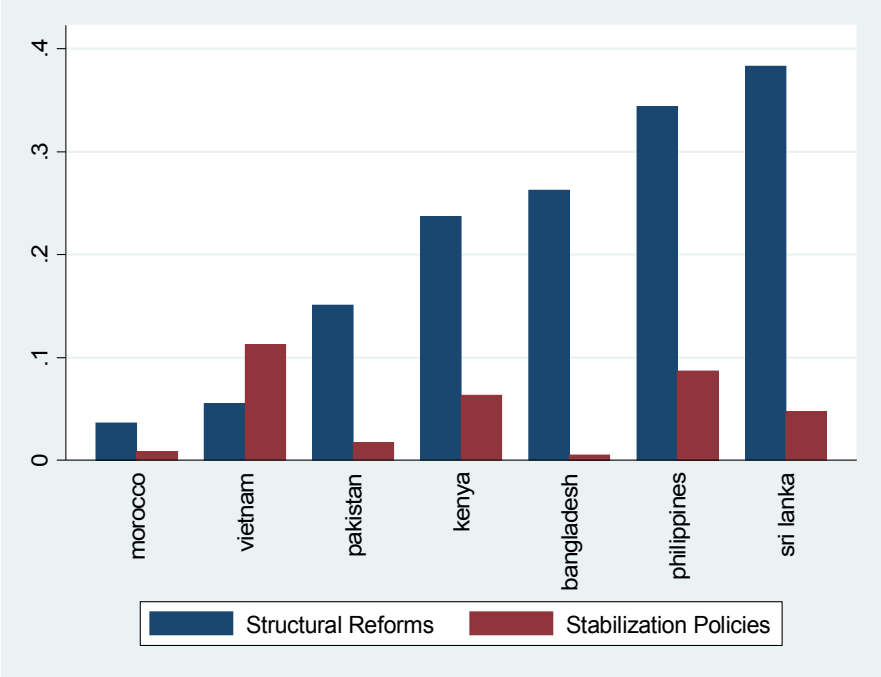
Appendix Figure 6: Impact of Structural Reforms and Stabilization Policies on Economic Growth of Regional and Structural Peers During 2011-2015

Panel B: Structural Peers

Absolute Contribution



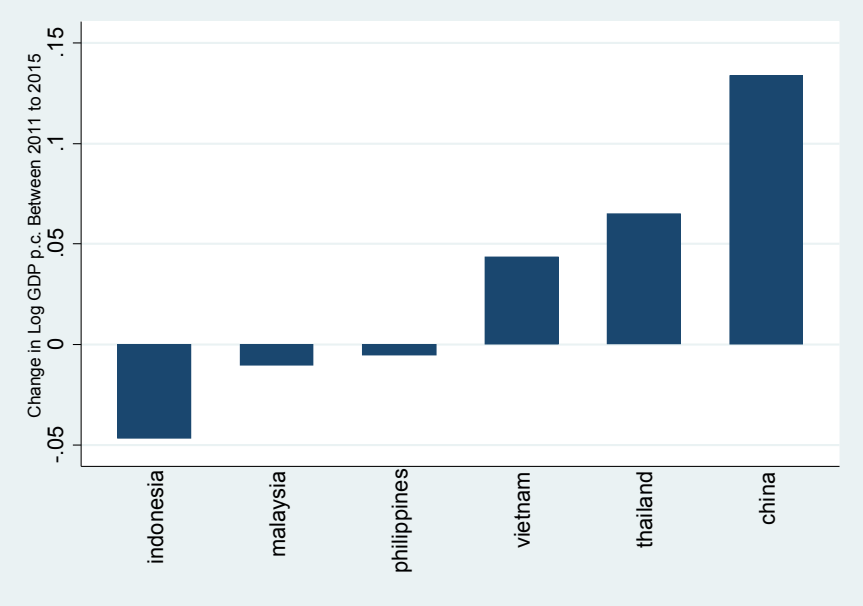
Relative Contribution



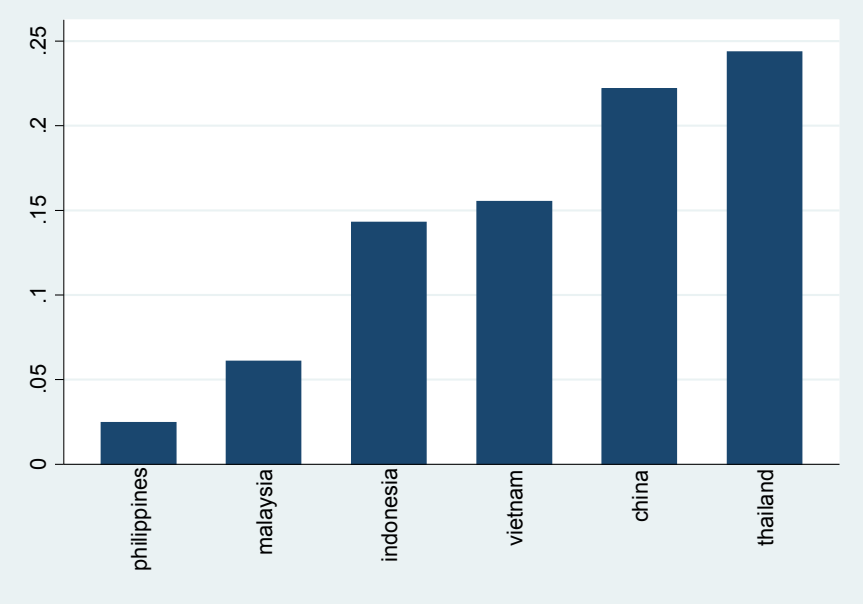
Appendix Figure 7: Impact of External Conditions on Economic Growth of Regional and Structural Peers During 2011-2015

Panel A: Regional Peers

Absolute Contribution



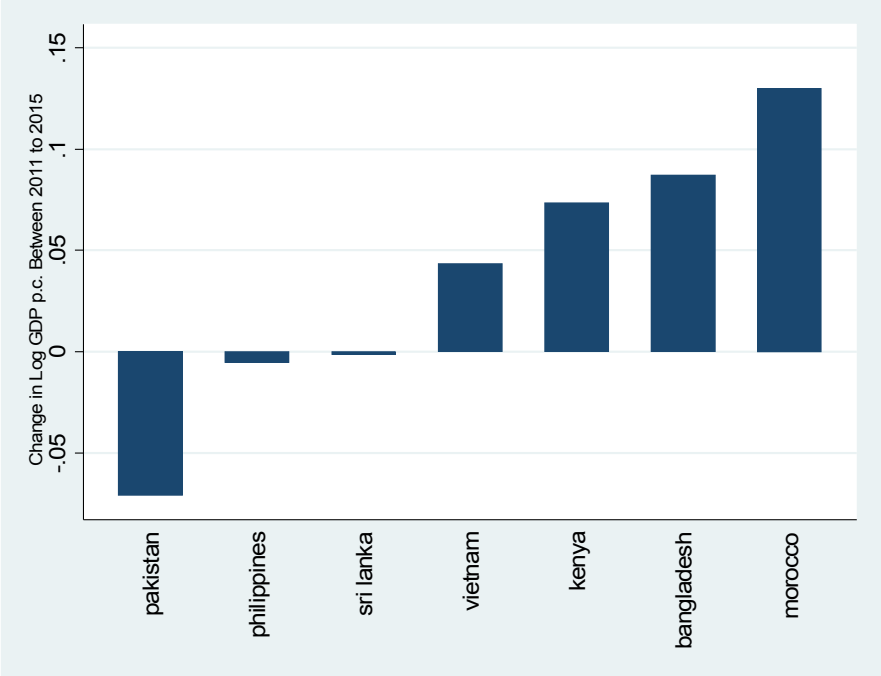
Relative Contribution



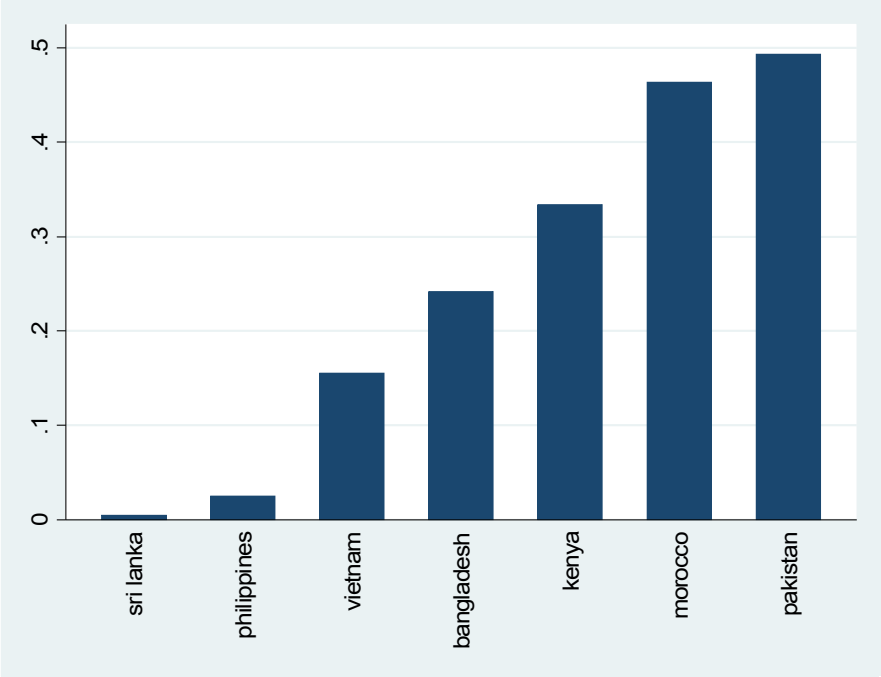
Appendix Figure 7: Impact of External Conditions on Economic Growth of Regional and Structural Peers During 2011-2015

Panel B: Structural Peers

Absolute Contribution



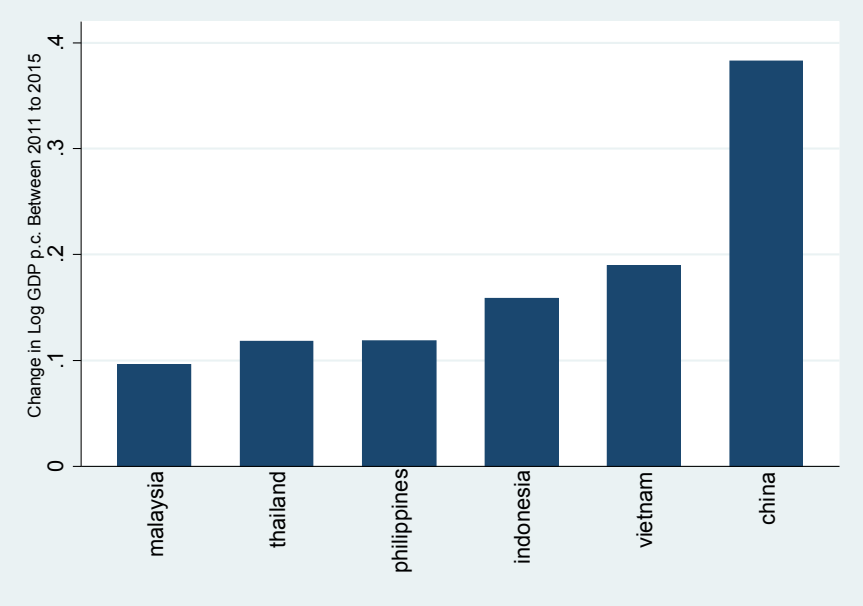
Relative Contribution



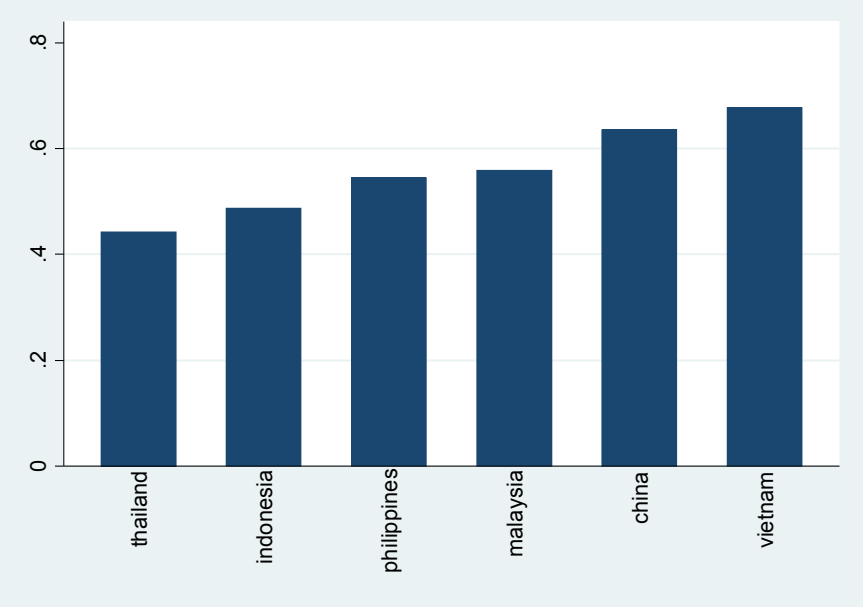
Appendix Figure 8: Impact of Transitional Convergence on Economic Growth of Regional and Structural Peers During 2011-2015

Panel A: Regional Peers

Absolute Contribution



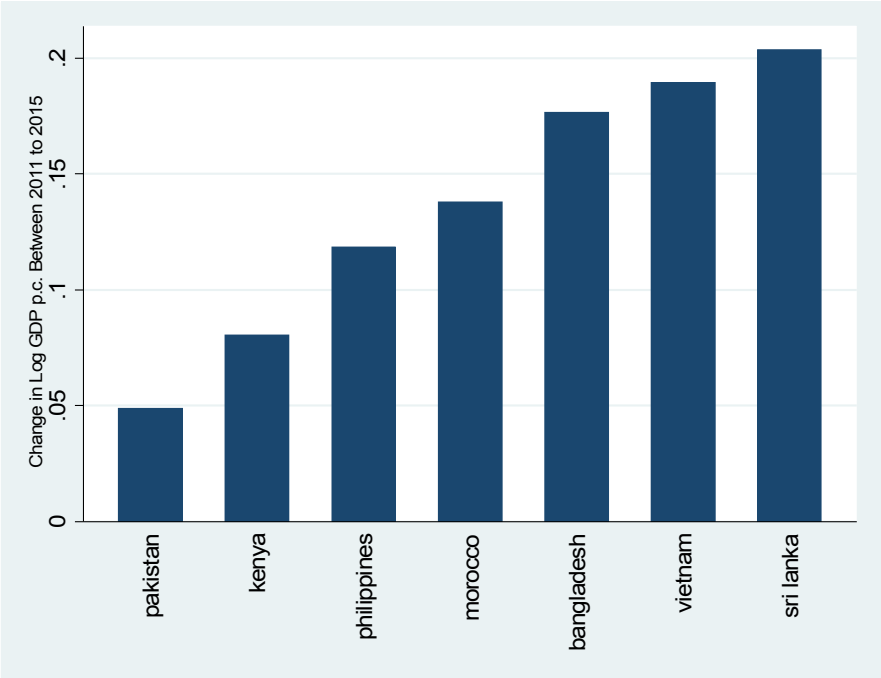
Relative Contribution



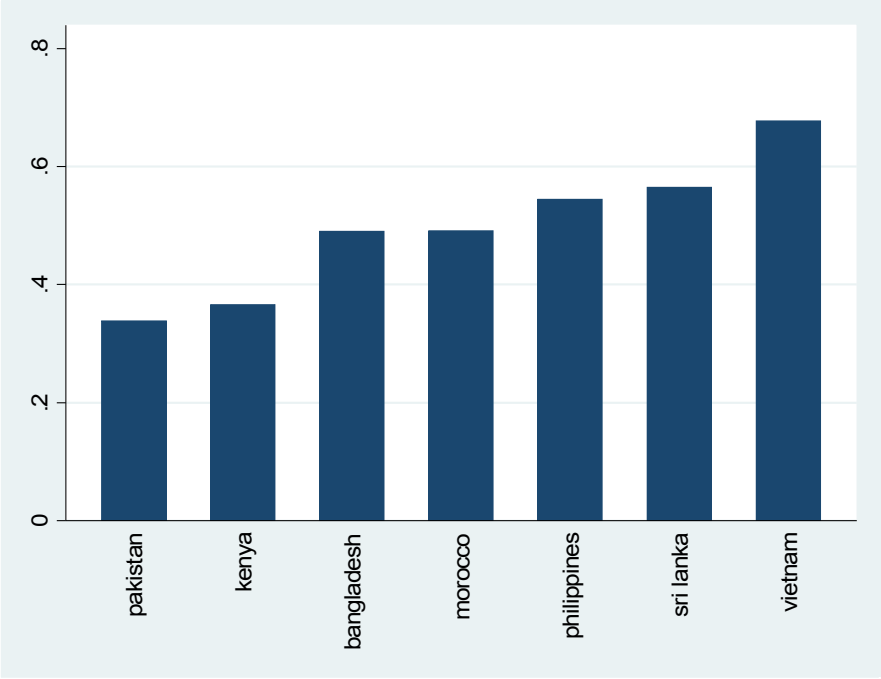
Appendix Figure 8: Impact of Transitional Convergence on Economic Growth of Regional and Structural Peers During 2011-2015

Panel B: Structural Peers

Absolute Contribution



Relative Contribution



Appendix Figure 9
Drivers of Growth in the Philippines During 2000-2015