Politiical Institution and the Growth effect of Exchange Rate Regime:

An Empirical Investigation for Developing Countries

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Abstract:

Empirical studies on the growth impact of exchange rate regimes have reported mixed results on the sign and significance of this effect. The present paper introduces in this literature the claim by Acemoglu et al. (2005) that economic development is shaped by conflicts between social groups with differential political power. In addition Velasco (2000) assumes more credibility of the institution will defend their announcement and it would positively affect the growth. To this end, we examine whether the growth effect of exchange rate regimes depends on domestic political competition. We test this prediction using a panel dataset of 74 developing countries that covers the period 1973-2007 by employing the Dynamic Panel Data Model using the System GMM Technique that has the power to remove the endogeneity of the regressors as exchange rate regime are often treated as endogenous. We find that relatively flexible exchange rate regimes are more beneficial to growth as political competition increases assuming that countries are establishing the government with more democratic environment.

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Introduction:

The choice of exchange rate regime has been a subject of ongoing debate in international trade and finance. The debate has been fueled by a result of a series of economic crises (in Mexico, Southeast Asia, Russia and Brazil) where a class of unsustainable exchange rate regimes was widely perceived for the occurrence of these events. As a result, the adequacy of exchange rate regime is one of the key issues has been discussed in most of international meetings and conference. A part of economic professionals argues that in a world of increasing international capital mobility, only polar regimes (such as currency boards and monetary union or pure float) are likely to be sustainable.[3]But this view is not universally accepted. Some of them believe that intermediate regime are still a viable option that could enhance the growth (Williamson (2000) and Frankel(1999)).

As Frankel (1999), the currency regime is time and country specific that is no single currency regime is right for all countries and for all times, nevertheless, a vast volume of literatures have been written on the growth effect of exchange rate regime. From, a theoretical perspective, the type of exchange rate adopted by a country could have consequences for its medium-term growth, both directly, through its effects on the adjustments of shocks, and, indirectly, via its impact on other determinants of growth such as investment, international trade and financial sector development. Economic theory, however, does not clearly identify which kind of exchange rate is likely to promote growth. So, the type of exchange rate regime that could enhance the growth is essentially an empirical matter.

However, a few numbers of studies have identified the viable option for a group of countries though the results are mixing and controversial. Domac et al (2004b); Levy- Yeyati and Sturzenegger,(2002); Bohm and Funke (2001), Du and Zhu (2001); Nilsson and Nilsson (2000); Brada and Mendez (1988) etc investigate the exchange-rate regime's effect on economic growth. However, unlike the linkage between exchange-rate regime and inflation (elaborated in Petreski

[3] Fischer (2001), Eichengreen (1994) and Obstfeld and Rogoff (1995), among others have made this point.

(2006)), exploration of the relation between peg and growth has evoked considerably less research, "probably due to the fact that nominal variables are typically considered to be unrelated to longer-term growth performance" (Levy-Yeyati and Sturzenegger (2002, p.2). In that line, Goldstein (2002) argues that the natural-rate hypothesis implies that the best that macroeconomic policy can hope to achieve is price stability in the medium-term. In terms of exchange-rate policy, the nominal exchange rate can not be used to keep unemployment rate away from its natural level on a sustained basis. Therefore, an attempt to over-stimulate the economy, by expansionary monetary policy or currency devaluation will result in higher rate of inflation, but no increase in real economic growth (Barro and Gordon (1983). Hence, as a nominal variable, the exchange rate (regime) might not affect the long-run economic growth. There is no unambiguous theoretical evidence what impacts the exchange-rate target exhibits on growth.

Economic theory does not noticeably articulate how the exchange-rate regime and particularly the exchange-rate peg affects growth. Instead, arguments typically focus on its impact on investment and international trade (primarily exports). However, Levy-Yeyati and Sturzenegger (2002) comprehensively treat how exchange-rate regime impinges on growth. They argue that the linkage between regime and economic growth exists, but the sign of the influence is blurred. Advocates of exchange-rate ageing (hereafter ERT) strategy usually highlight that by the reduced policy uncertainty and lowered interest-rates variability, this strategy promotes an environment which is conductive to growth. On the contrary, an exchange-rate target does not provide an adjustment mechanism in times of shocks, thus stimulating protectionist behaviour, distorted price signals and therefore misallocation of resources in the economy. In the same line, for instance, McKinnon and Schnabl (2003) argue that before the Asian crisis of 1997/98 the exchange-rate stability against the US dollar contributed to low inflation and the sound fiscal position. The resulting stable expectations then promoted investment and boosted long-term growth, which has become known as the East Asian miracle.

Ghosh et al (1997), Garofalo (2005) and Collins (1996) all deal with the relationship between the peg and growth. The first paper argues that a peg enhances investments, but a float produces faster productivity growth. Reverting to the production function and specifically to the Solow model of growth, output growth could be promoted if one of the production factors (labour and

capital) or the total factor productivity, or all three, increase. Therefore, if there is considerable evidence that an exchange-rate target promotes investment, then the lower output under a peg has to be associated with slower productivity growth. Moreover, a part of the spurred productivity growth under more flexible option of the exchange rate is associated with faster growth of the international trade.

Friedman (1953) explains that flexible rates act as absorbers of external shocks; in case of a stringent exchange-rate target, the adjustment is channelled through the change in the relative price level. But, in a world of Keynesian prices, the adjustment is slow, thus creating an excessive burden in the economy and ultimately harming growth. Furthermore, under perfect (or at least high) capital mobility, interest rates changes produce high costs for the economy, in attempts to defend a peg when the currency is under attack. Fisher (2001), in that regards, explains that in modern times, free capital across borders makes pegs unsustainable, leading to severe recessions in times of crisis.

Contrary to those views, Gylfason (2000) explains that the macro-stability imposed by pegging further promotes foreign trade, thus "stimulating economic efficiency and growth over the long haul and restraining inflation, which is also good for growth" (p.176). Fixing the exchange rate may enable faster output growth in the medium and long run by supporting greater openness to international trade. Also, the latter may spur growth by easing technology transfer, thus aiding the productivity growth, and which in turn is boosted by promoting greater openness (Moreno, 2001). De Grauwe and Schnabl (2004) argue that there will be higher output growth under a peg because of two factors: first, the eliminated exchange-rate risk which stimulates the international trade and the international division of labour; second, a credible fix promotes certainty, as argued earlier, thus lowering the country risk-premium embedded in the interest rate. Low interest rates in turn stimulate consumption, investment and growth. An analysis of how a peg affects investment is conducted later. Advocates of pegs blame floats for throwing bewilderment at the international market as to the exporters' competitiveness (Grubel, 2000), consequently promoting recourses' misallocation (Gylfason, 2000) and in that manner harming growth.

Bailliu et al (2003) argue that regime's influence on growth could be direct, through the regime's effect on shock adjustments, or indirect, through investment, international trade and financial sector development. The first effect is channelled through regime's effect on growth by "dampening or amplifying the impact and adjustment to economic shocks" (p.385), thus allowing a flexible rate option to enable fast and easy accommodation and absorption of the economic shocks. Consequently,"when the adjustment to shocks is smoother, one would expect the growth to be higher, given that the economy is, on average, operating closer to capacity" (p.385). Whereas, the indirect implications, as explained by Bailliu et al (2003), arises from the relationship between the (un)certainty imposed by the exchange-rate regime and trade and investment.

With the strand of this literature, one could say that the results are mixing and very often they are ambiguous. One of the main problems is that, the classification of the exchange rate regime is not well defined until Ghosh et al(1997), Levy-Yeati et al (2002) and Reinhart and Rogoff () has made that point. And, the other point is the exchange rate regime is not exogenously defined in growth regression. In most cases, it simply entered as a right-hand side variable. A number of studies has identified the determinants of exchange rate regime (Heller (1978), Dreyer (1978), Holden (1979), Mlevin(1985), Cuddington (1990) and Honkaphja(1992)). In those literatures, they identified the number of factors that determine the exchange rate regime based on Optimum Currency Area theory, Financial View and Political View. After that, the growth effect of exchange rate regime become understandable and gives consistent estimates.

Some studies on developing countries has stressed that developing countries should care about their institutional quality to maintain the exchange rate regime free from shock. After the collapse of Bretton Woods system, a number of countries have moved towards the flexible region. As Velasco (2000) said,

"…….freedom from commitment to another nominal anchor like the exchange rate or wages, and the ability to carry out a substantially independent monetary policy, especially one not constrained by fiscal considerations."

And, again he said, “Only when banks are reasonably healthy can policy be used freely, without the fear that interest or exchange- rate fluctuations will bring the banking system tumbling down. Hence, identifying and tackling the sources of financial fragility is crucial for macro policy makers in developing countries.”

This suggests that the stability of exchange rate regime is nothing but the credibility and stability of the financial and fiscal institution. It means that political factors are apparently matter for the stability of the regime. Once, the regime is chosen with a view to tackling it from external shock, it would create a positive impact on economic growth.

The aim of the present paper is to investigate whether the growth impact of exchange rate regimes is related to the domestic political institution. Our main inspiration is the extensive survey by Acemoglu et al. (2005) on the role of institutions in economic development, in which the authors claim that the process of economic development is largely shaped by conflicts between social groups with differential political power.

Empirical research has confirmed that political competition has a substantial impact on economic outcomes. Levitt and Poterba (1999) have suggested that politicians prefer to channel resources to districts where competition is high in order to win majority and provide evidence that U.S. states in which the major political parties are highly competitive, grow faster than less competitive ones. Besley et al. (2008) develop a theoretical model that shows how political competition forces parties to implement growth-promoting policies rather than special-interest policies and find that political competition in U.S. states is positively associated with economic growth. Pinto and Timmons (2005) reports that political competition decreases the rate of labour and capital accumulation, but increases the rate of human capital accumulation. Regarding fiscal outcomes, Roubini and Sachs (1989) have shown that larger public deficits are associated with short-lived multi-party government coalitions, whereas Edin and Ohlsson (1991) have claimed that minority, rather than coalition, governments produce large deficits. Subsequent empirical studies by, among others, Kontopoulos and Perotti (1999), De Haan et al. (1999), Rogers and Rogers (2000), and Spolaore (2004) have confirmed that the intensity of political competition, either directly or through the government structure, affects the domestic fiscal stance. Keefer and Knack (2007) provide evidence of higher public investment in countries with non-competitive

electoral systems and less political checks and balances. In an open-economy framework, Clark and Hallerberg (2000) and Clark et al. (2009) examine how the exchange rate regime interacts with domestic political institutions to constrain a government's ability in using fiscal and monetary policy instruments in order to create electoral expansions and retain political power.
In this paper, we examine the growth impact of exchange rate regime and we also examine this impact that this is conditional on the nature of political institutions. We would examine the following estimators:

$$\frac{\partial growth}{\partial exchange} \quad \text{and} \quad \frac{\partial growth / \partial exchange}{\partial political}$$

One of the main question of finding these estimators is the measurement of political institution or competition and the classification of exchange rate system. In this paper we would use the World Bank's Databank of Political Institutions (DPI) indices, namely Government party orientation (Party orientation with respect to economic policy) and the proportional representation and for the classification of exchange rate regime, we use the de facto classifications of the exchange rate regimes provided by Reinhart and Rogoff (2004) and the standard de jure IMF classification. These measures capture the wide range of exchange rate regime arrangements that exist among countries, as well as the actual exchange rate behavior. It has been established that the standard de jure IMF classification have no effect on growth rate as they very often are not been practiced by the country that announced. In this paper, this point will also be examined.

Our main hypothesis, namely that the growth impact of the exchange rate regimes depends on domestic political institution, is investigated using a panel of 74 developing countries over the period 1973–2007. The main findings are relatively and some sort of floating exchange rate regimes are more beneficial to growth in countries with more flexible government, i.e if the countries with the governments are less rigid to make political and economic decision as a central planner. The leftist and more democratic institution are beneficial for growth by soothing the complexity of implementing of economic decision.

Methodology:

Our main interest lies on the estimation of the influence of political competition on the growth effect of exchange rate system. For this, we develop a standard specification of the growth model. Empirical growth research has become one of the most dominant areas in macroeconomics. In most cases the growth rate of capital (in case of Solow model) or the growth rate of per capita GDP is regressed on state and control variables.[4]To assess the impact of this state and control variables on growth we can write:

$$GR_t = f(SV_t, CV_t) \tag{1}$$

This general specification is consistent with both neoclassical and endogenous-growth modes. In a neoclassical framework, state variables account for the initial position of the economy, where as control variables captures differences in steady-state levels across countries. In an endogenous growth model economy is assumed to always be in its steady state, and therefore the explanatory variables capture differences in steady-state growth rates across countries. The specification can be used to explain either what determines differences in transitional growth rates across countries as they converge to their respective steady states or what determines differences in steady-state growth rates across countries.

Equation (1) stipulates that a country's growth rate at time t is a function of its state and control variables, so we can formulate the following econometric specification:

$$GR_{i,t} = \alpha_i + \eta_t + V_{i,t}\beta + x_{i,t}\delta + \varepsilon_{i,t} \tag{2}$$

where $GR_{i,t}$ is the growth rate of real per capita GDP in country *i* and period *t*, α_i is a country-specific effect, η_t is a time dummy, $V_{i,t}$ is a row vector of growth determinants measured at the

[4] If investment is endogenous and the investors are exposed to risk, the basic Solow model fails and one is advised to use the class of stochastic Ramsey model. See Elbers and Gunning (2002), 'Growth Regressions and Economic Theories', Tinbergen Institute Discussion Paper, TI 2002-034/2

beginning of period of t, $x_{i,t}$ is a row vector of growth determinants measured as averages over period t and $\varepsilon_{i,t}$ is an error term. In this specification we would use 5-year periods , because it is assumed that interval is long enough to eliminate business cycle effects but short enough to capture important changes in this period for a particular country. To measure the country specific effects and the global shocks, we would control the other determinants of growth rate to make certain that the estimated coefficient of the exchange rate regime variables to capture the effects of exchange rate regime on growth.

In the above equation, exchange rate regime variable is used as a dummy variable. At the earlier stage the *de-jure* classification is used to determine the effect of exchange rate on growth. But it is seen that countries, especially the developing countries do not follow the *de-jure* classification announced by county's central monetary authority or the IMF. There exists a parallel exchange rate market in those countries.

The conventional classification of exchange rate regimes is the one that is provided by International Monetary Fund (IMF) based on declaration of country's authorities. The IMF classification after 1998 consists of eight items: no separate legal tender, currency board, conventional fixed, horizontal band, crawling peg, crawling band, dirty float and free float. Using this index, the effect of this classification of exchange rate regime on growth would be measured. Bailliu *et al* (2003) found that the effect of IMF classification on growth is not statistically significant. In this paper, it will be re-examined.

There are some literatures on de-facto classification that are widely used in growth research and also in exchange rate regime analysis. Among them Levy-Yeyati-Sturzenegger (2005), Shambaugh (2004) and Reinhart and Rogoff (2004) classifications are widely popular and we would use the last one.

Levy-Yeyati and Sturzenegger (2005) [LYS] use cluster analysis to generate one observation per calendar year, based on three variables: the volatility of the nominal exchange rate level against the identified anchor currency (average absolute monthly percentage change), the volatility of exchange rate changes (standard deviation of monthly percentage changes), and the volatility of foreign exchange reserves (average absolute monthly percentage change in net dollar international reserves relative to the dollar value of the monetary base in the previous month). This last is intended as a measure of the commitment to managing the exchange rate, but since what is used is a measure of actual intervention, which may vary considerably even though the commitment remains unchanged, it is probably at least partly responsible for the large number of regime switches in this classification. Using this classification, Levy-Yeyati and Sturzenegger (2001, 2003) claim that floats are associated with significantly higher growth in non-industrial countries, by about one percentage point *per annum*.

Shambaugh (2004) [SS] aims only to differentiate pegs from other regimes. For a peg classification, the nominal exchange rate must remain within a two per cent band within the year, or have zero movement for eleven out of twelve months, which is a relatively strict definition that, for example, excludes all crawling pegs. If neither criterion is met, the regime is a non-peg. Like Levy-Yeyati and Sturzenegger, his scheme generates annual classifications only. Up to now macroeconomic outcomes have not been investigated using this classification.

Reinhart and Rogoff (2004) [RR] use a classification methodology based on the *parallel* rather than the official exchange rate, where such a rate exists. The use of the parallel rate is unique to this scheme, and may well be responsible for the rather different results that we obtain with it. The authors justify it on the grounds that, where the parallel rate premium is high, the official rate ultimately moves towards the parallel rate rather than *vice versa*. Their statistical approach is based purely on exchange rate movements. They allow regimes to be categorized as a peg or a band even if a significant minority of exchange rate movements is large, based on rolling five-year windows.

From the above three classifications, in this paper RR classification will be used because LYS cannot classify if data on the three variables they defined are unavailable and they denoted it as *inconclusive*. Again the JS classification is strict in manner. So, in this paper it will not be used.

To capture the type of exchange rate regime, we use the original coarse index for both RR and IMF classification. As we are using five-year periods, this variable captures the average or typical regime during this interval. In cases where the classification changed during the five-year period, the typical regime is the one that occurred most of the time (i.e., at least three out of five years). (Bailliu et al. 2003).

To provide a consistent estimation of the equation (2), we use a panel data GMM estimation technique, especially dynamic panel data models which are developed by Holtz-Eakin et al. (1990), Arellano and Bond (1991), Caselli et al. (1996), Levine et al. (2000) and Bialliu et al. (2002). This technique makes it possible to address two important econometric problems that arise in estimating growth regressions. First, some of the explanatory variables in a growth regression are likely to be endogenous and, if this is the case then using OLS would give us biased and inconsistent estimates. Secondly, even if an instrumental variable technique is used for the endogeneity of some of the regressors, the estimates would still be inconsistent given that the country specific effect is correlated with at least some of the regressors. As previous studies show the treatment of endogeneity of the exchange rate regime based on economic theory, in growth theory if we employ this technique it would still produce baised estimators because, some of the determinants of exchange rate regime choice are also the determinants of growth and as IV technique tells us that the instrumental variable should not be correlated with the dependent variable, so we can't use that technique.

As we would use GMM estimation technique, the above dynamic panel data model provides that the initial per capita GDP is correlated with one of the variables in the vector of growth determinants, $V_{i,\tau}$ where τ refers to the time under consideration, here it is 5 years. Indeed, the

country-specific effect in equation (2) is correlated with initial real per-capita GDP, one of the variables in

the vector Vi,t. This becomes clear when (2) is first rewritten as follows:

$$y_{i,t} - y_{i,t-\tau} = \alpha_i + \eta_t + \lambda y_{i,t-\tau} + V_{i,t-\tau}\beta + X_{i,t-\tau}\delta + \varepsilon_{i,t} \quad (3)$$

where $y_{i,t}$ is the natural log of real per capita GDP in country i at time t and the subscripts are modified so that $V_{i,t-\tau}$ is a row vector of growth determinants measured at the beginning of the $(t-\tau, t)$ period, $X_{i,t-\tau}$ is a row vector of growth determinants measured as average over the $(t-\tau, t-1)$ period and $\tau = 5$. Next, equation (3) can be written as dynamic model in the level of per capita GDP, as follows

$$y_{i,t} = \alpha_i + \eta_t + \gamma y_{i,t-\tau} + V_{i,t-\tau} + X_{i,t-\tau} + \varepsilon_{i,t} \quad (4)$$

where $\gamma = 1 + \lambda$. Thus by construction lagged dependent variable is correlated with the country specific effect (that is $E(\alpha_i, y_{i,t-\tau} \neq 0)$. So if we use IV technique, this would give us inconsistent estimates whether the country-specific affects are assumed to be fixed or random.**(citation needed—Nickelson 2002)

The GMM estimation technique employed in this paper incorporates both of these issues: country specific effects and endogeneity problems. This methodology involves first rewriting the growth equation as like (3) which shows the dynamic model in the level of real per capita GDP, which is shown in (4). To eliminate the country specific effects equation (4) is then first differenced as like:

$$y_{i,t} - y_{i,t-\tau} = \gamma(y_{i,t-\tau} - y_{i,t-2\tau}) + (V_{i,t-\tau} - V_{i,t-2\tau})\beta + (X_{i,t-\tau} - X_{i,t-2\tau})\delta + (\varepsilon_{i,t} - \varepsilon_{i,t-\tau}) \quad (5)$$

Next, three assumptions are made that imply a set of moment restrictions that can be used in the context of a GMM estimation and, hence, generate consistent estimates of the parameters in the growth equation. The first assumption is that the error term is serially uncorrelated. This implies that there is no τ-order serial correlation. The second assumption is that the variables

representing initial conditions are predetermined; those variables measured at the beginning of the period are considered to be predetermined for time t and beyond. The third assumption is that the control variables are weakly exogenous. In other words, those variables measured as averages over the period are considered to be predetermined for time t and beyond.

Given that the consistency of the GMM estimates depends on the soundness of the instruments, two specification tests are employed to test the validity of the instruments. The Arelano-Bond autocorrelation test is applied. The Sargan test is used to verify independence between the instruments and the error term. The null hypothesis in this case is that the instruments and the error term are independent. The definition and the sources of data are given in Appendix.

Empirical Result:

We next present our original estimation results of system GMM in column 2, 3 and 4. Column 2 shows our results which are consistent with our assumption. Initial per capita GDP shows the negative and significant and shows the convergence which supports the neo-classical growth theory. For RR_Coarse classification, the coefficients of the explanatory variables are significant. According to the growth theory, average years of schooling exerts the positive and significant impact on growth. Excessive govt. consumption can bring the sand-bags on the growth engine and so that the coefficient is negative. The coefficient of gross fixed capital formation and private credit/GDP are statistically significant but for Gross capital flows/GDP, it appears negative and insignificant.

The classification of RR exchange rate regime shows that more will be the exchange rate regime flexible, the more it will produce a positive impact on growth. As the classification is an index, the negative coefficient means that it points out on the lower value, which indicates the flexibility. Though some developing countries follow the fixed exchange rate, but after the collapse of Bretton Woods system, countries are forwarding themselves to the flexible region, especially they follow the managed floating region. As we have said that this type of classification would produce the positive impact only when the announcement has the credibility

and the credibility crucially depends on the institutional quality. Political institution and the competition are the pre-condition for the stability. So, if we control that the coefficient of the regime is negative, then the index that we used for the proxy of political competition must be negative. So, the coefficient of the interaction term must be positive. Our result shows that in each cases, the coefficient of the interaction term is positive, which tells that under political competition, and more specifically if the political institution are more democratic, less rigid and if the party orientation are left and if the government follows the plurality then it produces the positive impact along with relatively flexible exchange rate regime. Our results supports our assumption which are shown in column 2, 3, and 4.

We also used the official IMF classification and we saw again that it produce inconsistent results. The results are shown for IMF_Coarse classification with the same regressors in column 5

Our specification test shows that RR_Coarse model pass the 1st order autocorrelation Arelano-Bond test. The Sargan test of over-identification restrictions reject the null hypothesis at 5% level of significance for column 2 and 4 but fail to reject for column 3. The wald test statistics are significant at levels for all models.

Conclusion:

This paper investigate the role of political competition is assessing the growth impact of exchange rate regimes. In order to do that, we use the neo-classical growth model that includes the interaction term between the exchange rate regime variable and the indices of political competition (orientation, proportional and plurality). Our evidence suggest that, relatively flexible exchange rate with more beneficial in countries with the government with more left constituents (Orientation), with more plurality rules they followed and with more proportional representation are presented. This argument highlights the importance of political competition and institution. As exchange rate regimes are announced by country's central monetary authority, it apparently indicates the independence and the credibility of that institution. In developing countries, very often, these are not exercised, even in developed country they do not. A more

democratic institution has the accountability and it is assumed that a more democratic government will left the central bank with independence. An institution with independence and credibility will maintain the flexibility and along with democratic environment, it will exerts the positive growth.

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Appendix

A. Variable Definition and Sources:

Dependent variable

1. Growth rate of real per-capita GDP over a five-year period (calculated using data on real per-capita GDP taken from the World Bank's World Development Indicators)

(WDI)).

Explanatory variables

2. Real per-capita GDP at the beginning of each five-year period (calculated using data on real per-capita GDP taken from the World Bank's WDI).

3. Ratio of gross fixed capital formation to real GDP measured in five-year averages (calculated using real investment and real GDP data taken from the World Bank's WDI).

4. Average years of secondary schooling of the population aged 25 and over at the beginning of each five-year period (taken from the Barro-Lee data set on educational attainment).

5. Real government share of GDP measured in five-year averages (calculated using real government consumption and real GDP data from the World Bank's WDI).

6. Ratio of real (exports plus imports) to real GDP measured in five-year averages (calculated using real export, import, and GDP data from the World Bank's WDI).

7. Ratio of money and quasi-money (M2) to GDP measured in five-year averages (taken from the World Bank's WDI).

8. Ratio of private sector credit to GDP measured in five-year averages (taken from the World Bank's WDI).

9. Ratio of domestic credit provided by banking sector to GDP measured in five-year averages (taken from the World Bank's WDI).

10. Ratio of gross private capital flows to GDP measured in five-year average (taken from the World Bank's WDI).

11. RR_Coarse (RR exchange rate classification) from Reinhart and Rogoff (2000))

12. DPI (Database of Political Institutions from World Bank)

a. Party Orientation

b. Proportional representation

c. Plurality

B. Estimation Results:

Table 1: Growth Regression [Dependent Variable: GDP Per Capita Growth Rate from 1973-2007 for Developing countries (5 year average)]

Variable	System GMM(1)[a]	System GMM(2)[b]	System GMM (3)[c]	System GMM(4)[d]
GDPPGR(-1)	-.0772604(0.045)**	-.2322404(0.000)***	-.098943(0.000)***	-.0371736(0.321)
Initial log of GDPPC	-.4697648(0.0000***	-.648337(0.0000***	-.5156971(0.004)***	-.64388(0.000)***
Average Years of Schooling	.0510115(0.012)**	.0332861(0.042)**	.0248631(0.237)	.0433066(0.020)**
Gross Fixed Capital Formation/GDP	.2273143(0.000)***	.3164151(0.000)***	.2871959(0.000)***	.2061184(0.000)***
Government Consumption/GDP	-.2129301(0.000)***	-.2186694(0.000)***	-.2766813(0.000)***	-.1835194(0.000)***
Trade/GDP	.0408587(0.000)***	.0418498(0.000)***	.0439734(0.000)***	.0386912(0.000)***
Private Credit/GDP	-.0757141(0.000)***	-.0570288(0.000)***	-.0631614(0.000)***	-.0737492(0.000)***
Gross Private Capital Flows/GDP	-.0122478(0.621)	-.0177712(0.636)	-.0223231(0.650)	-.0339263(0.194)
Domestic Credit/GDP	-.0016537(0.783)	-.0123135(0.039)**	-.0151978(0.046)**	-.0036052(0.551)
M2/GDP	.0471254(0.009)***	.0548353(0.000)***	.0697511(0.000)***	.0440269(0.022)**
RR_Coarse	-.6799099(0.000)***	-.7903425(0.008)***	-.0364851(0.897)	
RR_Coarse x Orientation	.0985195(0.024)**			
RR_Coarse x Proportional		.4775528(0.053)*		
RR_Coarse x Plurality			-.860488(0.018)**	
IMF_Coarse				.0434164(0.803)
IMF_Coarse x Orientation				.0020147(0.965)
Number of Observation (No. Countries)	312(60)	245(57)	266(58)	318(63)
A-B test for Autocorrelation(order1)	-4.2989(0.000)***	-2.949(0.003)***	-3.4483(0.006)***	-3.6127(0.003)***
A-B test for Autocorrelation(order2)	.3777(0.7070)	-.26001(0.7949)	-.14945(0.8812)	.33672(0.7363)
Sargan test	26.26595(0.093)*	29.13659(0.04)**	26.0142(0.09)*	25.45358(0.1129)
Wald Chi-Square	405.48(0.000)***	273.45(0.000)***	378.05(0.000)***	184.47(0.000)***
Number of Instrument	30	30	30	30

N.B: Figures in parenthesis are p-values. ***, ** and * indicates 1%, 5% and 10% level of significance respectively

a, b, c, d : GMM-type: L(2/.): GDP Per Capita Growth Rate(GDPPGR)