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Institutions' Impact on Economic Growth

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Abstract:

During the last twenty years economics literature and debates have increasingly referred to institutions as the answers to the longstanding questions concerning how economic growth arises, what policies can be used to promote best results in terms of economic performances and what accounts for differences in GDP levels among countries so that the analysis of the institutional framework under which any economy operates has now become an indispensable object of research. This paper will investigate the impact of institutional quality on economic growth over sixty years among countries at different stages of development recurring to three institutional indicators tested through a pooled regression model and a fixed effects model.

The positive and the negative macroeconomic aspects of the financial liberalization for the developing and emerging economies are well described in the present literature. But it is not easy to clearly summarize the final effects of the financial integration on the certain country. For instance, the argument about the growth benefits of the capital account liberalization is likely to be inadequate considering the financial crises in the emerging markets at the end of the last century. On the other hand, many authors (especially in the financial literature) report that the equity market liberalizations help to significantly boost the economic growth. There are also some examples on the microeconomic level (firm level or industry level), when the international financial integration brings certain benefits to the integrated enterprises and the capital flows restriction leads to the

distortionary effects. In paper we analyze the macroeconomic effects of the capital flows liberalization.

Key words: institutions, growth, development, investment, quality of government, capital account liberalization, financial liberalization, financial integration.

Introduction

During the last twenty years, economic literature has progressively come to a unanimous agreement on assigning a fundamental role to the implementation of an efficient institutional and legal framework for encouraging growth and facilitating economic transitions and social reforms. However, this recognized necessity of institutional reforms in order to guarantee solidity to economic reforms and to the consequent, awaited, development is quite recent and finds its origins in the fecund debate arisen after the emerging of weaknesses and criticalities embedded in the strategies and the actions of international organisms and financial systems, criticalities even more evident pursuant to the recent financial crisis.

As a result the World Bank has been forced to reconsider the efficacy of its own operate in developing countries and transition economies; this critical revision pattern is well represented by the works of J. Nellis[1], who, even defending positive achievements of some programs, does not deny the existence of failures and the consequent need of rethinking the theoretical model: in this sense according to the author the most serious deficiency in the World Bank strategies was to find in the scarce attention paid by international organisms to support economic reforms through political and institutional mechanisms as for example the missed creation of a strong administrative system or legal apparatus able to sustain the

[1] Nellis, J, (1999) "Time to Rethink Privatization in Transition Economies?, IFC, Discussion Paper.

economic transition. This new orientation pinpointing the causal nexus between institutional framework and economic growth is highlighted with the World Development Report 2002 "Building Institutions for Markets" focusing the attention on which institutions are essential to increase market development. As the "institutional issue" took a curtain call at new millennium's eve playing a leading role to pursue economic growth and development, a methodological problem concerning what the term "institutional" effectively meant soon showed up. Havrylyshyn and McGettigan[2] clearly express this sense of loss and confusion concerning the definition of "institutional framework". During the last decade economic literature has constantly dedicated attentions to the correlation between institutions and growth generating heterogeneous branches of research but there is still no possibility to find general consensus about „which" and „how many" institutions do influence economic growth.[3] An even brief literature review can give an idea of how many cues institutional theories can offer to improve the comprehension and the analysis of economic dynamics at different levels of depth. In fact, these cues led growth theory and development economy to adopt new perspectives towards a paradigm change based on

[2] O. Havrylyshyn e D.McGettigan,1999,"Privatization in Transition Countries: A Sampling of the Literature" IMF Working Paper No. 6/99op.

[3] In order to understand the heterogeneity of the opinions about the institutional issue see also Chong and Calderon, 2000, who state that not only institutions encourage development but also development itself pushes the quality of institutions creating a vicious circle from low economic growth to low institutional quality and so even lower economic growth; also J.Hewko, 2002, reversing what La Porta et al. and Pistor et al. said before, affirms that direct foreign investments increase institutional and legal quality levels in a country introducing new habits and know-hows and asking state and local administrations for stronger efficiency. La Porta R, F. Lopez de Silanes, A. Shleifer and R Vishny, 1997, "Legal Determinants of External Finance", Journal Finance, vol.52, number 3 pag. 1131-1150; Pistor. K, M. Raiser and S. Gelfer, 2000, Law and Finance in Transition Economies, CID at Harvard University, Working paper number 49; Chong A. and C. Calderon, 2000, Causality and Feedback Between Institutional Measures and Economic Growth", Economics and Politics, vol. 12 number 1 pag. 69-81; Hewko J.,2002, Foreign Direct Investment - Does the Rule of Law Matter?, Working Paper number 26, Rule of Law Series, Canregie Endowment for International Peace.

indispensability of institutions. A shift welcomed with enthusiasm by empirical research due to the countless inquiry possibilities to be profiled.

However, experimental results, rather than offer a key to the reading of the relationship institutions/ economic performance directly utilizable for the elaboration of an essential and general economic theory, ended up in creating a pure speculative contest, full of ambiguities, without a prevailing vision. The focalization failure on one hand resulted from the difficulty to define institutions themselves on the other hand has certainly been determined also by the hard choice concerning the unit of measure of institutions, that is institutional quality, from time to time referred to an unsustainable variety of factors ranging from social and cultural fields to historical and geographical plans. In addition to this, the greater availability of sources and data easily accessible at the present made the assortment of variables to pick even broader.

The only thing clear enough about institutions is that their role is not univocal for economic systems, in all historical contexts, in all countries. Their role fundamentally depends on the perception that individual have of the institutions themselves and on the interactions institutions enable between agents, on their comprehension and acceptance, on community rules and numerous other factors characterizing the social texture of a defined group of individuals. In fact, though multiple differences in terms of institutions subsist between Germany and United Kingdom, Taiwan and Hong Kong, each of these countries has anyway reached high income per capita levels. At this regard Rodrik states: "the economies that have done well in the post-war period have all succeeded via their own particular brand of heterodox policies".[4] This indicates that no homogenous institutions exist for producing the same effects in different countries and different contexts. The thing is even

[4] Rodrik, 1999, "Making openness work"

more evident comparing institutions in Latin American countries which adopted similar laws and solutions obtaining extremely different economic performances.[5] Even if institutions are the same created for accomplishing the same objectives with identical formal rules, reinforcing mechanisms, behaviors and ideologies may create huge differences among the same economic system.

Economic agents frame of action and the configuration of a certain economic system come from the combined action of all institutions present in the correspondent environment, past and present, formal and informal, self-generated or created and so on. It is not for chance that all institutional performance indicators used in empirical studies so far show a strong correlation in the first instance between them and then with growth rates. It seems to be quite useless nowadays emphasize the role of one or another variable aggregated to form the institutional quality measure if all de facto present positive correlations with growth and development rates. For this reason the paper proposed will focus the attention on the individuation of just few institutional variables essential to jointly synthetize an index of institutional quality not only as a measure of dotation in a country of a certain number of variables but above all as a parameter of capacity embedded in the institutional framework, that is economic capacity of variables to favor or disfavor jointly growth or development in a country.

According to this particular view, institutional quality may represent a valid analytical instrument to be applied generally to the interpretation of different economic realities, improving coordination, perspective consistency and conceptual solidity. In this sense, it has been chosen to synthetize the institutional quality parameter as function of just three representative variables, singularly detectable for each country and susceptible to policies, jointly considerable as a minimal

[5] Nugent and Lin, (1995), "Institutions and Economic Development".

structure of the institutional framework, influential on the economic system both in terms of growth and development.

Empirical testing

The impact of institutional quality on economic growth at different stages of development has been tested on a panel data containing observations from 1950 to 2013 referring to 181 countries through a pooled regression model and a fixed effects model.

All countries with available data, making exception for those whose GDP growth rate is too relied on oil exports[6], have been included in the panel. Countries have been divided in "developing" and "developed" according to the classification given at this regard by the World Bank. In addition to this, a further differentiation has been made on the basis of a geographical criterion, following the seven regional categories offered by the World Bank: Sub-Saharan Africa, East Asia and Pacific, Europe and Central Asia, Latin America and Caribbean, Middle East and North Africa, South Asia, North America. Region dummies referring to the seven categories based on region do not affect the sample in size but they can filter out some effects not related to the variables of interest or the control variables included in the regression otherwise included in the estimation of their coefficients avoiding that factors specific to a region but not included in the model may be inaccurately absorbed by the estimated coefficients for the other variables included in the model. The data stretches from 1950 to 2009, so for each variable there are up to 60 observations per country. These observations have then been transformed into ten year intervals, where the value of the period is the average of the available observations to smooth the business cycle and get closer to the trend value of GDP changes. Furthermore,

[6] Countries excluded from the sample due to their oil production as a fraction of GDP were Angola, Argentina,Azerbaijan,Algeria,Bahrain, Kuwait,Myanmar, Nigeria, Qatar, Iran, Iraq, Saudi Arabia and Yemen

using longer time periods allowed to include more countries in the regression as developing ones lack observations for many years.[7]

As the basic hypothesis consists in stating that good institutional quality is positively correlated with economic growth so that, keeping all other factors constant, better institutional quality should determine higher growth levels, economic growth has been considered as dependent variable, while institutional quality as the independent one. Although it will be examined how different aspects of institutional framework affect economic growth at different stages of development, no hypothesis will be made on what those differences will be.

The GDP average annual growth rate has been used as proxy for economic growth, the dependent variable. Rather than trying to include as many control variables as possible to increase the explanatory power of the model, the choice has been made trying to include as many countries as possible. Because data availability as far as developing countries are concerned turns to become significantly lower, it has been noticed that each added variable tended to disproportionately shrink the sample of developing countries compared to the one of developed. Control variables were therefore limited to three variables with high data availability: gross capital formation as a percentage of GDP as a proxy for investment; primary years of schooling as a proxy for education; number of telephone lines per 100 citizens as a proxy for infrastructure. As one of the tests performed on the dataset indicated that telephone lines per 100 citizens does not have a linear relationship to GDP per capita growth, the variable was transformed in logarithm solving the non-linearity issue of the regression. The data pertaining to the three control variables and the dependent variable come from the "World Development Indicators" database of the World Bank.

[7] As a rule, for all regression, observations where the residual differs from the estimated value more than three standard deviations have been removed

Nowadays a plethora of indexes attempting to proxy institutional quality exist and can be fit into different categories depending on institution types and definition but each institutional indicator is strongly connected to another. The truth is that more than a set of separate institutions, there are rather aspects of the same institutional environment that must be seen as an interwoven network where every thread contributes to the institutional framework and it is simultaneously affected by it. The three institutional indicators chosen to decline institutional quality, that are civil liberties, quality of government and number of veto players, offer the possibility to be changed through political action and all together provide a kind of litmus paper or microstructure of the institutional environment in its complex referring directly to citizens, government and their basic interaction.

The index used to approximate civil liberties comes from the Freedom House.[8] The mechanism through which civil liberties is expected to affect growth follows the reasoning that increased rule of law and lessened interference by the state will encourage the amount and quality of investment.[9] Because a higher score on the civil liberties index chosen implies lesser rule of law and freedom, the hypothesis is that civil liberties have a positive influence on growth, therefore the coefficient for civil liberties will be negative.

[8] Freedom House is an independent watchdog organization that supports the expansion of freedom around the world. Freedom House supports democratic change, monitors freedom, and advocates for democracy and human rights. It is structured so that each country and territory is assigned a numerical rating-on a scale of 1 to 7 towards a survey made up of 15 questions, a rating of 1 indicates the highest degree of freedom and 7 the lowest level of freedom, these ratings determine whether a country is classified as Free, Partly Free, or Not Free. The civil liberties questions are grouped into four subcategories: Freedom of Expression and Belief, Associational and Organizational Rights, Rule of Law, and Personal Autonomy and Individual Rights.

[9] Although there are of course individual exceptions to this, most notably China which has sustained a high growth rate for the past decades offering very few freedoms to its citizens, a theoretical basis for anticipating that civil liberties and growth have a positive correlation still empirically subsists.

The index used to approximate legislative checks and balances comes from the Political Institutions database of the World Bank. Countries are scored depending on the number of player that can veto a law. The higher the score, the more checks and balances are provided by the legislative process and the stronger will be the institution. The hypothesis is that the number of checks and balances influences growth positively, therefore the coefficient estimated for number of veto players will be positive.

The index chosen to measure the quality of government comes from the International Country Risk Guide. It includes information about bureaucracy, corruption and stability across the country considered. As the higher the score, the higher is the quality, it is quite elementary at this point that the hypothesis in this case consists in affirming that quality of government affects growth in a positive direction, therefore the estimated coefficient will be positive. Because of the high degree of correlation between institutional indicators they will be examined in separate regressions. Two different models will be used to compare the impact of institutional variables on developing and developed countries: a pooled regression model and a fixed effects model. Both of them are based on ordinary least square regressions. The pooled regression model will permit to quantify the differences between the estimated coefficients for the developed and developing countries, that is not only if an institutional variable is significantly correlated with growth but also to which extent its impact differs on the basis of the development stage. Unfortunately, this model does not take into account the time-series in which data are ordinated and cannot examine more than one observation per country. In addition to this, it does not control for omitted variables and the Ramsey RESET test indicated that omitted variable were present in the specification of the model. For these reasons a fixed effects will be also used to supplement the pooled regression making the analysis more multifaceted. This method should produce greater accuracy in the estimated

coefficients but the aspects related on development stages will be examined in three separate regressions, one for all countries, one for developed countries and one for developed ones. Together, the two models should offer a pretty strong basis for analysis of the effect that institutional quality has on economic growth. In order to check the suitability of the models to the data, different tests were performed. The Hausman test indicated that the fixed effects model was to prefer rather than random effect or between effects model. The residuals were tested for hetero - scedasticity and muticollinearity, neither of which was indicated. The Shapiro-Wilks test for normality failed showing that data were not perfectly distributed. A further examination of residuals in graph form though did indicate that they were reasonably normally distributed. Because they are not statistically perfectly distributed, the p and f values provided by the regressions may show some statistical errors.

The pooled regression model is a linear ordinary least square estimation of panel data specified as follows:

$$\Delta yit = \alpha + \beta 1EDUit + \beta 2INFRAit + \beta 3INVit + \beta 4Dummy + \beta 5 (Dummy*INSTjit\text{-}1) + \beta 6INSTjit\text{-}1 + \beta 7\ REG1it + \beta 8\ REG2it + \beta 9REG3it + \beta 10REG4it + \beta 11REG5it + \beta 12REG6it + \varepsilon it$$

Where Δyit stands for the average annual growth in GDP per capita for country I during the time t, α is a constant, EDUit is a proxy for the investment in education in country i at time t, INVit is the average yearly investment in real capital in country i at time t, Dummy is a dummy variable for development level where 1 signifies that the country is a developing country and 0 that it is a developed country, INSTjit-1 is a proxy for institutional quality j in country i at time period t-1, REG1it through REG6it are dummy variables for the geographic region of country i, the dummy assumes value 1 if the country is located in that particular region, 0 if it is located in one of the other regions. The World Bank divides

countries in seven regions but just six are included in the regression, the seventh serves as benchmark to compare the estimated coefficients of the other dummies. εit stands for the residual, the differences in economic growth that cannot be accounted for through the model. (Dummy*INSTjit-1) is the institutional variable j for the country i at the time t multiplied by the dummy for development category, it assumes value 0 for all developed countries and the value the institutional quality j at the time t for all developing countries i. Because institutional quality is believed to influence economic growth partly through the amount of investment done, it could be interesting to orthogonalize the investment variable in order to filter out the effect of institutional quality on the investment variable itself. Aside from the investment variable, the model will be as in the previous version of the pooled regression model:

$$\Delta yit = \alpha + \beta 1 EDUit + \beta 2 INFRAit + \beta 3 INV_i^{Ortho} + \beta 4 Dummy_j + \beta 5 (Dummy * INST_{it1}^{j}) + \beta 6 INST_{it-1}^{j} + \beta 7\, REGit + \beta 8\, REGit + \beta 9 REGit + \beta 10 REGit + \beta 11 REGit + \beta 12 REGit + \varepsilon it$$

The orthogonalized investment variable is obtained running a regression with the old investment variable as dependent variable and institutonal variable as independent variable:

$$\Delta INV_{it}^{ortho} = \alpha + \beta * INST_{it-1}^{j\,ortho} + \varepsilon it$$

Adding then the constant to the residuals from each individual observation:

$$\Delta INV_{it}^{ortho} = \alpha^{ortho} + \varepsilon it^{ortho}$$

The fixed effects model estimated a linear relationship between the dependent and the independent variables. It can be described as an OLS regression that includes a dummy variable for each individual country, eliminating country effects and controlling for the omitted variables on the estimated coefficients of variables included in the model. Consequently

three separate regressions will be run, one for all countries, one for countries classified as developed and one for countries classified as developing. The model is specified as follows:

$$\text{All } \Delta yit = \alpha + \beta 1EDUit + \beta 2INFRAit + \beta 3INVit + \beta 6INSTit\text{-}1 + Ct1 + \ldots + Cit + \varepsilon it \quad (j \; i \; n\text{-}1)$$

$$\text{developed } \Delta yit = \alpha + \beta 1EDUit + \beta 2INFRAit + \beta 3INVit + \beta 6INSTit\text{-}1 + Cit + \ldots + Citn + \varepsilon it \quad (j \; 1 \; n\text{-}1)$$

$$\text{developing } \Delta yit = \alpha + \beta 1EDUit + \beta 2INFRAit + \beta 3INVit + \beta 6INSTit\text{-}1 + Cit + \ldots + Citn + \varepsilon it \quad (j \; 1 \; n\text{-}1)$$

1 *n-1*

All variables stand for the same as in pooled regression. Variables *Cit* through *Cit* signify the dummy variables for all countries included in the regression minus one which serves as benchmark. Because of limited data availability, this model does not include enough control variables to completely control for all other economic conditions and other variables in the model may absorb the impact of omitted variables. In order for this model to completely filter out the effect of omitted variables, the sample should ideally have a relatively smaller amount of countries and a greater amount of periods. This sample has five time periods available for each country but for many countries data unavailability limits the number of observations per country. Therefore independent investigation of developed and developing countries could potentially give us more accurate idea of different impact that institutional quality has depending on development status.

Results

The overall evidence showed by the regressions is in line with the hypothesis that institutional quality has a significant positive impact on economic growth. This is true both for developing and developed countries. Of course the model is relatively basic and additional factors may change the results, nevertheless, there is at least some indication that the institutional indicators withstand robustness checks as they

performed quite similar results under different economic conditions.

Table 1: Regression results from pooled regression model

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Growth	Growth	Growth	Growth	Growth	Growth
Variables of Interest						
CL*Dummy	0.108			0.110		
NoVP*Dummy		0.0738			0.0734	
QoG*Dummy			5.893***			6.208***
Control Variables						
Civil Liberties	0.0360			0.0319		
Number of Veto Pl.		0.119			0.0889	
Quality of Gov.			-5.097***			-4.937***
Dummy	-0.242	0.121	-3.330***	-0.242	0.170	-3.366***
Education	-0.184	-0.236	0.0724	-0.173	-0.212	0.0632
Infrastructure	0.156	0.0630	0.197	0.236*	0.124	0.238
Investment	0.154***	0.162***	0.151***	0.120***	0.137***	0.159***
Region:						
Europe & Cen. Asia	0.554	0.458	1.135**	0.482	0.388	1.059**
Lat. Am. & Carib.	-0.646*	-0.745*	-0.821	-0.671*	-0.831**	-0.870*
Mid. East & N. Afr.	-0.311	-0.0994	-0.338	-0.337	-0.177	-0.448
North America	-0.222	-0.319	0.777	-0.417	-0.502	0.736
South Asia	1.242**	1.007*	1.015	1.428**	1.040*	1.013
Subsaharan Africa	-0.807*	-0.721	-0.903	-0.810*	-0.800*	-0.887
Constant	-0.697	-0.549	1.534	-0.242	-0.146	1.306
Number of Obs.	406	385	216	413	390	218
R-squared	0.308	0.310	0.375	0.300	0.308	0.398

Notes: *** p<0.01, ** p<0.05, * p<0.1

Table 1 shows the result from the pooled regression model. Each column contains information about the estimated coefficients of variables included in the regression. The orthogonalization of the investment variable had no impact on these results. The regressions that include civil liberties or number of veto player indicate that the growth level is unaffected by development status as the coefficients for the development status dummy is insignificant, but often considerably affected by region. Characteristics peculiar to Latin America and Caribbean and Sub-Saharan Africa, omitted from the model, have a significant and strong negative

correlation with economic growth. Factors specific to South Asia determine opposite effects. As far as quality of government is concerned, the results indicate that it has a greater positive impact on growth in developing countries than in developed ones, with 99% of significance. Because the development dummy is significantly and negatively correlated with growth, keeping all other things constant, developing countries are still likely to experience a lower economic growth. It is important to notice that a difference subsists in the number of observations between the three regressions. Quality of Government has fewer data available that decreased sample size. It is then possible that countries with lower quality of government score lower data availability but of course this cannot be known for certain. The orthogonalization of the investment variable did not bring to any substantial changes in the explanatory power of the model, nor in the F-test values, aside from more significance shown by region dummies for Latin America and Caribbean and Sub-Saharan Africa. So if it is true, as it seems looking at results, that institutional variables do affect economic growth, they do it not only due to the impact of investment.

Table 2.1. Results from fixed effects model regression

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Growth	Growth	Growth	Growth	Growth	Growth
Variables of Interest:						
Civil Liberties				-0.416***		
				(0.121)		
Number of Veto Flayers					0.431***	
					(0.121)	
Quality of Government						3.412*
						(1.997)
Control Variables:						
Education	0.437	-0.0220	0.728	-0.178	-0.0738	0.299
Infrastructure	-0.0189	-0.358	0.204	0.541***	0.503***	0.279
Investment	0.115***	0.104***	0.109***	0.126***	0.117***	0.187***
Constant	-3.127	1.212	-5.122*	0.889	-2.048	-6.140
Number of Obs.	552	285	267	409	387	219
R-squared	0.075	0.058	0.122	0.217	0.230	0.207
Number of Countries	166	83	83	156	149	119

Notes: *** p<0.01, ** p<0.05, * p<0.1

Table 2.2: Results from fixed effects model regression

	(7)	(8)	(9)	(10)	(11)	(12)
VARIABLES	Growth	Growth	Growth	Growth	Growth	Growth
	Developed Countries			Developing Countries		
Variables of Interest: Civil Liberties	-0.372**			-0.462***		
Number of Veto Flayer	(0.184)	0.500***		(0.166)	0.322*	
Quality of Government		(0.166)	3.232		(0.181)	3.601
Control Variables:			(3.106)			(2.512)
Education	-0.316	-0.231	-1.324	-0.144	0.0209	1.911**
Infrastructure	0.392	0.508	1.682	0.575***	0.517**	0.0779
Investment	0.102**	0.0896**	0.174**	0.134***	0.129***	0.211***
Constant	1.746	-1.448	-1.467	1.595	-2.010	-15.47***
Number of Obs.	205	188	120	204	199	99
R-squared	0.100	0.146	0.232	0.321	0.301	0.333
Number of Countries	79	74	67	77	75	52

Notes: *** p<0.01, ** p<0.05, * p<0.1

Table 2 displays the result of the fixed effects model, strongly in line with hypotheses presented before. The first hypothesis stated that civil liberties would have had a positive effect on economic growth. As the index used to approximate civil liberties assumes higher value when the country is less free, the estimated coefficient for civil liberties was expected to be negative. The evidence confirms it, not only when all countries are included in the regression but also when development categories are examined separately. The explanatory power of the model increases significantly for developing countries when civil liberties are added to regression, only moderately for developed ones. This could indicate whether civil liberties have an undeniably greater impact on growth in developing country, that is civil liberties have diminishing marginal effects and if they are scarce an extra unit will cause a greater effect than it would if civil liberties were already abundant, or that the civil liberties variable is highly correlated with other factors that affects growth in developing countries not included in the model. Anyway civil liberties are still positively correlated with growth. The second hypothesis stated that the number of veto

players should have influenced growth in a positive direction and in fact the number of veto players is significantly positive both for all countries and the individual development categories. The estimated coefficient for the number of veto players is greater in size for the developed countries, as well as more significant. It is quite plausible thinking that checks and balances might reach a critical mass before becoming effective at promoting growth. The third hypothesis stated that the quality of government would have had a positive effect on growth. The estimated coefficients for quality of government show p-values higher than 0.10 for developed and developing countries, while the estimated coefficient for all countries is significant with 90% certainty. In particular, the p-value for developed countries is 0.303, for developing countries 0.159 meaning that quality of government appears to be more significant in developing countries than in developed ones. However, a closer examination of the correlation tables reveals that in developed countries there is a high correlation between quality of government and infrastructure, whereas this correlation is significant lower for developing countries. Because of this, the p-values for both of these variables are likely to be very insignificant. Although the estimated coefficients seem to be insignificant, it must be noticed that the inclusion of quality of government in the model more than double the R2 for developing countries and more than triples it for developed countries meaning that after all the relationship between quality of government and economic growth is not irrelevant.

Table 3: Results from fixed effects model without infrastructure

	All	Developed	Developing
	(1)	(2)	(3)
VARIABLES	Growth	Growth	Growth
Quality of Government	4.293**	5.322*	4.068*
	(1.753)	(2.838)	(2.198)
Investment	0.214***	0.187***	0.245***
Education	0.236	-1.470	1.888*
Constant	-6.336	3.121	-16.28***

Observations	221	120	101
R-squared	0.207	0.194	0.316
Number of Countries	120	67	53

Notes: *** p<0.01, ** p<0.05, * p<0.1

Table 3 displays the effect of quality of government on growth if infrastructure is excluded from the regression. The R2 decreases for developing countries, increases for developed countries and remains the same for all countries. The p-values of the estimated coefficients are all lower but still positive, indicating a higher significance level. Because of the strong correlation subsisting between infrastructure and quality of government in developed countries but not in developing ones, but is difficult to state whether the effect of government differs depending on development category but quality of government is undoubtedly correlated with growth positively.

At last, in order to compare the effect of different institutional variables on growth, the size of the standard errors must be considered calculating what happens to economic growth when an institutional variable is increased with one standard error unit. For developing countries this experiment indicates that civil liberties has the greatest impact on growth, for developed countries the same can be said for the number of veto players.

If it is then true that growth rates are positively influenced by institutional quality, the possibility that the causality is reverse has not been disproven. It can be also argued that increased growth may lead to increased demand for more civil liberties and quality of government. A reasonable conclusion is that these two effects coexist and interact, pushing both growth rates and institutional quality higher than otherwise would be.

Table 4: Results from fixed effects model without infrastructure

	All	Developed	Developing
	(1)	(2)	(3)
VARIABLES	Growth	Growth	Growth
Quality of Government	4.293**	5.322*	4.068*

	(1.753)	(2.838)	(2.198)
Investment	0.214***	0.187***	0.245***
Education	0.236	-1.470	1.888*
Constant	-6.336	3.121	-16.28***
Observations	221	120	101
R-squared	0.207	0.194	0.316
Number of Countries	120	67	53

Notes: *** p<0.01, ** p<0.05, * p<0.1

Table 4 Correlation, a) All countries, b) Developed countries, c) Developing countries

	Growth	CL	NoVP	QoG	Edu	Inf Inv
Growth	1					
Civil Liberties	-0.0575	1				
Number of Veto Players	0.1273	-0.6891	1			
Quality of Government	0.0208	-0.671	0.5391	1		
Education	-0.2745	-0.1446	-0.0179	0.0417	1	
Infrastructure	0.2458	-0.6733	0.4961	0.6883	-0.1551	1
Investment	0.4586	0.0247	-0.0025	-0.0047	-0.1714	0.2243 1

	Growth	CL	NoVP	QoG	Edu	Inf Inv
Growth	1					
Civil Liberties	-0.0994	1				
Number of Veto Players	0.1666	-0.5642	1			
Quality of Government	0.1396	-0.0443	0.2611	1		
Education	-0.4061	-0.0595	-0.1082	-0.149	1	
Infrastructure	0.4415	-0.2476	0.19	0.1902	-0.4269	1
Investment	0.5208	-0.0321	0.0651	0.0709	-0.3054	0.4856 1

	Growth	CL	NoVP	QoG	Edu	Inf Inv
Growth	1					
Civil Liberties	0.0772	1				
Number of Veto Players	0.0214	-0.6516	1			
Quality of Government	-0.1896	-0.6452	0.4956	1		
Education	-0.1692	-0.2558	0.0506	0.1575	1	
Infrastructure	0.0012	-0.5965	0.5073	0.7012	-0.0629	1
Investment	0.3645	0.159	-0.1349	-0.1372	-0.0515	-0.0489 1

Table 5: Summary Statistics, All countries

	Variable	Obs.	Mean	Std. Dev	Min	Max
Variables of Interest: Civil Liberties		425	3.770585	1.843124	1	7
	Number of Veto Players	393	2.466598	1.55258	1	94
	Quality of Government	224	0.5683979	0.2388691	0.0555556	1
Dependent Variabl	Growth	732	2.332316	2.620544	-3.992896	13.85329
Control Variables	Education	595	5.820261	0.8769537	3	8

	Infrastructure*	687	1.373857	1.961378	-3.755724	4.478249
	Investment	651	22.77837	7.583052	5.360259	59.67432
Summary Statistics, Developing Countries Only						
	Variable	Obs.	Mean	Std. Dev	Min	Max
Variables of Interest: Civil Liberties		215	4.807957	1.404028	1	7
	Number of Veto Players	205	1.744396	1.273582	1	9,4
	Quality of Government	102	0.4073917	0.152861	0.0555556	0.6944445
Dependent Variable:	Growth	342	1.794874	2.596304	-3.371875	13.37976
Control Variables	Education	289	5.823183	0.8485581	3	8
	Infrastructure*	320	-0.155272	1.530686	-3.755724	3.204981
	Investment	321	20.9541	8.310051	5.360259	59.67432
Summary Statistics, Developed Countries Only						
	Variable	Obs.	Mean	Std. Dev	Min	Max
Variables of Interest: Civil Liberties		210	2.708515	1.622607	1	7
	Number of Veto Players	188	3.254105	1.445098	1	7,8
	Quality of Government	122	0.7030097	0.213379	0.2222222	1
Dependent Variable	Growth	390	2.803611	2.553257	-3.992896	13.85329
Control Variables	Education	306	5.817502	0.9043337	3,4	8
	Infrastructure*	367	2.707158	1.15822	-1.973823	4.478249
	Investment	330	24.55288	6.327224	7.29257	58.96724

Macroeconomic aspects of financial liberalization

The financial crises of the 1990s have uncovered several problems. Banking systems in many countries collapsed, fast growing economies suddenly faced sharp recessions, and the increasing international capital flows of the mid-1990s declined to even lower levels. Another important casualty of these crises has been the support for the liberalization and integration of financial systems. Many economists have argued that globalization has gone too far, leading to erratic capital markets and causing costly crises. This has prompted some to suggest a return to the order of financial controls. For example, Stiglitz (2000) clamors for developing countries to put some limits on capital inflows to moderate "excessive" boom-bust patterns in financial markets. Even controls on capital outflows, not long

ago dismissed as ineffective, have been recommended again. Krugman (1998), for example, argues that capital controls might help in managing, at least temporarily,an otherwise disorderly retreat of investors. The debate has reached the general public, with i.e. Krugman, Stiglitz, Wagner, Wei -Yi, broadly criticizing the functioning of the international financial system. With many more economists joining the ranks of those supporting intervention in financial markets, long gone seem to be the days of an indiscriminate advocacy of financial integration.

Interestingly, many still emphasize the advantages of liberalization and integration. It is claimed that financial liberalization helps to improve the functioning of financial systems, increasing the availability of financial funds and allowing cross-country risk diversification. For example, Obstfeld (1998) argues that international capital markets can channel world savings to their most productive uses, irrespective of location. Stutz (1999) and Mishkin claim that financial liberalization and integration promotes transparency and accountability, reducing adverse selection and moral hazard while reducing liquidity problems in financial markets. They argue, moreover, that international capital markets help to discipline economic policymakers, who might be tempted to exploit an otherwise captive domestic capital market. Others even claim that financial liberalization and the financial development tend to greatly facilitate economic growth. As has the group that favors more repression, the group supporting deregulation has also been growing.

The empirical research, so far, has not helped to resolve the conflicting views. The findings in the literature suggest that booms in financial markets are at the core of currency crises and that these large cycles are triggered by financial deregulation. On the other side, the findings in the finance literature tend to support the claim that deregulation is beneficial, with liberalization reducing the cost of capital. Moreover, the existing empirical literature has not provided a

comprehensive analysis of the liberalization process. It has concentrated alternatively on the liberalization of the domestic financial sector, the capital account or the stock market,even when liberalization reforms have entailed the progressive opening of the three sectors. The analysis we present provides a perspective on the macroeconomic effects of financial liberalization.

Measuring financial openness

The traditional approach to measuring financial openness is to use measures of legal restrictions on cross-border capital flows. Such capital controls come in many varieties (controls on inflows versus controls on outflows, quantity controls versus price controls, restrictions on foreign equity holdings).

Measuring capital account openness has long been a challenge (see Edison and others, 2004). Some researchers utilize the summary information provided by the Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) to construct a share measure, reflecting the fraction of years in the sample in which a country's capital account was open (see Grilli and Milesi-Ferretti, 1995; Rodrik, 1998; and Klein and Olivei, 2006). Quinn (1997, 2003) use the narrative descriptions in the AREAER to develop a quantitative measure of capital account openness. Raising level of technical sophistication a notch, Chinn and Ito (2005) develop an index of financial openness based on principal components extracted from disaggregated capital and current account restriction measures in the AREAER. Mody and Murshid (2005) also utilize the measures involving restrictions on capital and current account transactions and construct a different measure. Edwards combines the measures in Mody and Murshid and Chinn and Ito with information from country-specific data sources and proposes a new index. After the expansion of the set of categories reflecting the existence of capital controls in

1997 issue of the AREAER, there have been some refinements of earlier measures (see Johnston and Tamirisa and Minane).

All of these measures, despite their increasing sophistication, suffer from a variety of similar shortcomings. First, they do not accurately reflect the degree of openness of the capital account because they are partially based on various restrictions associated with foreign exchange transactions that may not necessarily impede capital flows. Second, they do not capture the degree of enforcement of capital controls (or the effectiveness of that enforcement), which can change over time even if the legal restrictions themselves remain unchanged. Third, and most importantly, these measures do not always reflect the actual degree of integration of an economy into international capital markets, as we have already noted. As another example, China, despite its extensive regime of capital controls, has not been able to stop inflows of speculative capital in recent years.

In order to summarize existing methods to measure the financial openness of the country we can define two formal approaches (price differentials based measures and quantity based measures). One approach has been to look at price-based measures of asset market integration. The logic is that, irrespective of the volume and direction of flows, true integration of capital markets should be reflected in common prices of similar financial instruments across national borders. While the logic is sound, there are serious practical problems in using such measures for emerging markets and even more so for low-income developing economies. Returns on financial instruments in the economies may incorporate a multitude of risk and liquidity premium that are difficult to quantify. For example, stocks of firms in many emerging market economies trade at low price earnings ratios due to investor concerns about corporate governance and contract problems. Yet, it is not easy to separate this form of segmentation from differential pricing due to high project risk. In general, domestic financial

markets may simply not be deep or liquid enough to allow for efficient arbitrage of price differentials.

Quantity based measures of financial integration (approaches based on actual capital flows) provide the best available measure of a country's integration with international financial markets. One issue is whether to measure integration using net or gross capital flows. Gross flows provide a relatively less volatile and more sensible picture of integration. This measure has the advantage of capturing two-way flows which one would expect to see if economies were in fact sharing risk efficiently in a world with multiple financial instruments and agents with different risk profiles. Using the sum of gross inflows and outflows as a ratio to national GDP also yields a nice symmetry with the widely-used measure of trade openness, which is sum of imports and exports as a ratio to GDP. However, such annual flows tend to be quite volatile and are prone to measurement error. To mitigate these problems, it may be preferable to use a measure of the sum of gross stocks of foreign assets and liabilities as a ratio to GDP. These stocks are essentially just a refined cumulated version of the underlying flows corrected for valuation effects. This preserves the spirit of measuring de facto integration and obviates many of the problems associated with flow data. Moreover, for some purposes -particularly risk sharing - the stock measures are clearly more appropriate. For instance, if countries have large gross stocks of assets and liabilities, small exchange rate changes can have large valuation effects and serve as a mechanism for risk-sharing even if net asset positions are small.

Macroeconomic findings on effects of financial liberalization

In this section, we review macroeconomic evidence on the effects of financial liberalization in the three dimensions - growth, volatility and comovement (or correlation).

A. Effects on growth

As we have already noted, the simplest one-sector neoclassical framework suggests that capital flows liberalization should lead to flows of capital from capital-rich economies to capital-poor economies since, in the latter, the returns to capital should be higher. These flows should complement limited domestic saving in capital-poor economies and, by reducing the cost of capital,allow for increased investment. Certain types of financial flows could also generate technology spillovers and serve as a conduit for imbibing managerial and other forms of organizational expertise from more advanced economies. There are also a number of indirect channels through which capital flows liberalization could enhance growth. It could help promote specialization by allowing for sharing of income risk, which could in turn increase productivity and growth as well. Financial flows could foster development of the domestic financial sector and, by imposing discipline on macroeconomic policies, lead to more stable policies.

We should note, however, that potential endogeneity between capital flows liberalization and growth remains a problematic issue even in studies that do find a positive association between these variables. This problem may ultimately be intractable if one relies solely on macroeconomic data; looking at more disaggregated data may be one way out. Another possibility, as we will discuss later, is that it is very difficult, even at a conceptual level, to make strong causal statements about the consequences of financial liberalization, independent of whether macro or micro data are used.

B. Effects on macroeconomic volatility

The effects of capital flows liberalization on output volatility are not obvious in theory. Capital flows liberalization allows capital-poor countries to diversify away from their narrow production bases that are often agricultural or natural resource-dependent. This should reduce macroeconomic volatility. At a more advanced stage of development, however,

trade and financial integration could simultaneously allow for enhanced specialization based on comparative advantage considerations. This could make countries more vulnerable to industry-specific shocks. Theory does have strong prediction about the relationship between financial integration and consumption volatility. Since consumers and, by extension, economies are risk-averse, consumption theory tells us that they should desire to use financial markets to insure against income risk, thereby smoothing the effects of temporary idiosyncratic fluctuations in income growth on consumption growth. In theory, the benefits of international risk-sharing could be quite large. Lucass (1987) claim that macroeconomic stabilization policies that reduce consumption volatility can have only minimal welfare benefits continues to be influential. Some authors have shown that, even within Lucas's framework, higher volatility that developing countries experience implies that they can potentially reap large benefits from international risk-sharing arrangements.

Capital account liberalization is believed to have played an important role in fomenting financial crises and has been indicted by some observers as the proximate cause for the crises experienced by various emerging markets over the last decades. Interestingly, there is little empirical evidence to support the view that capital account liberalization by itself increases vulnerability to crises. While crisis episodes receive most of the attention, however, they are just particularly sharp manifestations of the more general phenomenon of macroeconomic volatility. Here the results are less favorable - there is no evidence that financial liberalization has delivered on the promised benefit of improved international risk sharing and reduced volatility of consumption.

Turning to volatility more broadly, there has been a well-documented trend decline in macroeconomic volatility in most of the major industrial economies since the mid-1980s, although the reasons for this decline are still a matter of debate. Output volatility seems to have been on a declining

trend in emerging market and developing economies as well. However, the existing evidence based on papers using a variety of regression models, different country samples and time periods leads to the conclusion that there is no systematic empirical relationship between financial openness and output volatility, which is, in a sense, consistent with the predictions of theory.

C. Comovement

Another prediction of theory, related to the consumption smoothing issue, concerns the cross-country comovement of major macroeconomic aggregates. In theory, the effect of increased financial integration on cross-country correlations of output growth is uncertain, since it depends on the nature of shocks and specialization patterns. In any case, financial integration should in theory help countries diversify away country-specific risk and should, therefore, result in stronger comovement of consumption growth across countries. Thus, in parallel to the discussion of volatility, economic theory has clear implications for how financial integration should affect cross-country consumption correlations but not for correlations of output or income. In summary, there is a strong presumption in theory that capital flows liberalization is good for growth and, although its effects on output volatility are unclear, it should unambiguously lead to reductions in the relative volatility of consumption.

The structure of capital flows and its effects

An alternative line of inquiry into the effects of financial liberalization is based on the notion that not all types of capital flows are created equal. Flows that have equity-like features - i.e., foreign direct investment (FDI) and portfolio equity flows - are not only presumed to be more stable and less prone to reversals, but are also believed to bring with them many of the indirect benefits of financal liberalization such as transfers of

managerial and technological expertise. The evidence for the former proposition - that FDI and equity flows are more stable than debt financing - is far from conclusive. In any case, portfolio debt flows have acquired black-sheep status, especially since currency and maturity mismatches related to external debt are seen as proximate determinants of many emerging market crises.

A. Portfolio equity flows

The rising importance of portfolio equity flows to emerging markets has motivated a number of researchers to examine the growth effects of equity market liberalizations. Most of the papers in this rapidly expanding literature suggest that portfolio equity flows have a significant positive impact on output growth. Whether the estimated growth effects (in macroeconomic data) of equity market liberalizations could be picking up the effects of other factors - especially other reforms that tend to accompany these liberalizations - remains, in our view, an open question. On the other hand, there is now a growing body of micro evidence (using industry- and firm-level data) supporting the macro evidence on the benefits of equity liberalizations.

B. Foreign direct investment

The relative importance of FDI flows has risen significantly in recent years, making it the most important form of private international financing for emerging market economies. There is a strong presumption in theory that FDI should yield more benefits than other types of financial flows since, in addition to augmenting domestic capital stock, it has a positive impact on productivity through transfers of technology and managerial expertise. It has also been argued that FDI tends to be the least volatile of the various types of capital flows, making countries less vulnerable to sudden stops or reversals of flows. In parallel with the rapid growth of FDI flows, a large empirical literature has flourished seeking to find evidence in support of the

theoretical benefits of these flows. Although the evidence has in general been mixed, recent studies,using more sophisticated methodologies and micro-level datasets, find more favorable evidence of benefits from FDI. More importantly, the literature has been reasonably successful in identifying the conditions necessary to help developing countries fully utilize the potential benefits of these flows.

C. Debt flows

Debt flows appear to be more volatile than other types of inflows and easily reversible in times of crises. Sudden reversals of international capital flows are more likely to occur among countries that rely relatively more on portfolio debt flows, including bank loans, and less on FDI. Moreover, short-term bank loans to developing countries are procyclical, i.e., they tend to increase during booms and rapidly decrease during economic slowdowns. The procyclical and highly volatile nature of these flows can magnify the adverse impact of negative shocks on economic growth. Opening up to debt flows can give easygoing governments and weakly supervised financial sectors a lot more room to increase their vulnerability to shocks. Interestingly, countries with unfavorable conditions tend to rely more on short-term external debt denominated in foreign currencies as their main source of foreign capital.

Conclusions

The aim of this paper was twofold pointing at analyzing the impact of institutions on economic growth as well as examining if the eventual impact differs depending on development degree. In order to perform this task, two econometric models and three institutional indicators were used. The institutional indicators employed were civil liberties number of veto players and quality of government. The two models were based on the ordinary least square regression: one of them included fixed effects and the other a dummy to investigate differences

depending on development status. The results support the main hypothesis, that is institutional quality do impact in a positive way on economic growth. This is true for all three institutional indicators that were examined. The only difference between how developing and developed countries are affected by institutional quality is in the size of the impact, not in the direction of it. On a more specific level, out of the three institutional indicators, improved civil liberties seem to perform a greater effect on economic growth in developing countries, whereas the number of veto players assumes more importance for developed countries economies.

The strategic implication to be drawn is that institutions do matter for growth. However, it must be considered that all the empirical researches aimed at investigating the relationship between institutions and economic growth has still to face at least two kinds of problem upstream. The first difficulty is related to the determination of good institutional quality indicators: the impressive number of indicators elaborated by multilateral organizations, risk-rating agencies, academic institutions and non-governmental organizations, in fact, present ambiguous results stemming from endogenous variables or collinearity between them and they often lack a theoretical framework linking the indicator to previously defined institutional quality criteria. In addition to this, most of them just refer to the socio-political sphere neglecting the administrative one due to the impossibility to decline in a cross-country homogenous way variables pertaining to the various legal and juridical systems. The second problem is then represented by the definition of growth itself. Economic growth, in fact, is currently associated with GDP per capita, a useful tool to approximate growth trends easily comparable among countries and for these reasons for a long time worldwide accepted as indicator for well-being and development too. However, since the times are changed and the choice of any indicator is never neutral, policies aimed at merely increasing GDP levels may fail to meet social and policy objectives linked

to well-being and sustainability, not to mention other GDP well recognized limits such as insensitivity to the distribution of income and inability to count goods and services with no market.

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