Summary of Essays on the Political Economy of Debt in Emerging Countries[*]

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In this dissertation I examine how political frictions affect borrowing decisions of the governments and I discuss whether these frictions are quantitatively relevant in the data. The thesis is composed of two chapters. In the first chapter we show that the interaction between political frictions and strategical political incentives to borrow is a key factor in explaining the cross-sectional differences in debt levels when debt repayment is enforceable. In the second chapter I introduce political uncertainty in the standard default model of Arellano (2008) and I show that in the calibrated version of the model to the Argentinian economy the model generates realistic levels of debt to gdp and spread without affecting the performance on the other business cycle statistics.

Chapter 1: Strategic Debt and Political Frictions in Small Open Economies

In this chapter we provide evidence, both theoretical and empirical, that the interaction between political frictions and strategical political incentives to borrow is a key factor in explaining the cross-sectional differences in debt levels. Our contribution is both theoretical and empirical. From a theoretical point of view, we analyze what are the main political determinants of borrowing

incentives. We show that for a large class of utility functions, political uncertainty *per-se* does not create borrowing incentives. However, the introduction of retrospective voting, which assumes that electoral outcomes are dependent upon recent economic performances, can revert that result, thus creating borrowing incentives. From an empirical point of view, we confirm our theoretical results by analzying a cross-country dataset on debt, economic performances, and quality of governments. We use the predictions of our model to structurally estimate the unobserved degree of retrospective voting for 56 developing economies. We show that this feature, jointly with observable measure of political frictions, can explain a substantial fraction of the cross-sectional dispersion of the debt-to-GDP ratio that is unexplained by other macroeconomic factors. Finally, we find that the estimated measures of retrospective voting are strongly linked to indices of corruption. This finding can be related to the theoretical work of Rogoff and Sibert (1988) and Rogoff (1990), where retrospective voting arises because politicians might have undesirable and unobserved characteristics.

Our theoretical result strongly depends on how political frictions are modelled. In Amador and Aguiar (2011) the benefit from being in power for an incumbent comes directly from her preferences and it is independent from the allocation of resources. In Alesina and Tabellini (1990a) two opposing parties aim to invest in two different public goods. In our model, similarly to Alesina and Tabellini (1990b), parties have preferences over distribution across different groups and decide the allocation of consumption according to these preferences. A single parameter, which we refer to as the degree of political frictions, determines how unequally the incumbent would like to split aggregate resources. As long as preferences are far from the case of zero inequality, the benefits from being in power are larger. We believe that the assumption on political frictions operating through redistribution of resources is realistic, in particular when considering emerging markets.

We include political frictions described above in a standard small open-economy setting: an incumbent makes intertemporal consumption/saving decisions by borrowing or saving at a fixed international interest rate. Our first result is that when political uncertainty is characterized by a constant probability to be reelected, political frictions *per-se* are not necessarily able to produce borrowing incentives. For example, when the incumbent has Constant Relative Risk Aversion (CRRA) preferences with risk aversion coefficient greater than one, political uncertainty and po-

litical frictions induce precautionary savings. In fact, under this preferences, the incumbent would like to transfer resources from her incumbent-state to a possible future opposition-state, thus leading to incentives to postpone consumption. This finding appears to contradict the generally stated result in the literature (see Alesina and Tabellini (1990b) that political frictions generate borrowing incentives because an incumbent, when in office, prefers to spend since political uncertainty does not guarantee that in the next period resources will be allocated according to her preferences. We point out that this result is valid, but only under certain values of the preference parameters (in the specific case of CRRA utility, it holds only when the degree of risk aversion is less than one). Since the microeconomics, macroeconomics, and finance literature all support estimates of the CRRA risk aversion coefficient greater than one (or equivalently of an intertemporal elasticity of substitution less than one), one goal of this paper is to introduce a new channel through which political frictions induce borrowing incentives also for less restrictive and more plausible assumptions about the properties of the utility function.

Then, as a second contribution, we introduce retrospective voting in our political economy framework. Specifically, we generalize the model described above assuming, in a reduced form, that an incumbent has a larger probability of being reelected if the population observes large consumption levels. Since in our model utility depends solely on consumption, higher aggregate consumption level improves the chances of an incumbent to retain office[1]. Empirical studies, such as Pacek and Radcliff (1995), Lewis-Beck and Stegmaier (2000), and Bartels (2013), support the notion that economic performance is a crucial determinant of electoral outcomes and political approval. Theoretically, retrospective voting has been first introduced by Nordhaus (1975) where voters myopically reappoint the incumbent conditionally on current economic conditions. Rogoff and Sibert (1988) and Rogoff (1990) rationalized this behaviour in a rational expectation model by means of a multidimensional signalling game.

As a third contribution, we use the theoretical predictions of our model to estimate the unobservable degree of retrospective voting. Recall the two main theoretical findings: first, without retrospective voting, stronger political frictions lead to larger *saving* incentives; second, when the

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[1]In our setting retrospective voting exists without rationalizing it formally, but the model could be extended by endogeneizing the voting behaviour.

degree of retrospective voting is instead high, stronger political frictions lead to larger *borrowing* incentives. These predictions act as identification assumptions on the country-specific degree of retrospective voting, when political frictions and debt levels are observed. Hence, in the empirical part of the paper, we structurally estimate the degree of retrospective voting for each country. We gather data about economic variables and quality of institutions for the period 1989-2010 for 56 emerging and transition economies. For each country, we measure the degree of political friction with an index that combines the degree of ethnic fractionalization and a measure of inequality. We show that our estimates can explain a significant portion of debt levels. Finally, we relate the estimated measures of degree of retrospective voting to corruption indices. The strong relationship between our estimates and observable corruption measures is striking and robust to many different specifications of the model. The rationale behind this link steams from the idea developed in Shi and Svensson (2006): when governments might have unobservable, and potentially undesirable, characteristics, voters must rely simply on economic conditions as a possible signal about the quality of the government. According to this theory, then, it should be the case that the larger is the uncertainty about the type of the government, the stronger is the degree of retrospective voting. Finally, we validate our theory showing that indeed corruption indices explain a large part of the cross-sectional debt heterogeneity only when they interact with obsserved measures of political frictions, in line with our theory.

Chapter 2: Political Cost of Default and Business Cycle in Emerging Countries

Some stylized facts about business cycle and sovereign defaults in emerging economies have been established by the literature, but some of these facts have not been considered in quantitative models. The first fact is that there is limited support for theories that explains the feasibility of sovereign debt based on external sanctions or exclusion from international markets (as in Arellano (2008)) and more support for internal factors. Secondly, there is growing agreement that default events in many emerging economies have been triggered by political motives (Balkan (1992), Panizza et al.

(2009), Hatchondo et al. (2009), Hatchondo and Martinez (2010) , Cuadra and Sapriza (2008)).
In this paper we present a quantitative model of default with political uncertainty that accounts
for these facts, that closely match relevant business cycle statistics and the level of debt to gdp,
default likelihood and spread that we observe in the data.

Regarding external sanctions, many empirical papers focus on evaluating the cost of default
for a country. According to Gelos et al. (2008), that defined market access from bond issuance,
exclusion from capital markets lasted 4 years on average after default event during the 80's, but this
duration drops to 0.3 years during the 90's. Richmond and Dias (2009) measured market access as
positive next transfers. In this way they measured that it took 5.5 years on average to exit from
default during the 80's, 4.1 during the 90's and 2.5 years after 2000. This results show that relying
on market exclusion to explain political cost of default is not a realistic representation of reality. In
Arellano (2008) calibration, exclusion from capital markets lasts 2.5 years on average after default.
Mendoza and Yue (2012) calibrate re-entry probability according to the estimates of Richmond
and Dias (2009), implying 10 years of exclusion from capital markets on average. Exclusion from
capital markets is costly for the government because of the inability to smooth consumption, but
according to Lucas (1987), Aguiar and Gopinath (2007) and Otrok (2001) welfare cost of business
cycle is relatively small. In addition traditional models of sovereign defaults assume that output
drops in default periods, but they do not deal with the simultaneity issue that defaults occur more
likely during recessions.

Instead there seems to be more support for a political explanation of the default. Politicians in
several economies seem to postpone for a long time unavoidable defaults. On possible explanation
for this is that they want to avoid to be replaced in office. By looking at post-election results,
there seems to be clear evidence that after a default the incumbent loses political support. There is
not a large body of literature on estimating the political cost of default. Borensztein and Panizza
(2009) calculated the loss in the vote share for the ruling part after a default; across countries
the incumbent losts on average 16% of electoral supports. There is much more evidence on the
political cost of currency devaluation. Cooper (1971) and was the first to illustrate the political
cost of devaluations by showing that devaluations more than double (from 14 to 30 percent) the

probability of a political crisis and a government change within the next 12 months. Frankel (2005) updated the results of Cooper (1971) and found that in the 1971 - 2003 period devaluations increased the probability of a change in the chief of the executive in the following 12 months from 20 to 29 percent. In this paper we do not provide an explanation for why voters are more likely to substitute the incumbent in case of default and in some specific cases it could also be that the incumbent does not face this risk (See Greek elections in 2015). But this argument finds sufficient support for Argentinian default of 2001.

In this paper we present a model of sovereign default with political uncertainty. The agent has an exogenous probability of being replaced in the following period after default decision is taken. In case of default this probability rises, making default more costly from a political point of view since the incumbent can ''fall'' in the opposition state where she benefits of lower intertemporal utility. The existence of political uncertainty *per se* produces borrowing incentive as in the political economy literature (Alesina and Tabellini (1990a), Amador (2004), Amador and Aguiar (2011)). Nevertheless previous papers have not considered the enforceability of debt contracts: even if ex-ante the government has an incentive to raise more debt it does not imply repayment ex-post. The existence of larger political uncertainty associated to default events improves the incentive to repay by producing larger debt levels in equilibrium. The model is calibrated to Argentina, where I show that the model can fairly well match debt levels observed in reality, in contrast with the inability of previous papers on this dimension. This paper is closely related to Amador (2004) that shows that because of political uncertainty that generates borrowing incentive the replication strategy that is central in Bulow and Rogoff (1989) is not efficient. As a result we can also observe positive amount of debt without default. In this paper we focus on the quantitative implication of political uncertainty and we argue that political uncertainty in ''normal'' times is not sufficient to reproduce the large level of debt observed in the data.

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