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THE POLITICAL ECONOMY
OF CAPITAL CONTROLS

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ABSTRACT

This paper studies the institutional and political determinants of capital controls in a sample of 20 OECD countries for the period 1950-1989. One of the most interesting results is that capital controls are more likely to be imposed by strong governments which have a relatively "free" hand over monetary policy, because the Central Bank is not very independent. By imposing capital controls, these governments raise more seigniorage revenue and keep interest rates artificially low. As a result, public debt accumulates at a slower rate than otherwise. This suggests that an institutional reform which makes the Central Bank more independent makes it more difficult for the government to finance its budget. The tightening of the fiscal constraint may force the government to adjust towards a more sound fiscal policy.

We also found that, as expected and in accordance with the theory, capital controls are more likely to be introduced when the exchange rate is pegged or managed. On the contrary, we found no effects of capital controls on growth: we reject rather strongly the hypothesis that capital controls reduce growth.

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I. INTRODUCTION

This paper studies the institutional and political determinants of capital controls. On the one hand, recent work relating economic policy decisions to political and institutional factors has helped to shed light on several important observations, such as large budget deficits in representative democracies and low inflation in countries with an independent Central Bank, that are difficult to explain with models using the assumptions of social planner and representative agent.¹ On the other hand, capital controls have not been examined from this political-institutional perspective. Capital controls and other forms of foreign exchange restrictions are the rule rather than the exception, warranting a closer look at their determinants and effects: data from the IMF for 1990 show that only 30 countries (9 industrialized countries and 21 developing countries) had no limitations on capital flows (Mathieson and Rojas-Suarez (1992)).

Numerous theoretical studies have examined how capital controls affect economic policy conduct (optimality and sustainability of different policies), the possible motivations for the introduction of capital controls, their welfare implications, the importance of "sequencing" in a process of reform leading to a removal of foreign exchange restrictions etc.² The empirical literature has addressed such important issues as the actual degree of capital mobility, the impact of capital controls and political risk on interest differentials, and the effectiveness of capital controls in "segmenting" domestic and foreign financial markets.³ However, little attention has been devoted to investigating empirically the relation between the presence or removal of capital controls in various countries on the one side, and the structural economic and political features of these countries on the other side. Such an empirical investigation is the object of this paper. We believe this investigation is useful, because the motivations for the introduction of capital controls appear to be closely related to political and institutional factors. For example, one motivation for introducing capital controls is the maintenance of a larger tax base for a capital levy or for the inflation tax. The importance of this argument is likely to depend on the government's preferences over the distribution of the tax burden (reflecting political factors) and on the costs of alternative forms of taxation (reflecting structural and institutional factors). Another motivation, the prevention of speculative attacks on the foreign exchange reserves of the Central Bank, clearly depends on a structural factor such as the exchange-rate regime.

More specifically, we address two questions. First, we examine whether the presence of capital controls can be related to a number of economic, political and institutional variables. Second, we investigate whether the presence of capital controls, along with other political and institutional variables, helps explaining the evolution of macroeconomic variables such as inflation and seigniorage, government debt, real interest rates and growth. Our sample consists of twenty OECD countries in the period between

1950 and 1989. Although there is no shortage of theoretical models of capital controls, this paper is not based on a single formal model. Rather, it looks at the empirical support for existing theories. One reason for this choice is that we want to look at a broad set of issues which can be hardly encompassed in a single theoretical framework. Because our sample is composed by OECD countries, there are few references to the literature on capital controls in developing countries.

Even though the data set has shortcomings, which we will discuss, our results show several interesting regularities. The evidence is consistent with an inflation tax explanation for capital controls: by reducing the possibility of portfolio diversification into foreign currency assets, capital controls limit the ability of individuals to avoid the inflation tax and facilitate the imposition of administrative measures designed to keep domestic interest rates artificially low. Indeed, we find that inflation and seigniorage revenue are significantly higher in the presence of capital controls. Also, capital controls are associated with lower domestic real interest rates, after controlling for the level of domestic debt. Furthermore, capital controls are more likely to be in place when the Central Bank is not independent, when the exchange rate is managed and when there is a majority government: other political variables seem to have more limited explanatory power. The rest of the paper is organised as follows. Section II briefly reviews the vast theoretical literature on the effects of foreign exchange restrictions on economic performance. In particular, it looks at monetary policy and tax policy under capital controls. Section III considers possible motivations for the introduction of capital controls, and highlights the role of institutional and political factors in determining the relative importance of these motivations. Section IV presents the data and discusses the empirical results. Section V summarizes the main conclusions.

II. THE EFFECTS OF CAPITAL CONTROLS

II.1 General issues

The impact of different degrees of capital mobility on the effectiveness of monetary and fiscal policy is discussed in the early Mundell-Fleming models in the context of different exchange-rate regimes. For example, under fixed exchange rates, starting from a position of trade balance monetary policy has only a short-run impact on output: an expansionary monetary policy increases output and imports, generating a loss of foreign exchange reserves and therefore a monetary contraction. With perfect capital mobility, the same policy induces an immediate loss of reserves and no effects on output. Under flexible exchange rates, a fiscal expansion generates an increase in output and an exchange rate depreciation to maintain the trade balance. The same policy under full capital mobility would generate an exchange rate appreciation by putting upward pressure on domestic interest rates. Output would remain constant, as

increased government expenditure "crowds out" net exports.

More recent work has reconsidered the macroeconomic effects of capital controls in a flexible-price, utility-maximizing framework. For example, Adams and Greenwood (1985) argue that in a small open economy dual exchange rates and capital controls are equivalent (in the same sense that tariffs and quotas are) and that they represent a tax (subsidy) on capital account transactions. In the absence of other distortions, it follows that capital controls and dual exchange rates in a small open economy are welfare-decreasing. By contrast, if the economy is large, both can increase welfare, by an optimum tariff argument. The presence of capital controls also modifies the transmission of monetary and fiscal disturbances across countries (Greenwood and Kimbrough (1985), Guidotti and Végh (1992)). The effectiveness of a devaluation under capital controls and the impact of the latter on the level of the real exchange rate are other widely debated questions: the latter question is particularly important in the study of trade and financial liberalization in developing countries.⁴ Both are, however, outside the scope of this paper.

II.2 Capital controls and monetary policy with a managed exchange rate

Effective capital controls can provide some degree of monetary policy autonomy under a fixed exchange-rate system or a crawling peg. For example, the early years of the EMS, with large (albeit shrinking) inflation differentials across countries, were characterized by widespread capital controls.⁵ Wyplosz (1986), Park and Sachs (1987) and Bacchetta (1990) investigated whether capital controls can prevent runs on the currency and balance of payments crises when the government is pursuing monetary and credit policies that are inconsistent with the exchange-rate peg. These studies pointed out that effective capital controls can prevent speculative attacks on foreign exchange reserves, but that in the long run reserve depletion takes place anyway through the current account channel. A shortcoming of these studies is the failure to provide a justification for the "inconsistency" between monetary policy and the exchange rate peg, since government behaviour is taken as exogenous. However, Obstfeld (1986a) showed that self-fulfilling balance of payments crises can occur even when government policies are consistent with the exchange-rate peg, implicitly providing a rationale for the imposition of capital controls.⁶

Empirical studies have used high-frequency data to examine whether capital controls are effective in de-linking domestic and foreign financial markets, especially in the wake of expected realignments (Giavazzi and Pagano (1988), Giavazzi and Giovannini (1989), chapters 5 and 6). Overall, these studies find a significant impact of capital controls on onshore-offshore interest differentials in periods of

turbulence near realignments, but a modest impact in other periods.

II.3 A public finance perspective

Another important question is how the presence of capital controls affects optimal taxation decisions on the part of the government. This question is particularly important in the study of inflation from a public finance perspective. Capital controls limit the ability of individuals to avoid the inflation tax on domestic money holdings by holding foreign currency assets and deposits: hence they have a direct impact on the "tax base" of the inflation tax. Drazen (1989) emphasizes that capital controls allow the imposition of measures such as high reserve requirements that raise the demand for money and therefore the inflation tax base. He also argues that these measures may be detrimental in the long run, because they may discourage capital accumulation by raising the interest rates that banks charge on loans.⁷ In order to maintain seigniorage revenue following the dismantling of barriers to trade and capital flows, Brock (1984) argues that the Central Bank can impose a reserve requirement on foreign capital inflows and a prior import deposit.

Capital controls are often accompanied by various types of financial market restrictions, such as controls on interest rates. Giovannini and de Melo (1991) focus on a sample of developing countries and relate capital controls with government revenue from financial repression, measured by comparing the domestic and foreign cost of borrowing of the government. Recent work by Roubini and Sala-i-Martin (1991, 1992) relates financial repression to macroeconomic performance. The argument is that an underdeveloped and repressed financial system allows the government to finance public expenditure more easily when the tax system is inefficient, but it may constitute an obstacle to growth.

Similarly, when tax distortions are high and domestic debt is large, capital controls may be justified, since they allow the government to reduce the cost of financing its debt (Aizenman and Guidotti (1990)).⁸ This is equivalent to a form of seigniorage on government liabilities. An interesting question, which we address in our empirical analysis, is whether the reduction in the cost of servicing the public debt, together with the easier access to seigniorage revenue, can actually reduce public debt accumulation in the presence of capital controls.

To our knowledge, the only theoretical paper explicitly building a link between the political determinants of tax policy and capital controls is Alesina and Tabellini (1989). The authors view capital controls as a form of limiting holdings of foreign assets that are non taxable. Individuals would accumulate foreign assets to avoid the risk of future taxation. In their model there are two social groups, "workers" and "capitalists", and two parties, each representing a social group. The workers' source of

income is labour (they cannot own domestic capital), while the capitalists' income comes from capital holdings. Under reasonable assumptions about initial endowments and distribution it is shown that fear of a future workers' government may induce capitalists to export capital. Among other things, the paper shows that once homogeneity between private agents is removed, distributional reasons become an important consideration in the evaluation of foreign exchange restrictions.

We turn now more directly to the justifications for imposing capital controls and to the degree to which political and institutional factors may shape these motivations.

III. WHY CAPITAL CONTROLS?

In a recent study, Mathieson and Rojas-Suarez (1992) identify four reasons for the imposition of capital controls, which we will examine in turn:

- a. Limiting volatile short-run capital flows (avoiding balance-of-payments crises etc.);
- b. Maintaining the domestic tax base;
- c. Retaining domestic savings;
- d. Helping stabilization and structural reform programs.

a. Limiting volatile short-term capital flows (stability of foreign exchange markets): a case for limiting capital mobility under floating exchange rates relies on the differential speed of adjustment between the financial sector and the real sector. While the nominal exchange rate reacts instantaneously to clear asset markets, the real economy undergoes slower adjustment, for example, because of stickiness in real wages and irreversibilities in investment decisions. Authors such as Tobin (1978) and Dornbusch (1986) argue that this differential speed of adjustment, together with exogenous "excess volatility" in financial markets, may induce excess exchange-rate volatility (overshooting; bubbles etc.), with negative effects on real economic activity. Tobin proposed to "throw sand in the wheels" of short-run capital flows through a uniform tax on all foreign exchange transactions, thereby discouraging very short-term capital flows, but with negligible effects on long-run ones.⁹ Dornbusch (1986) suggests the adoption of measures such as a dual exchange rate systems, that are able to shield at least partially the real economy from the vagaries of short-term financial markets behaviour.

When exchange rates are pegged, unrestricted short-term capital flows may cause large variations in foreign exchange reserves, the collapse of the peg or high interest rate variability. The recent turbulence experienced in the European Monetary System and in countries that unilaterally pegged their

rate to the ECU or the D-Mark proves this point very effectively.¹⁰ Effective capital controls can at least mitigate these undesirable effects in the short run. Obviously crises can occur because fundamentals are out of line, as is the case when two macroeconomic policy objectives (say, domestic credit expansion and fixed exchange rates) are mutually inconsistent. This is shown in the literature on speculative attacks and balance-of-payments crises briefly discussed in Section II.3. In the absence of capital controls, sustainability of an adjustable peg mechanism requires large interest rate changes before realignments, to compensate asset holders from capital losses. This interest rate variability is particularly damaging in countries where the government has a large short-term public debt, or when longer-term debt instruments are indexed to short-term interest rates, as in Italy.¹¹ Although one would need to motivate explicitly the adoption of policy measures that are inconsistent with the exchange-rate peg in the long-run, the incentive to introduce capital controls is obviously greater when the exchange rate is managed. The possibility of self-fulfilling speculative attacks against a fixed exchange rate, not motivated by market fundamentals, would provide an additional justification for the imposition of capital controls: the exchange-rate peg can collapse even when current fundamentals are consistent with the peg (Obstfeld (1986a) and his comments to Giovannini (1988)). This line of analysis would suggest that governments with stronger "credibility problems" would be more likely targets of speculative attacks and may therefore be more likely to impose capital controls.¹²

b. Maintenance of the domestic tax base: as discussed in the previous section, capital controls may allow the government to tax more effectively money and asset holdings. Also, the presence of capital controls allows the imposition of administrative measures designed to reduce the value of domestic interest rates and hence to facilitate the financing of government expenditure needs.¹³ For example, the literature on the inflation tax in an open economy (Section II.3) suggests that capital controls may reduce the real cost of domestic debt (Aizenman and Guidotti (1990), Sussman (1991)) and increase seigniorage revenue.¹⁴ Of course, one needs to justify capital controls with the existence of distortions that prevent the fiscal system to operate effectively under free capital mobility.

Giovannini (1988) and Razin and Sadka (1991) focus instead on the taxation of capital. They argue that capital controls may be justified by the difficulty of taxing foreign-source income. Giovannini suggests that the distortions introduced by capital controls may be smaller than those implied by the impossibility to tax foreign-source income. Razin and Sadka show that when taxing foreign-source income is impossible, it may be optimal to impose a restriction on capital exports in order to generate "overinvestment" domestically.

Abandoning a representative agent framework, one can analyze the impact of political and distributional considerations on the choice of tax instruments. Capital controls affect the amount of revenue that can be raised from different taxes: hence one can relate the decision to impose capital controls to taxation and distributional issues reflecting the political preferences of the government, as in Alesina and Tabellini (1989). For example, governments that are closer to "workers" may have a bigger incentive to impose a capital levy, and may therefore impose capital controls in order to avoid capital flight.¹⁵ Section IV further explores this point.

c. Retention of Domestic Savings: The idea is that the private return from holding domestic instruments may be below the social return. Also, countries may wish to limit foreign ownership of domestic factors of production. The incentive to impose capital controls for this purpose would depend on the actual degree of capital mobility. As pointed out by our discussant Marco Pagano, the government may be willing to adopt measures that stimulate savings if the latter are prevented from flowing abroad by low capital mobility or by capital controls. This is consistent with results presented in a panel study of OECD countries by Jappelli and Pagano (1992).

d. Stabilization and Structural Reform Programs. Free capital flows can be destabilizing when a country implements a stabilization or a structural reform plan. For example, lack of credibility of stabilization plan may cause capital flight and a balance of payments crisis, making the plan failure more likely. Also, if the plan is (partially) credible, the high real interest rates typically associated with a stabilization program may cause (temporary) large capital inflows and an appreciation of the real exchange rate: the latter may hamper a trade reform aiming at lower barriers to imports. From a political economy point of view, one should consider the relation between political stability, government preferences and credibility. Again, governments with lower initial credibility may be those with stronger incentives to introduce capital controls (see (a)). Also this motivation for the introduction of capital controls may have larger relevance for developing countries.

We believe that the first two motivations for the imposition of capital controls are the most important ones for industrialized countries; they also provide a clearer set of variables that may matter in the decision to impose or remove capital controls. The relevance of all these motivations depends on the ability of the government to impose effective capital controls. This ability has probably weakened over time, for two reasons. The first is the endogenous "erosion" of existing barriers, as agents find ways to

avoid official restrictions. The second has to do with structural change and technological progress in financial markets, that facilitate international capital movements and make them harder to monitor. Because of the nature of our data,¹⁶ we are currently unable to account for these factors.

IV. EMPIRICAL EVIDENCE

In this section we investigate the empirical relevance of some of the theory we discussed in Sections II and III. We analyze a panel composed of twenty OECD countries in the period between 1950 and 1989. The countries are Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, Norway, Portugal, Spain, Sweden, Turkey, United Kingdom and the United States.¹⁷ Not all variables are available over the whole period in all countries: thus the actual sample is smaller than the full 800 observations implied by the panel size. The Appendix lists and briefly describes all the variables we use.

Our analysis proceeds in two stages. First, we want to understand which political and institutional factors make the decision to introduce capital controls more likely. In this stage, therefore, we use capital controls as the dependent variable and regress it on a set of political and institutional variables. Second, we trace the effect of capital controls on economic performance. In this stage, thus, we follow previous analysis by Grilli, Masciandaro and Tabellini (1991) by including capital controls in a group of institutional variables which are used to explain the behaviour of macroeconomic aggregates.

The problem is to find a proper definition of foreign exchange restrictions. In practice, the latter can take several different forms: strict capital controls, dual exchange rates, limitations on current-account transactions such as compulsory surrendering of export receipts, prior import deposits etc. We employ a concept of capital controls defined in "Restrictions on Payments on Capital Transactions" by the International Monetary Fund.¹⁸ As in Grilli (1989), this information is used to construct a dummy variable taking value of one when capital controls are in place and zero otherwise. A shortcoming of this measure is that we have no way to account for different degrees of intensity of capital controls. One should also note that the effectiveness of controls on capital account transactions may be enhanced by controls on current account transactions, such as trade financing, since the latter transactions provide a channel through which "unofficial" capital movements can take place (leads and lags in the settlement of commercial transactions).¹⁹ In that case, current-account restrictions may be a proxy for the intensity of capital controls.

Isolating the impact of capital controls is also difficult, since they are typically adopted (or removed) together with other policy measures. Indeed, since many studies have stressed the impact of

capital controls on the optimal policy mix, it is not surprising that their imposition or removal is rarely undertaken in isolation, without any change in policy course. In the empirical analysis, we try to control for variables whose effects may interact with those of capital controls.

Most of the political variables used in our analysis have been constructed and employed in previous research. In particular, we make use of variables described in Alesina (1989), Grilli, Masciandaro and Tabellini (1991), Cukierman, Edwards and Tabellini (1992) and Alesina, Ozler, Roubini and Swagel (1992). All of these papers demonstrate the importance of political and institutional factors in economic policy decisions and their effects on the business cycle, inflation performance, the size of budget deficits and debt.

IV.1 The effect of institutional and political factors on capital controls

The main arguments in favour of capital controls in developed countries that we surveyed in the previous section can be classified into two broad categories. The first (case a in Section III) relates capital controls to foreign exchange market stability. The second (case b in Section III) views capital controls as an integral part of governments' taxation strategies.

IV.1.1 Capital controls and exchange-rate regime

As we have discussed above, the introduction of capital controls should be more likely during fixed and managed exchange rate regimes. They help prevent or mitigate speculative attacks and, therefore, they facilitate the defence of a fixed exchange rate parity or of an exchange rate band. We constructed a dummy variable (EXR) taking value of one during periods of fixed or managed exchange rates and zero during periods of free floating exchange rates. Figure 1 contrasts the use of capital controls during periods of managed and fixed exchange rates with that during periods of floating exchange rates. Capital controls were in place 80% of the times when a managed or fixed exchange rate policy was followed and only 54% of the times when the exchange rate was floating.

IV.1.2 Capital controls and taxation

From a public finance point of view, capital controls can allow the preservation of a large tax base despite the imposition of high tax rates. Various theories summarized in the previous section point to two different tax instruments for which capital controls may be particularly useful: capital levy and inflation tax. To understand which political and institutional factors can be crucial for the introduction of capital controls it is useful to distinguish between theories based on social conflict and theories based

on representative agent frameworks, i.e where social conflicts are absent.

(a) *Social conflict theories: capital levy viz income tax.* Since left-wing governments tend to favour the taxation of capital income over that of labour income, they may be tempted to introduce capital controls to prevent capital export and thus maintain a large tax base for capital levies. This theory was formally modelled by Alesina and Tabellini (1989).

(b) *Social conflict theories: inflation tax viz other taxes.* The inflation tax can be viewed as a form of capital levy. Instead of taxing savings held in the form of real assets, it taxes savings held in nominal assets, like cash holdings, bank deposits or nominal bonds.²⁰ If nominal assets are not held in similar proportions across the population, the inflation tax will affect some social groups more than others. Therefore, the decision of using the inflation tax can be influenced by political considerations in ways similar to the decisions of using capital levies. Differently from a capital levy, however, it is not immediately clear which type of governments would support the inflation tax, whether left-wing governments or right-wing governments. On the one hand, inflation might be a regressive form of taxation, then right-wing governments would favour it more than left-wing governments for distributional reasons. Capital controls, by isolating domestic financial intermediaries from foreign competition, allow the imposition of high bank reserve requirements. This maintains a high demand for monetary base and thus assures a large tax base for the inflation tax. On the other hand, a left-wing government may be more unemployment averse than a right-wing government, and thus the former may attempt to exploit the Phillips curve by creating inflation (Alesina (1989) and Alesina and Roubini (1992)). Furthermore, if the left prefers higher public spending than the political right, it may need more seigniorage.

To test whether the political leaning of governments has any impact on the decision of imposing capital controls, we use a dummy variable (RADM) which equals minus one in case of left-wing governments and plus one in case of right-wing governments.²¹ Figure 2 shows that left-wing governments have been slightly more prone to impose capital controls than right-wing governments. Capital controls were present in 69% of the cases in which left-wing governments were in power, compared to 63% of the cases in which right-wing governments were in power. This difference is so small that is clearly insignificant in any statistical sense.

Underlying the capital levy explanation of capital controls is the assumption that the executive has sufficient political power to impose a higher burden of taxes on some groups. In other words, the government must have sufficiently wide support. For the case of inflation, however, one could also argue that governments without wide support may be unable to finance expenditure using "other taxes", and may therefore be more likely to resort to capital controls and use the inflation tax. As suggested in Grilli,

Masciandaro and Tabellini (1991), an indicator of government strength is whether the executive is a one-party government enjoying a parliamentary majority or, instead, is a coalition of parties and/or a minority government. In order to control for the degree of support of the government we use a dummy variable (MAJOR) which takes value of one in case of majority governments and zero in case of a coalition and/or minority governments. Figure 2 shows that majority governments have been more likely to impose capital controls (81% of the cases) than coalition and minority governments (72% of the cases). It should be pointed out that, in our definition, dictatorships have been classified as majority governments. However, even if we were to eliminate dictatorship from the sample, majority governments still have a higher occurrence of capital controls (76% of the cases) than coalition and minority governments.²²

(c) *Social conflict theories: inflation tax as the residual tax in a war of attrition situation.* In unstable political systems, where there exist unresolved social conflicts concerning the distribution of the burden of taxation, inflation may well be the only viable tax instrument for financing (at least part of) the budget deficit. This idea is modelled by Alesina and Drazen (1991) and Drazen and Grilli (1992). Differently from the argument of point (b), here inflation is not the deliberate choice of a right- or left-wing government intending to impose the burden of taxation on holders of nominal assets. Instead, it is viewed as the only option for a weak government which does not have sufficient authority to introduce a fiscal reform in one direction (capital levy) or the other (income tax). In this case minority or coalition governments should be more likely to resort to capital controls than majority governments. As suggested by Grilli, Masciandaro and Tabellini (1991), potential indicators of social conflicts and political instability are the durability of governments, i.e. the average number of years in power of the executive, and the stability of the political system, measured by the frequency with which "significant changes" in the executive take place. "Significant changes" in the executive refer to changes in the government involving the transfer of power from a political group to another as opposed to changes within the same party or within the same coalition of parties. To measure government durability we use a dummy variable (DURA), taking a constant value for each country equal to the average number of years in power of the executive between 1950 and 1990. To measure political stability we use another variable (STAB) taking a constant value for each country equal to the average number of years between significant government changes. Figure 3 shows that capital controls were much more common under short-lived governments (79% of the cases) than under long-lived governments (53% of the cases); it also shows that capital controls were marginally more common in highly stable political systems (72% of the cases) than in unstable political systems (68% of the cases).²³

(d) *Optimal taxation theories.* The inflation tax or capital levies do not need to be used only in social

conflict situations. In fact, the inflation tax or capital levies can be socially accepted as part of a portfolio of tax instruments, set according to Ramsey's principles which are common to all governments, independently of their political leaning. In this case, the use of inflation tax need not to be associated with situations of political instability, low government durability or with any particular political leaning of the executive. For example, theories of optimal seigniorage based on perfect government credibility, as in Mankiw (1987) and Grilli (1989), suggest that the inflation tax could be part of a global taxation plan of an infinitely-lived government, and thus in a situation of perfect political stability and government durability.

The inflation tax, however, may not be a choice variable for the government if monetary policy conduct is delegated to an independent Central Bank, with preferences that do not exactly coincide with those of the government. Structural factors, such as, for example, level and composition of GDP, are also going to influence optimal tax decisions. Besides the political variables discussed above, we therefore consider two other sets of institutional and structural indicators, reflecting the above considerations. The first is the degree of independence of the national Central Bank. As shown in Grilli, Masciandaro and Tabellini (1991) and Alesina and Summers (1993), the degree of independence of the Central Bank is an essential factor in explaining a country inflation performance. These authors show that the scope for using inflation to finance budget deficits is greatly reduced in the presence of an independent Central Bank. If the inflation-tax motivation is correct, we would therefore expect that the introduction of capital controls would be less likely in presence of an independent Central Bank. Here we employ the classification developed in Grilli, Masciandaro and Tabellini (1991) which distinguishes between political independence (CBPN) and economic independence (CBEN) of a Central Bank. The first refers to the appointment procedure and the duration in office of the governing body of the Central Bank. The less control the government has over the appointments of the governor and the composition of the board of the Central Bank, and the longer the duration in office of Central Bank officials, the higher is the degree of political independence of the Central Bank. The second refers to the obligations of the Central Bank regarding the financing of the budget deficit through money creation and/or interest rates manipulation. The freer is the Central Bank from the Treasury from this point of view, the more economic independence it enjoys. Both variables are constant for each country. Figure 4 shows that capital controls are more likely to be in place when the degree of Central Bank independence is low. Capital controls were present in 79% of the cases in which the Central Bank had a low degree of political independence and in 61% of the cases for high degree of political independence. Economic independence appears to be even more important since capital controls were present in 79% of the cases of low economic independence but only in 23%

of the cases of high economic independence.²⁴ Figure 5 summarizes the relationship between capital controls and Central Bank independence. The reader can certainly detect a downward sloping relationship between the frequency of capital controls and the degree of Central Bank independence. This curve is reminiscent of the downward sloping relationship between inflation and independence described in Grilli, Masciandaro and Tabellini (1991) and Alesina and Summers (1993). Our curve in Figure 5 appears perhaps a bit less striking because so many countries have the same value (i.e. 1) for capital controls.

The other variable which we consider is an indicator of the structure of the economy. The use of the inflation tax is more attractive in presence of a large tax base, i.e. when the demand for monetary base is high. This is more likely in economies where a large amount of transactions take place with the use of cash, and where banks have large amounts of reserves. Economies of this type are usually characterized by large black economies and underdeveloped financial markets. We use as an indicator of this situation the relative importance of the agricultural sector compared to the service sector. The variable AGRSER is the ratio between the value added produced by the agricultural sector and the value added produced by the service sector.²⁵ Figure 6 shows that capital controls are more common when the agricultural sector is relatively large (100% of the cases) than when it is small (50% of the cases).

In Table 1 we present the result of probit estimations where the capital control dummy was regressed on all the variables described above. The sample size is substantially reduced in this case, mainly because of the scarcity of data on the sectoral value added (AGRSER) and the political leaning of the government (RADM). In order to increase the number of observations, we next eliminate from the set of independent variables AGRSER, in Table 2, and both AGRSER and RADM, in Table 3. Table 3, therefore, contains the most reliable results, but the effects of AGRSER and RADM can only be assessed within the more limited samples of Tables 1 and 2. On the one hand, Table 1 and 2 suggest that the political leaning of the government has no significant effect on the decision of whether to introduce capital controls. However, strong (majority) governments are more likely to impose capital controls. On the other hand, Table 1 provides evidence that the structure of the economy is important. The larger the agricultural sector with respect to the service sector, the higher is the probability that capital controls will be in place. Turning now to the indications of Table 3, the evidence suggests that stable political systems characterized by majoritarian and long-lived governments are more likely to adopt capital controls measures. Also, the evidence strongly supports the conjecture that countries with highly independent Central Banks are less likely to resort to capital controls. Finally, the exchange rate regime is important; as expected capital controls are more likely to be in place during periods of managed exchange rates than during free floating. As reported in Table 3, the results are quite robust to different model specifications.

for example if we were to assume a logit instead of a probit structure, and to the introduction of random effects. The results of this simple statistical exercise are perfectly consistent with our previous graphical analysis.

Our results can be summarized as follows. One of the strongest and most interesting findings is that independent Central Banks are less likely to impose capital controls than more dependent ones. This suggests, indirectly, that capital controls are probably used by governments that, by controlling monetary policy more directly, can impose a higher inflation levy when capital controls are in place. A second strong result is that "strong" majoritarian governments are much more likely to impose capital controls than weak, short-lived coalition governments. This finding suggests that the imposition of capital controls is a conscious policy decision, rather than the result of a deadlocked political system. This evidence is, therefore, not consistent with a "war of attrition" explanation of inflation for these countries; that is, capital controls do not appear to be the last resort to raise revenue of deadlocked and/or weak governments. Probably the "war of attrition" explanation of inflation is more appropriate for less developed countries and for historical periods with a very high degree of social conflict (see Alesina and Drazen (1991)).

Finally, the political orientation of the government does not appear to be a good predictor of capital controls. This inconclusive finding is, however, consistent with our discussion which has highlighted several arguments pointing in different and opposite directions on this issue.

IV.2 The effects of capital controls on macroeconomic variables

Roubini and Sachs (1989) and Grilli, Masciandaro and Tabellini (1991) relate the behaviour of several economic aggregates to institutional and political indicators. In this section we extend these analysis to include capital controls in the set of potential institutional indicators. In so doing, we want to answer two basic questions. First, after we control for other aspect of the political and institutional environment, like government type, political stability, Central Bank independence and exchange rate regime, do capital controls have any additional explanatory power? Second, if there are independent effects from capital controls, are these effects compatible with an inflation tax interpretation of the type discussed in the previous sections?

The first variable we analyze is public debt. Grilli, Masciandaro and Tabellini (1991) showed that debt accumulation is greater in unstable political systems, characterized by low durability of the executive and by coalition or minority governments. Table 4 reports the results of running a linear regression of gross debt to GDP ratio on MAJOR, STAB, DURA and CONTROLS. The relationship between political

instability and coalition governments on the one side and a large public debt on the other side is confirmed by our analysis: stable and majority governments accumulate less public debt. More importantly, capital controls appear to have a significant, negative impact on debt accumulation. Our interpretation is that the use of capital controls provides the governments with two channels that help preventing a large debt accumulation, both of which can be viewed as different effects of the inflation tax. First, by allowing substantial seigniorage revenues, capital controls make it easier to finance primary deficits. Second, in line with the literature on "financial repression", we conjecture that capital controls can keep real interest rates on government debt artificially low by preventing international arbitrage in the asset market. This reduces the size of interest payments on the public debt. Table 5 and 6 explore the validity of these two claims.

Table 5 present the results for the rate of inflation and a measure of inflation tax revenues, computed as the product between the rate of money growth and real monetary base (as a percentage of total revenues and as a percentage of GDP). All three regressions confirm the negative effect of Central Bank independence (particularly economic independence) and of managed exchange rates on the inflation rate and on seigniorage. Consistently with our conjecture, capital controls are associated with both higher inflation rates and higher levels of seigniorage. The results for the political variables are less clear-cut. With the inflation rate as the dependent variable, the variables capturing government stability (STAB) and majority governments (MAJOR) are significant and with the expected sign: more stable and majority governments are associated with lower inflation. In the seigniorage regressions, however, the MAJOR variable is not significant, and the STAB variable is significant and with the wrong sign (albeit with a very small coefficient).

Table 6 analyzes the relationship between (ex-post) real interest rates and institutional and political indicators. Majoritarian (strong) governments are associated with lower real interest rates than coalition and minority governments. Also, the stability of the executive and that of the political system do appear to have a significant effect on interest rates. Fixed exchange-rate regimes are characterized by higher real interest rates than floating regimes. Crucially, as expected, capital controls have a significant negative effect on real interest rates. As argued in previous sections, capital controls facilitate the imposition of administrative measures designed to keep domestic interest rates artificially low, so we might be capturing the effect of these measures.

Finally, in Table 7, we investigate the relationship between institutional variable and rate of growth of real GDP. In the first regression, the dependent variable is the growth rate of GDP, in the last two it is the growth rate of GDP per capita. The last regression includes initial income per capita as an

independent variable. The latter variable is significant and with the right sign. The results also indicate that fixed exchange rate regimes and stable political systems have been associated with higher growth rates. The impact of capital controls does not appear to be significant (it is significant only in the first regression, and with a positive sign).²⁶ We therefore do not find a negative impact of capital controls on economic growth in our OECD sample.

5. CONCLUSIONS

Our results highlight an intriguing hypothesis. Capital controls are more likely to be imposed by strong governments which have a relatively "free" hand over monetary policy, because the Central Bank is not very independent. By imposing capital controls, these governments raise more seigniorage revenue and keep interest rates artificially low. As a result, public debt accumulates at a slower rate than otherwise. This suggests that an institutional reform which makes the Central Bank more independent makes it more difficult for the government to finance its budget. The tightening of the fiscal constraint may force the government to adjust towards a more sound fiscal policy.

We also found that, as expected and in accordance with the theory, capital controls are more likely to be introduced when the exchange rate is pegged or managed. On the contrary, we found no effects of capital controls on growth: we reject rather strongly the hypothesis that capital controls reduce growth.

Extending this analysis to a larger sample of countries, including developing countries, is a task for future research. We conjecture that this extension may yield some different results, concerning in particular the relation between social conflict and the imposition of capital controls. Also, the analysis can be extended by looking at other measures of foreign exchange restrictions that we ignored in this study.

APPENDIX

I. Variables used in the first set of regressions of Section IV

Dependent variable:

CONTROLS: Dummy variable taking the value of one when capital controls are in place, zero otherwise. Capital controls defined in "Restrictions on Payments on Capital Transactions" by the International Monetary Fund. Sources: elaborations on IMF Exchange Rate and Monetary Arrangements, various issues.

Independent Variables:

EXR: Dummy variable taking the value of one during periods of fixed or managed exchange rates and zero during periods of freely floating exchange rates. Source: elaboration on IMF Exchange Rate and Monetary Arrangements, various issues.

RADM: Dummy variable taking the value of minus one when a left-wing government is in power and plus one when a right-wing government is in power. Source: Alesina, Ozler, Roubini and Swagel (1992) and references therein.

MAJOR: Dummy variable taking the value of one when a majority government is in power, and zero in the case of a coalition or minority government. Source: Grilli, Masciandaro and Tabellini (1991) and references therein.

DURA: Country-specific constant variable taking values equal to the average number of years in power of the executive between 1950 and 1990. Source: Grilli, Masciandaro and Tabellini (1991) and references therein.

STAB: Country-specific constant variable taking values equal to the average number of years between "significant" government changes. Sources: Grilli, Masciandaro and Tabellini (1991) and references therein.

CBPN: Country-specific dummy variable measuring the political independence of the Central Bank. This measure depends on the length of appointment of the governor and board of the Central Bank and on the government's degree of control over these appointments. Higher values correspond to a more politically independent Central Bank. Source: Grilli, Masciandaro and Tabellini (1991).

CBEN: Country-specific dummy variable measuring the economic independence of the Central Bank from the Treasury with regard to deficit financing, interest rate manipulation etc.. Higher values correspond to a more economically independent Central Bank. Source: Grilli, Masciandaro and Tabellini (1991).

AGRSER: Ratio between value-added in the agricultural sector and value added in the service sector.
Source: World Bank, World Tables.

II. Variables used in the second set of regressions in Section IV

Dependent Variable(s):

GROSS DEBT (% of GDP): gross government debt as a percentage of GDP. Source: OECD, National Income Accounts.

INFLATION RATE: Annual rate of change of the Consumer Price Index. Source: Cukierman, Edwards and Tabellini (1992).

INFLATION TAX (% of Total revenue): the inflation tax is measured as the inflation rate times the lagged value of high-powered money. Source: Cukierman, Edwards and Tabellini (1992).

INFLATION TAX (% OF GDP). See above. Source: Cukierman, Edwards and Tabellini (1992).

REAL INTEREST RATE: Short-term nominal interest rate on government debt minus actual inflation. Source: OECD, Main Economic Indicators, various issues.

REAL GDP GROWTH RATE: Source: OECD, National Income Accounts, various issues.

REAL GDP PER CAPITA GROWTH RATE: Source: OECD, National Income Accounts, various issues.

Independent Variables (not included above):

DEBT{1}: lagged value of gross government debt as a percentage of GDP. Source: OECD, National Income Accounts, various issues.

RGDPPO: level of GDP per capita in 1950 (or first available). Source: OECD National Income Accounts, various issues.

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FOOTNOTES

1. For example, see Alesina (1989), Roubini and Sachs (1989), Grilli, Masciandaro and Tabellini (1991) and Cukierman, Edwards and Tabellini (1992).
2. See Section II and the references therein.
3. On the first topic, see for example Feldstein and Horioka (1980), Feldstein (1983), Obstfeld (1986c, 1989), Frankel (1991) and Tesar (1992). On the second, see Dooley and Isard (1980). On the third, see Claassen and Wyplosz (1982) and Giavazzi and Pagano (1988).
4. On the former, see Obstfeld (1986a); on the latter, see Edwards (1989), Stockman and Hernandez and Van Wijnbergen (1989).
5. Indeed many authors (for example Rogoff (1985)) stressed that capital controls were the reason behind the sustainability of the system. In the wake of the decision to dismantle all remaining foreign exchange restrictions in several EEC countries, the issue of sustainability of the ERM of the EMS after the abolition of capital controls was widely debated: see for example the May 1988 issue of *European Economy*.
6. See also his comments to Giovannini (1988). This is further discussed in the next section.
7. On the relation between reserve requirements and the inflation tax, see also Brock (1989).
8. Using an overlapping-generations framework, Sussman (1991) also suggests that capital controls (in the form of a tax on interest-bearing foreign assets, accompanied by a tax on domestic assets) reduce debt service and increase the demand for money.
9. This type of measure should be adopted by all countries to avoid capital flows to "tax haven" countries. Of course, this raises serious coordination problems.
10. Indeed, the recent turmoil in currency markets has renewed interest on the issue of capital controls. Tobin's proposal is mentioned in a recent article in "The Economist", discussing the pros and cons of capital controls ("The way we were", October 3, 1992, p. 65).
11. Giavazzi and Giovannini (1989) underline the asymmetry between strong- and weak-currency countries is evident: as long as the burden of adjustment falls on the weak-currency countries, the other countries are "isolated" from the effects of interest-rate variability. Giavazzi and Pagano (1990)

relate the likelihood of a "confidence crisis" to public debt management.

12. However, it is necessary to take into account the impact of imposing capital controls on the credibility of the policy itself. Suppose for example that the imposition of capital controls allows the government to pursue "inconsistent" policies for a while. Then private agents, if they do not fully know the government's intentions, may raise the probability that the government will indeed behave inconsistently, implying a worsening of credibility rather than an improvement. Lane and Rojas-Suarez (1992) analyze the impact of capital controls on the credibility of a commitment to keep the exchange rate within pre-specified bands.

13. However, a few countries (Switzerland, Japan and Germany in the seventies; Spain in the late eighties) used capital controls in order to limit capital inflows, rather than outflows, and were therefore trying to keep interest rates high.

14. Bruni et al. (1989) examine public debt and the revenue from financial repression in Italy, de Macedo and Sebastiao (1989) in Portugal.

15. On the other side, capital flight may be induced by expectations of future capital controls and capital levies.

16. See Section IV below.

17. The unavailability of data on political and institutional variables forced us to drop New Zealand and Switzerland from the sample.

18. The IMF defines capital controls as: "Restrictions (i.e., official actions directly affecting the availability or cost of exchange, or involving undue delay) on payments concerning resident-owned funds to member countries, other than restrictions imposed for security reasons under Executive Board Decision No. 114-(52/51), adopted August 14, 1952.

19. Giovannini and Park (1992) study the interaction between capital controls and international trade finance.

20. Interest and non interest bearing assets are affected by inflation in different ways. In particular, interest bearing assets are affected only by unexpected inflation, unless interest rates are prevented to adjust fully to expected inflation, perhaps through the use of capital controls.

21. This variable was constructed by Alesina and Roubini (1992).

22. Notice that the results of the probit analysis which we present later on do not depend on this classification. The analysis was also conducted eliminating dictatorship periods from the sample: this did not affect the results.

23. The distinction between high vs low government durability and political stability is a simplistic one, based on the average value of DURA and STAB. Values below the mean are classified as low, and values above the mean are classified as high.

24. As for government durability and political stability, the distinction between high vs low independence is based on the average value of CBPN and CBEN. Values below the mean are classified as low, and value above the mean are classified as high.

25. Our discussant Marco Pagano suggested the use of more direct proxies for the magnitude of the inflation tax base, such as the number of bank branches scaled by population or data on required reserves. Data availability makes use of the first variable difficult; as for the second, the ability of countries to impose different reserve requirements depends itself on capital controls. In their absence, higher reserve requirements would hamper domestic banks on international markets. Drazen (1989) and Pagano (1989) further explore the relation between reserve requirements and the inflation tax.

26. We also tried to identify a possible link between capital controls and the growth rate through the effects of the former on savings, along the lines suggested by Marco Pagano (see section III, point c). The results (not reported) showed no relation between capital controls and the savings rate.

Table 1

Dependent Variable: Capital Controls					Dependent Variable: Capital Controls				
Estimation by Probit					Estimation by Logit				
Usable Observations 170					Usable Observations 170				
Cases Correct 144					Cases Correct 144				
Log Likelihood -60.74					Log Likelihood -60.81				
Average Likelihood 0.70					Average Likelihood 0.70				
Variable	Coeff	Std Error	T-Stat	Signif	Variable	Coeff	Std Error	T-Stat	Signif
Constant	5.48	1.10	5.01	0.00	Constant	9.35	1.96	4.77	0.00
MAJOR	1.88	0.33	5.61	0.00	MAJOR	3.30	0.64	5.13	0.00
STAB	0.01	0.01	0.78	0.44	STAB	0.02	0.02	1.06	0.29
DURA	0.14	0.23	0.62	0.54	DURA	0.30	0.43	0.71	0.48
RADM	0.02	0.14	0.13	0.90	RADM	0.04	0.26	0.17	0.87
CBEN	-0.48	0.16	-2.98	0.00	CBEN	-0.93	0.32	-2.86	0.00
CBPN	-0.28	0.14	-1.94	0.05	CBPN	-0.52	0.27	-1.93	0.05
EXR	0.92	0.34	2.69	0.01	EXR	1.65	0.62	2.64	0.01
AGRSER	1.42	0.38	3.79	0.00	AGRSER	2.29	0.67	3.43	0.00

Table 2

Dependent Variable: Capital Controls					Dependent Variable: Capital Controls				
Estimation by Probit					Estimation by Logit				
Usable Observation 375					Usable Observation 375				
Cases Correct 322					Cases Correct 322				
Log Likelihood -148.99					Log Likelihood -145.96				
Average Likelihood 0.67					Average Likelihood 0.67				
Variable	Coeff	Std Error	T-Stat	Signif	Variable	Coeff	Std Error	T-Stat	Signif
Constant	2.69	0.44	6.18	0.00	Constant	5.61	0.94	6.00	0.00
MAJOR	1.03	0.20	5.26	0.00	MAJOR	1.89	0.37	5.15	0.00
STAB	0.03	0.01	3.47	0.00	STAB	0.05	0.01	3.66	0.00
DURA	0.37	0.11	3.44	0.00	DURA	0.71	0.20	3.54	0.00
RADM	-0.05	0.09	-0.56	0.57	RADM	-0.15	0.15	-0.96	0.34
CBEN	-0.80	0.09	-8.53	0.00	CBEN	-1.60	0.21	-7.55	0.00
CBPN	-0.39	0.08	-5.12	0.00	CBPN	-0.72	0.15	-4.87	0.00
EXR	1.58	0.25	6.35	0.00	EXR	2.91	0.50	5.86	0.00

Table 3

Dependent Variable: Capital Controls				Estimation by Logit				Estimation by Probit with random effects						
Estimation by Probit				Usable Observation				Usable Observation						
607				607				607						
516				516				516						
-213.26				-211.06				-211.06						
0.70				0.70				0.70						
Variable	Coeff	Std Error	T-Stat	Signif	Variable	Coeff	Std Error	T-Stat	Signif	Variable	Coeff	Std Error	T-Stat	Signif
Constant	2.66	0.31	8.68	0.00	Constant	5.08	0.61	8.29	0.00	Constant	1.18	0.11	10.96	0.00
MAJOR	0.66	0.16	4.05	0.00	MAJOR	1.23	0.30	4.12	0.00	MAJOR	0.11	0.03	3.65	0.00
STAB	0.03	0.01	4.10	0.00	STAB	0.05	0.01	4.17	0.00	STAB	0.01	0.00	2.01	0.04
DURA	0.16	0.07	2.26	0.02	DURA	0.30	0.13	2.33	0.02	DURA	0.03	0.04	0.84	0.40
CBEN	-0.67	0.06	-10.97	0.00	CBEN	-1.30	0.13	-9.95	0.00	CBEN	-0.14	0.02	-5.52	0.00
CBPN	-0.24	0.05	-5.02	0.00	CBPN	-0.39	0.09	-4.28	0.00	CBPN	-0.06	0.02	-2.55	0.01
EXR	1.32	0.19	6.92	0.00	EXR	2.40	0.37	6.56	0.00	EXR	0.17	0.03	5.44	0.00

Table 4

Dependent Variable: GROSS DEBT (% of GDP)				
Least squares, White consistent estimate				
of standard errors				
Usable Observations 324				
Adjusted R ² 0.17				
Variable	Coeff	Std Error	T-Stat	Signif
Constant	0.67	0.05	13.94	0.00
CONTROLS	-0.11	0.03	-3.25	0.00
MAJOR	-0.11	0.02	-4.67	0.00
STAB	-0.01	0.00	-5.85	0.00
DURA	-0.01	0.01	-1.06	0.29

Table 5

Dependent Variable: INFLATION RATE					
Least squares, White consistent estimate of standard errors					
Usable Observations		597			
Adjusted R^2		0.28			
Variable	Coeff	Std Error	T-Stat	Signif	
Constant	0.132	0.011	11.751	0.000	
CONTROLS	0.028	0.005	5.641	0.000	
MAJOR	-0.012	0.004	-2.635	0.008	
STAB	-0.001	0.000	-2.872	0.004	
DURA	-0.003	0.002	-1.593	0.111	
CBEN	-0.003	0.002	-2.037	0.042	
CBPN	-0.002	0.001	-1.373	0.170	
EXR	-0.059	0.005	-11.120	0.000	
Dependent Variable: INFLATION TAX (% of Total Revenues)					
Least squares, White consistent estimate of standard errors					
Usable Observations		506			
Adjusted R^2		0.31			
Variable	Coeff	Std Error	T-Stat	Signif	
Constant	0.109	0.011	9.997	0.000	
CONTROLS	0.007	0.003	2.034	0.042	
MAJOR	-0.003	0.004	-0.867	0.386	
STAB	0.0003	0.000	2.224	0.026	
DURA	-0.003	0.002	-1.853	0.064	
CBEN	-0.009	0.001	-6.844	0.000	
CBPN	-0.002	0.001	-2.569	0.010	
EXR	-0.030	0.005	-5.842	0.000	
Dependent Variable: INFLATION TAX (% of GDP)					
Least squares, White consistent estimate of standard errors					
Usable Observations		506			
Adjusted R^2		0.31			
Variable	Coeff	Std Error	T-Stat	Signif	
Constant	0.0291	0.0032	9.0017	0.0000	
CONTROLS	0.0027	0.0013	2.1120	0.0347	
MAJOR	-0.0003	0.0014	-0.2323	0.8163	
STAB	0.0001	0.0000	1.9626	0.0497	
DURA	-0.0017	0.0006	-2.7967	0.0052	
CBEN	-0.0027	0.0004	-6.7046	0.0000	
CBPN	0.0001	0.0003	0.3555	0.7223	
EXR	-0.0054	0.0017	-3.1837	0.0015	

Table 6

Dependent Variable: REAL INTEREST RATE				
Least squares, White consistent estimate of standard errors				
Usable Observations		523		
Adjusted R ²		0.12		
Variable	Coeff	Std Error	T-Stat	Signif
Constant	0.02	0.01	3.12	0.00
CONTROLS	-0.02	0.003	-6.86	0.00
MAJOR	-0.01	0.003	-2.09	0.04
STAB	0.0003	0.0001	2.12	0.03
DURA	0.0013	0.0014	0.92	0.36
EXR	0.02	0.00	3.82	0.00

Dependent Variable: REAL INTEREST RATE				
Least squares, White consistent estimate of standard errors				
Usable Observations		295		
Adjusted R ²		0.21		
Variable	Coeff	Std Error	T-Stat	Signif
Constant	-0.001	0.009	-0.071	0.944
CONTROLS	-0.014	0.004	-3.252	0.001
MAJOR	-0.0178	0.0047	-3.751	0.000
STAB	0.0003	0.0001	2.101	0.038
DURA	0.005	0.002	2.521	0.012
EXR	0.016	0.004	3.679	0.000
DEBT{1}	0.03	0.01	3.58	0.00

Table 7

Dependent Variable: REAL GDP GROWTH RATE					
Least squares, White consistent estimate of standard errors					
Usable Observations		583			
Adjusted R ²		0.06			
Variable	Coeff	Std Error	T-Stat	Signif	
Constant	0.021	0.008	2.746	0.006	
CONTROLS	0.009	0.004	2.200	0.028	
MAJOR	0.003	0.004	0.871	0.383	
STAB	0.001	0.0002	3.026	0.002	
DURA	-0.001	0.002	-0.483	0.629	
EXR	0.016	0.005	3.506	0.000	

Dependent Variable: REAL PER CAPITA GDP GROWTH RATE					
Least squares, White consistent estimate of standard errors					
Usable Observations		549			
Adjusted R ²		0.11			
Variable	Coeff	Std Error	T-Stat	Signif	
Constant	0.024	0.005	4.459	0.000	
CONTROLS	0.004	0.003	1.246	0.213	
MAJOR	0.008	0.003	2.838	0.005	
STAB	0.001	0.000	4.510	0.000	
DURA	-0.005	0.001	-4.421	0.000	
EXR	0.012	0.004	3.107	0.002	

Dependent Variable: REAL PER CAPITA GDP GROWTH RATE					
Least squares, White consistent estimate of standard errors					
Usable Observations		549			
Adjusted R ²		0.12			
Variable	Coeff	Std Error	T-Stat	Signif	
Constant	0.092	0.033	2.785	0.005	
CONTROLS	0.001	0.003	0.469	0.639	
MAJOR	0.007	0.003	2.150	0.032	
STAB	0.000	0.000	2.984	0.003	
DURA	-0.002	0.002	-1.308	0.191	
EXR	0.014	0.004	3.534	0.000	
RGDPP0	-0.009	0.004	-2.147	0.032	

Figure 1 Capital Controls and Institutions

Exchange Rate Regime

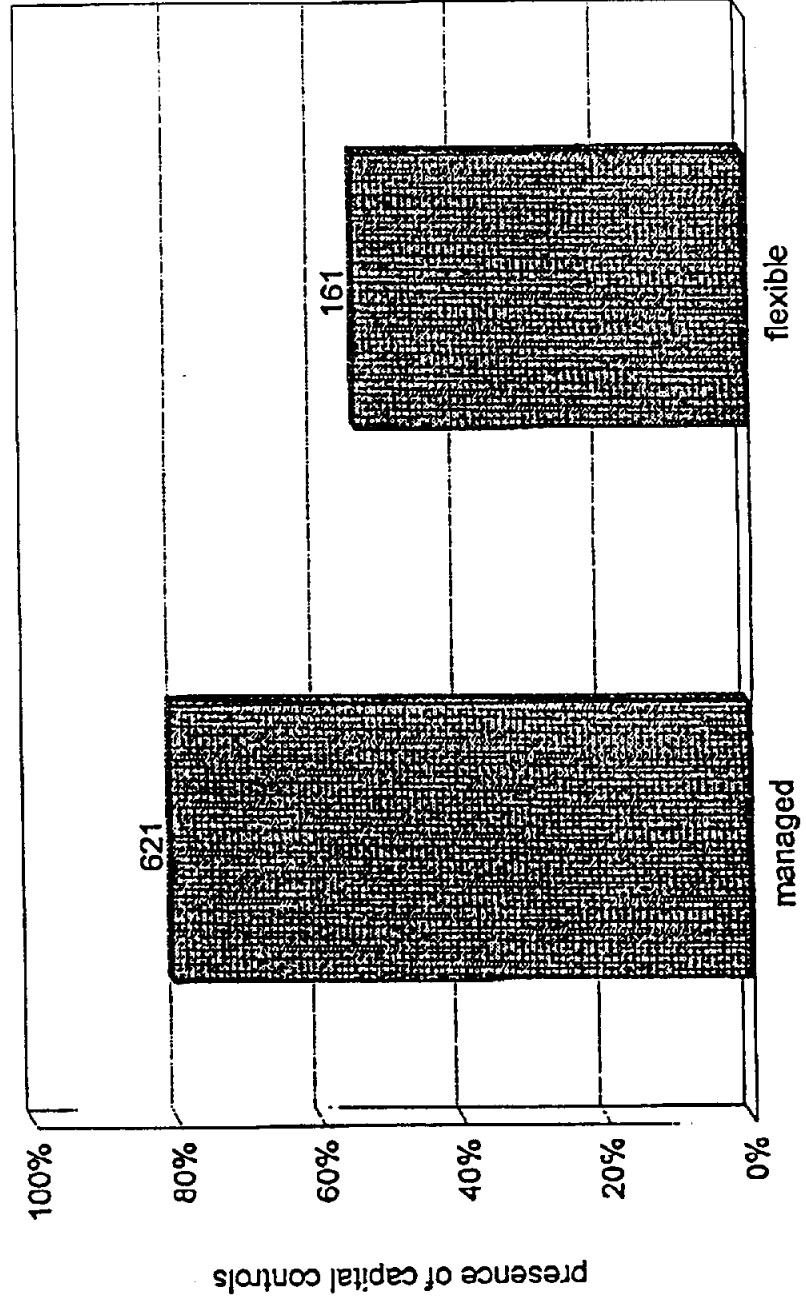


Figure 2
Capital Controls and Institutions
Type of Government

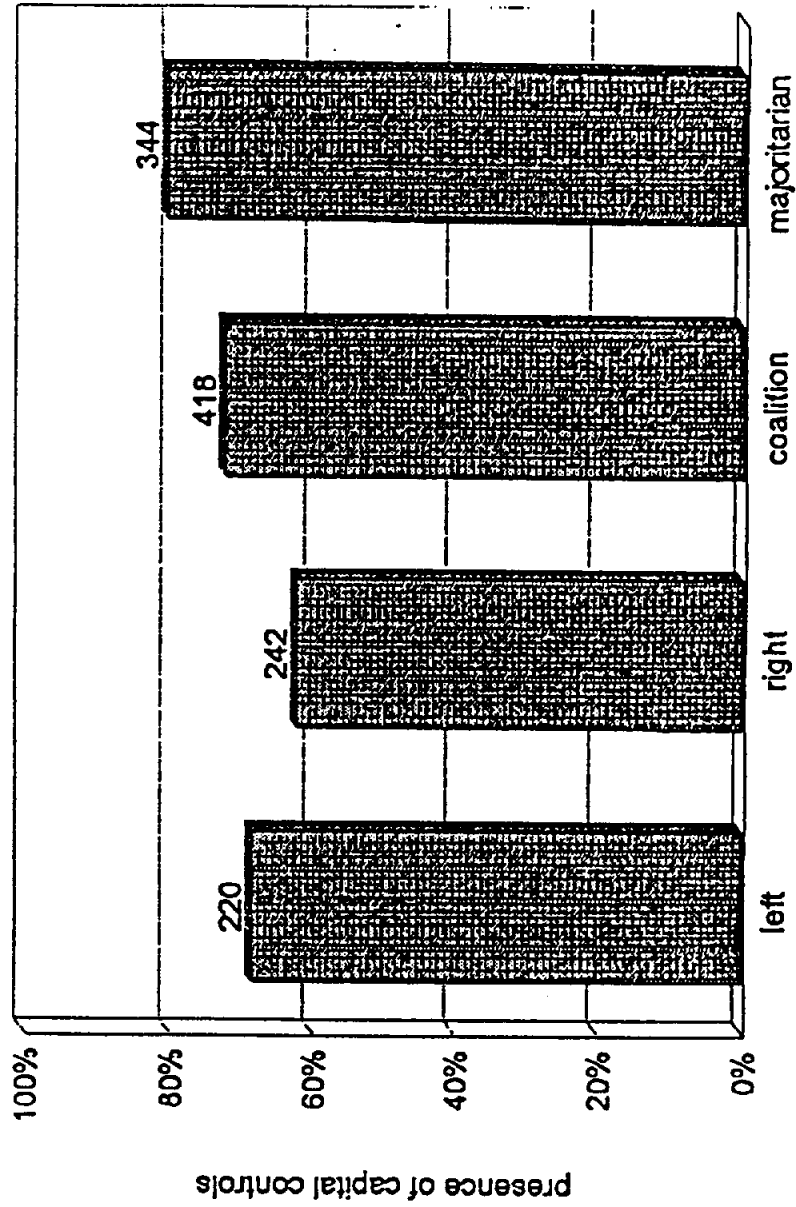


Figure 3
Capital Controls and Institutions
Government Durability

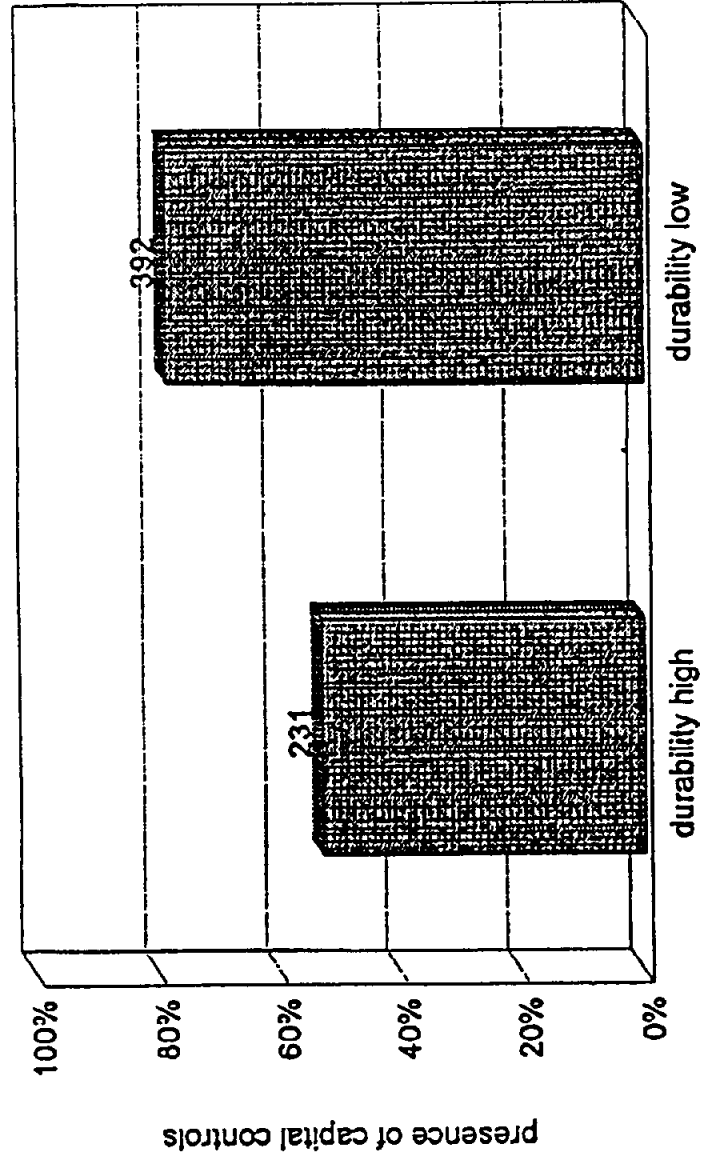


Figure 4
Capital Controls and Institutions
Central Bank Independence

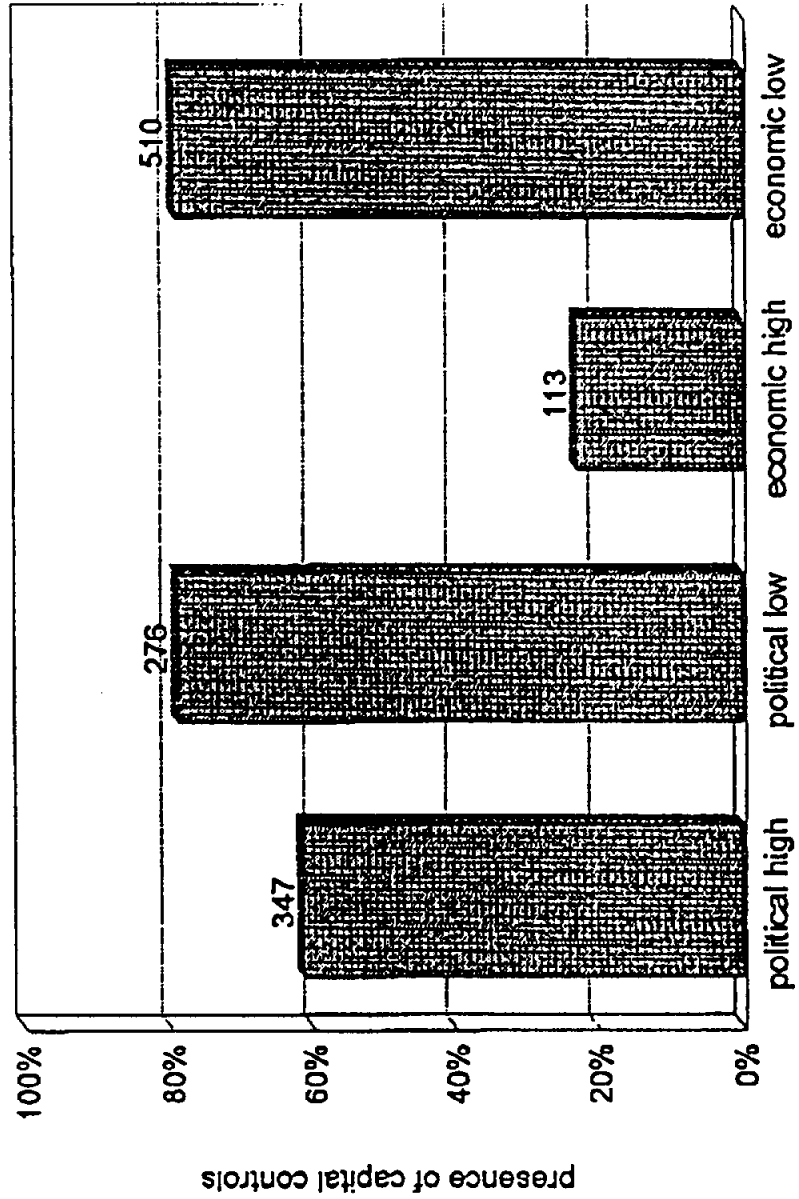


Figure 5
 Capital Controls & Central Bank

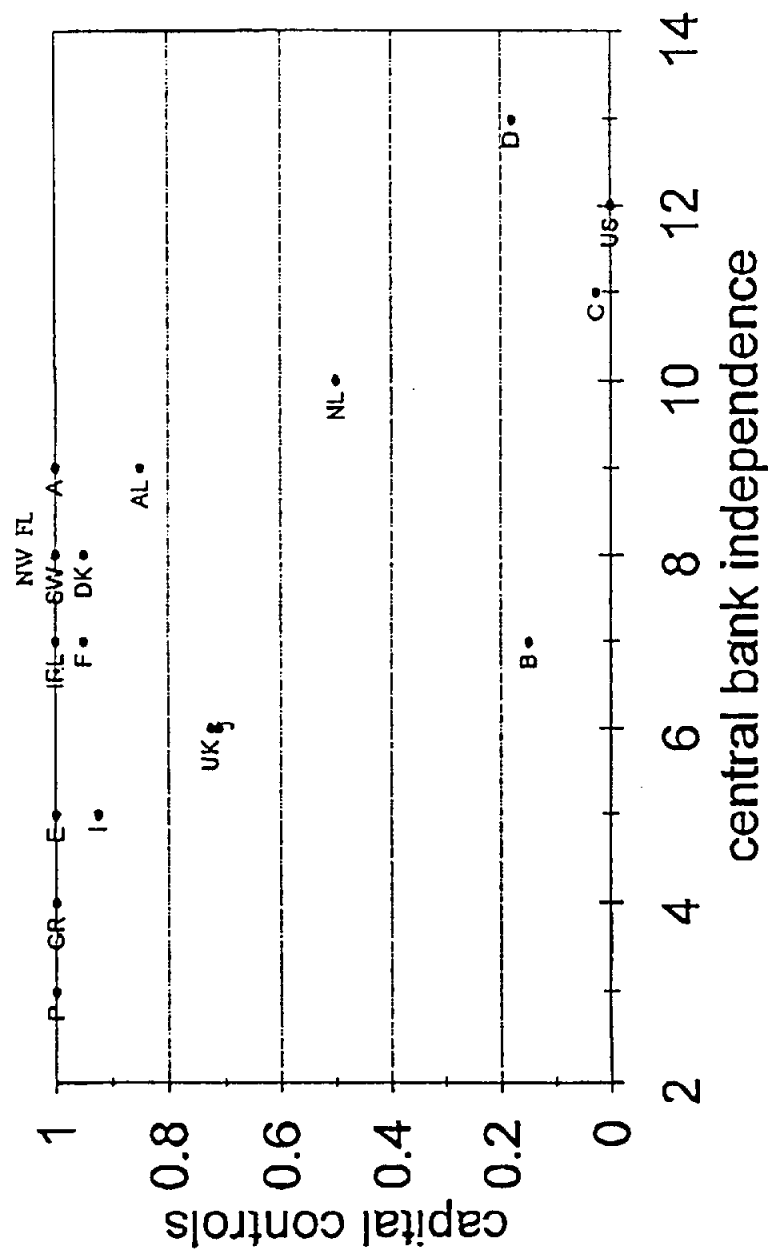


Figure 6
Capital Controls and Institutions
Importance of Agriculture vs Services

