POLITICAL INSTABILITY, POLITICAL WEAKNESS AND INFLATION:
AN EMPIRICAL ANALYSIS

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ABSTRACT

In this paper we analyze empirically the most important
implications of two family political economy models of inflation:
the "myopic" government approach and the "weak" government
approach. In myopic government models inflation is the
deliberate outcome of politicians strategic behavior, while in
weak government models inflation is the unavoidable result of a
political struggle between different factions. In testing the
implications of these two models we use a new data set on
political developments in 76 countries for the period 1971-1982.
Using a number of alternative definitions of the inflation tax we
find out that the data supports the implications of the myopic
governments models; countries with a more unstable political
environment tend to rely more heavily on the inflation tax.
There is no evidence in favor of the weak government hypothesis.

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I. Introduction

In recent years there has been an increasing interest in analyzing the effects of political incentive constraints on macroeconomic policy. More and more economists are now using elements of public choice and game theory in an effort to better understand why some countries, at some specific moments in time, chose specific macroeconomic policies. This new research program on endogenous economic policy addresses questions such as: why do some countries rely more heavily on the inflation tax than others; why are fiscal deficits so different across countries; why do different countries choose different exchange rate policies, and so on. The answers emphasize the role of government's strategic behavior, and of institutions that determine policymaking.[1]

In spite of this mounting interest in the political economy of macroeconomic policy, until now there has been relatively little empirical work on the subject.[2] The purpose of this paper is to present the results of a comparative cross country empirical analysis of the political deter-minants of the inflation tax. Our analysis differs from previous work in three respects: First, we use a new data set on cross country political events and political institutions. An advantage of using these new data is that they are free from some of the more serious limitations encountered in other data sets which have been previously used by political scientists and

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[1]See, for example, Alesina (1988, 1989), Cukierman and Metzler (1986), Tabellini (1989), and Persson and Tabellini (1990).

[2]Some exceptions are Alesina and Sachs (1988), Tabellini (1990), Cukierman, Edwards and Tabellini (1990), Edwards and Tabellini (1991), Roubini and Sachs (1988, 1989) and Grilli, Masciendaro and Tabellini (1990).

economists (including ourselves).[3] Second, in this paper we use alternative
definitions of the inflation tax and of seignorage in an effort to check for
the robustness of the results. And third, we try to discriminate empirical-
ly between two alternative families of models that emphasize political
explanations of inflation: models based on political instability and
government "myopia", and models of decentralized policymaking that focus on
the relative weakness (or strength) of the government in office.

The paper is organized as follows: in Section II we briefly discuss
the emerging theoretical literature on the political economy of inflation.
In doing this we make a distinction between models based on political
instability and models based on political weakness. We argue that there are
some rather simple ways of empirically discriminating between these two
views regarding the inflation tax. Section III deals with empirical re-
sults. We first describe our new data set on the political characteristics
of 78 countries between 1971 and 1982. Next, we present a set of regression
results that provide ample support to the view that political instability
encourages governments to rely on the inflation tax as a source of revenue.
The results, however, do not provide such a strong support to the political
weakness hypothesis. In this section we also present a sensitivity analysis
that shows that our results are highly robust. In Section IV we extend our
analysis to the case of trade taxes, analyzing whether political variables
affect the degree to which countries rely on this source of government
revenues. Section V presents some concluding remarks.

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[3]The most widely used data set has been assembled by Taylor and Jodice
(1983).

II. Inflation Tax, Political Instability and Government Weakness

The inflation tax is a very distorting source of government income, particularly at the rates observed in many developing countries. Presumably the governments that rely on it extensively do not have alternative sources of revenue. This suggests that the analysis of the inflation tax should go hand-in-hand with the analysis of tax reforms. To explain why some countries collect so much revenue from the inflation tax, we should explain why they do not enact tax reforms that improve the efficiency of the tax system.

A recent body of research has emphasized the existence of political constraints in analyzing why some countries fail to enact Pareto-improving tax reforms. Two different (but complementary) explanations have been proposed. One view, articulated in Cukierman, Edwards and Tabellini (1990), argues that the policymaker deliberately chooses not to improve the efficiency of the tax system, because in a politically unstable environment it does not expect to reap the benefits of a more efficient tax system in the future. The reason for this, of course, is that the government in office is uncertain about its future reappointment. The second view, proposed in several different papers (by Alesina and Drazen (1989), Aizenman (1990), Sanguinetti (1991) among others), argues instead that inefficient tax systems are maintained because the government cannot change the status quo, in the sense that it cannot find a consensus in favor of any tax reform. According to this second view, the inability to make a collective decision forces the government to rely on residual sources of revenue, such as seignorage or borrowing. We now briefly summarize these two approaches to the positive theory of the inflation tax.

II.1 <u>Tax Reform and Political Instability</u>

Following Cukierman, Edwards and Tabellini (1990), consider an economy described by two simple equations: the budget constraint of the government (eq. (1)) and of the private sector (eq. (2)).

$$g_t + f_t \le r_t(1-\theta_{t-1}) + s_t \tag{1}$$

$$c_t \le 1 - r_t - s_t - \delta(r_t) - \gamma(s_t) \tag{2}$$

Subscripts denote time periods. Each individual is endowed with one unit of output in each period. g_t and f_t are two different public goods in per capita terms and c_t is private consumption, also per capita. The government collects from each individual an amount s_t in the form of "seignorage", and an amount r_t of tax revenue. The main difference between taxes and seignorage is that a fraction θ_{t-1} of the tax revenue is wasted due to tax collection costs, whereas seignorage carries no administrative costs. Both taxes and seignorage impose deadweight losses on the private sector, equal to $\delta(r_t)$ and $\gamma(s_t)$ respectively. These distortions increase at an increasing rate. Thus:

$$\delta'(\cdot) > 0, \quad \delta''(\cdot) > 0$$

$$\gamma'(\cdot) > 0, \quad \gamma''(\cdot) > 0$$

Here, θ_{t-1} is a rough measure of the <u>efficiency</u> of the tax system. A lower value of θ implies a more efficient tax system in the sense of lower administrative costs. Thus, in this simple model, a tax reform amounts to a choice of θ, whereas a fiscal policy is a choice of g, f, r and s. To capture the greater inertia in reforming the tax system than in changing fiscal policy, we assume that θ, but not the other policy variables, must be chosen one period in advance. Thus, θ_t is chosen at time t but exerts an influence on tax collection costs only at time $t+1$ (cf., eq. (1)).

There are two possible policymaker types, L and R, who randomly alternate in office. The policymaker of type i, i = L,R maximizes:

$$W_t^i = E_t \left(\sum_{k=0}^{\infty} \beta^k [U(c_{t+k}) + H^i(g_{t+k}, f_{t+k})] \right), \quad 1 > \beta > 0 \qquad (3)$$

where $E_t(\cdot)$ denotes the expectation operator, $U(\cdot)$ is a concave and twice continuously differentiable utility functions, and $H^i(\cdot)$ is defined as follows. If i = L:

$$H^L(g,f) = \frac{1}{\alpha(1-\alpha)} \text{Min}[\alpha g, (1-\alpha)f], \quad 1 > \alpha > 0 \qquad (3')$$

and if i = R, then $H^R(\cdot)$ is defined as in (3'), but with α replaced by $(1-\alpha)$. Thus, these two policymakers differ only in the desired composition of the public good. For simplicity, their disagreement is parameterized by α. The more distant is α from 1/2, the more they disagree. By construction, the overall weight given to private versus public consumption does not depend on α.

The political system is described as a Markov process with transition probabilities π and $(1-\pi)$: the government in office at time t has a fixed probability $(1-\pi)$ of being reappointed next period. With probability π, it is thrown out of office and the other policymaker type is appointed. Cukierman, Edwards and Tabellini (1990) show that this model yields two important results. First, a more inefficient tax system (a higher value of θ) forces the government to rely more heavily on seignorage. Second, a more unstable political system (a higher value of π) induces the government to accept a more inefficient tax apparatus. Combining both results, we obtain that in equilibrium, political instability is associated with more seignorage. Intuitively, an inefficient tax system (i.e., one that facilitates tax evasion and imposes high tax collection

costs) acts as a constraint on the revenue collecting policies of the government. This constraint may be welcome by those who disagree with the goals pursued by the current government. In particular a government (or legislative majority) may deliberately choose to maintain (or create) an inefficient tax system, so as to constrain the behavior of future governments with which it might disagree.

Hence, political instability gives rise to a "collective myopia". The more unstable is the political system, the more important is this strategic determinant of tax reforms, the more inefficient is the equilibrium mix of government revenues, and the higher is the reliance on the inflation tax.

II.2 Decentralized Government and Inflation

An alternative view of why government prolong inefficient and unsustainable economic policies posits that the policymaker is not a single decisionmaker (like a President or a pivotal voter in the legislature), but rather a collection of decisionmakers that behave non-cooperatively and that control some dimensions of policymaking, such as different ministries, different public corporations or different states in a federation.

In this setting, policy is the outcome of a game between different policymakers. The game can be modelled in alternative ways: Like a "war of attrition", as in Alesina and Drazen (1989) or Drazen and Grilli (1990); or like a "tax competition" between different taxing authorities, as in Aizenman (1990); or yet like a federation of taxing and spending authorities, as in Sanguinetti (1991). In any event, the equilibrium policy is inefficient and typically relies on "too much" seignorage as a source of government revenue. Moreover, the inefficiency is generally stronger the more conflict and polarization there is among the different policymakers, and the weaker is the central government authority. The empirical

implication obtained by this line of research is that seignorage should be higher in countries in which the central government is weaker or in which the various functions of governments are dispersed across different political interests.

To summarize, the key difference between the two families of political economy models discussed here is distinction between the unwillingness to reform the tax system and the inability of doing so. In the first class of models the inflation tax is the result of a strategic decision of the government in office; in the second class of models on the other hand the inflation tax is the outcome of a power struggle within the government. This difference between unwillingness and inability to move away from the use of the inflation tax as a source of revenue can be exploited in the empirical analysis to distinguish between these two alternative political economy models. According to the myopic government model, in a cross country regression analysis we would expect to see a positive relationship between instability of the political system and seignorage. On the other hand, the weak government model suggests that measures of government weakness and seignorage should be positively related.

III. Empirical Results

In this section we present the results from a set of cross country regressions on the determinants of the inflation tax and seignorage. A specific purpose of this empirical analysis is to discriminate between the political instability (or government myopia) and the government weakness approaches to the political economy of the inflation tax, that were discussed in the preceding section.

Our basic regression equation is the following:

$$INRE_n = \beta X_n + \gamma y_n + \delta z_n + u_n, \qquad (1)$$

where $INRE_n$ is the inflation tax (or seignorage) revenue as percentage of GDP (or total government revenues) in country n; X_n is a vector of structural variables that capture the countries degree of development and geographical location and other important features of their economies; y_n is an indicator of political instability defined as the perceived probability of government change; z_n is an indicator (or indicators) of political weakness of the government in office; u_n is an error term; and β, γ and δ are parameters of interest. Under the government myopia approach to public behavior we would expect that the coefficient of political instability (γ) will be positive; under the decentralized approach that emphasizes the relative weakness of the government we would expect both γ and δ to be significantly positive.

III.1 <u>Data</u>

<u>Seignorage and Inflation Tax</u>: Our data set covers a cross section of 76 countries (the list is in the Appendix). Two (related) dependent variables were used in the analysis. The first one corresponds closely to the concept of seignorage and was defined as follows:

$$SEIG = \frac{\Delta B}{GOVREV};$$

where ΔB is the yearly change in monetary base and GOVREV is total government revenue (inclusive of ΔB) for that particular year. In the cross country regressions the average of SEIG for the period 1971-82 was used. The specific data sources are given in the Appendix.

The second dependent variable corresponds to the steady state value of the inflation tax and was defined as:

$$INFTAX_t = \frac{\pi_t m_{t-1}}{y_t};$$

where π is the rate of inflation in year t, m_{t-1} is the real stock of money (M1) is $t-1$ and y is real GDP in $t-1$. The data sources are in the Appendix.

Structural Variables: As suggested by a number of authors, we assume that the costs of administering a tax system affect the degree to which countries rely on the inflation tax:[4] the higher these costs, the higher the reliance on the inflation tax. More specifically we follow Cukierman, Edwards and Tabellini (1990) in assuming that these administrative costs are captured by a set of structural variables. These variables fall into three categories: (1) the sectoral composition of gross domestic product, to account for differences in administering tax collection across sectors. We expect the agricultural sector to be the hardest to tax, and thus to have a positive coefficient in the regressions. The mining and manufacturing sector are assumed to be the easiest to tax, and thus to have a negative coefficient. We also include the ratio of foreign trade to GNP, since in many developing countries imports and exports are a cheap tax base; hence its coefficient too is expected to be negative. (2) Two measures of economic development: GDP per capita, and a dummy variable taking a value of 1 for the industrialized countries and 0 otherwise. We expect both variables to have a negative coefficient, since the technology for enforcing tax collection is likely to be more inefficient in less developed countries. (3) A measure of urbanization. Since tax collection costs are likely to be smaller in urban areas than in rural areas; we expect a negative coefficient.

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[4]See Cukierman, Edwards and Tabellini (1991) and the references therein.

Political Instability: We use two measures of political instability.
The first, which we call INST, is the actual frequency of transfers of
power in the period 1971-82. This index measures the instability of the
political system by capturing changes in the political leadership from the
governing party (or group, in the case of non-democratic regimes) to an
opposition party. In constructing this index we define transfer of power as
a situation where there is a break in the governing political party (or
dictator's) control of the executive power. More specifically, under a
presidential system a transfer of power would occur if a new government
headed by a party previously in the opposition takes over the executive.
Under a parliamentarian regime, a transfer of power is recorded when a new
government headed by a party previously in the opposition takes over, or
when there are major changes in the coalition that result in the leading
party moving to the opposition. However, minor changes in the government
party coalition are not recorded, nor are changes of head of government if
the coalition remains basically unaltered, even if the new prime minister
belongs to a party different from that of the outgoing prime minister.
Finally, in the case of single party systems, dictatorships or monarchies, a
transfer of power only takes place if there are forced changes in the head
of state. Appointments of a successor by an outgoing dictator (as in Brazil
during the 1970s) are not recorded as transfers of power.

This measure of political instability differs from indexes used by other
researchers in an important respect. Most previous empirical work was based
on measures of instability of the government as defined in Taylor and Jodice
(1983). Under their definition a government transfer corresponds to any
change in the head of state, independently on whether it is a change within
the same political party, or whether the opposition took over the government.

These two alternative measures of instability are very different from each other. For instance, Japan and Italy have very unstable governments, but yet they have very stable political systems. For the whole sample of countries, the simple correlation coefficient between our indicator of political instability and the frequency of government changes obtained from the Taylor and Jodice (1983) data is only 0.4.

The second measure of instability used is the estimated probability of power transfer (INSTEST) obtained from a probit regression on pooled cross country time series data. In this probit analysis the dependent variable takes a value of 1 when there is a power transfer (as defined above) and a value of 0 otherwise. The independent variables in the probit model fall in three broad classes: economic variables, designed to measure the recent economic performance of the government; political variables, accounting for significant political events that may signal the imminence of a crisis; and structural variables, accounting for institutional differences and country specific factors that do not change, or that change only slowly over time. These structural variables consist of three dummy variables that group countries in three categories, according to their political institutions: (a) democracies; (b) democracies in which the election date is determined by the constitution; and (c) democracies ruled by a single majoritarian party. Even though these three groups are too broad to account for the variety of existing political institutions, at least they discriminate between very different constitutional environments. The results obtained from these probit estimates are available upon request.[5] The Appendix contains the data for all the political variables used in this paper.

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[5]See Cukierman, Edwards, Tabellini (1990) for very similar probits computed using the Taylor and Jodice government transfer variables.

Our two indicators of political instability INST and INSTEST move closely together; they have a simple coefficient of correlation of 0.988.

Political Weakness: Three indicators were used as proxies of the extent of weakness of the government in office. The first one refers to whether the party or coalition of parties in office have the absolute major- ity of seats in the lower house of parliament. This indicator, called MAJ, takes in any given year a value of zero if the party (coalition) does not have majority; it takes a value of 1 if it has majority; and takes a value of 2 if the system is a dictatorship. A higher value of MAJ, then, reflects a stronger government. In the cross country regressions the average of MAJ over the period 1970-81 was used.

The second indicator of political weakness that we used is the number of political parties in the governing coalition (NPC). This index takes a value of zero for monarchical or dictatorial systems, and the number of parties in the coalition in democratic regimes. (That is, if there is a single party government NPC will take the value of one.) It is expected that the higher the number of parties in the coalition, the higher the probability of conflict of interest across ministries and, thus, the higher the reliance on the inflation tax.

The third indicator of government weakness is whether the government is a coalition government or a single party government (COAL). This index takes a value of zero for dictatorships, a value of one for single party governments and a value of two for coalition governments. To the extent that coalition governments are more likely to be subject to disagreements within the different ministries and government branches, it is expected that under the "weakness hypothesis" a higher value of COAL will be associated with higher values of SEIG or INFTAX.

III.2 <u>Basic Results</u>

Tables 1 and 2 contain the results obtained when OLS were used to estimate cross country equations on INFTAX and SEIG. As can be seen the overall results provide broad support for the political instability hypothesis. In every equation the coefficient of the political instability indicators (POLINST or POLINSTEST) is positive, as expected, and significant at conventional levels. These regressions, however, do not support the "political weakness" explanation of the inflation tax. After controlling for other variables, including political instability, the data do not support the hypothesis that countries with weaker governments (on average) tend to rely more heavily on the inflation tax. This result doesn't seem to be a consequence of the choice of the weakness indicators: in fact, independently of the index used the coefficients are in most cases insignificant. Moreover, in the one case where it is significant (eq. 10), it has the wrong sign.[6] Additionally, when our indicators of political weakness are included jointly in a regression, the results reported in Tables 1 and 2 still hold: the instability indices are significant, while the indicators of political weakness have the wrong sign and/or are not significant.

Regarding the structural variables, most coefficients have the expected signs and are significant. An interesting exception to this, however, refers to URBAVE. In every equation its estimated coefficient has a positive sign. A possible explanation is that this variable is capturing some political features of the countries in the sample, such as the degree of political polarization and political conflict. In fact, a number of

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[6] These results coincide with those obtained by Grilli, Mascianderno and Tabellini (1990) for a data set of 180 OECD countries only. Their regressions, however, are limited to political variables, and use one index of "weakness" only.

political scientists have for a long time argued that the degree of political clashes and conflicts increase with the degree of urbanization.[7]

The fact that the coefficients of POLINST and POLINSTEST are significantly positive says little regarding the relative importance of the political variables in explaining inflation tax and seignorage. The computation of standardized beta coefficients indicates, however, that these political variables played a quantitatively important role in accounting for cross country differentials SEIG and INFTAX. For example, in eq. (4) the beta corresponding to POLINSTEST is the second highest (in absolute terms) and is equal to 0.24; the highest beta corresponds to the urbanization variable and is equal to 0.29.

It is interesting to compare our results with those obtained when the popular (and in our opinion less desirable) indicator of instability based on the Taylor and Jodice (1983) data set is used. For instance, the following result was obtained when eq. (4) was reestimated using the observed frequency of government transfer (FRETRAN):

$$
\begin{aligned}
\text{INFTAX} = \ & 0.102 \quad - \quad 0.215 \ \text{E-2 Manufacturing} \ - \quad 0.091 \ \text{Foreign Trade} \\
& (1.945) \quad (-1.559) \qquad\qquad\qquad\qquad (-0.864) \\[4pt]
& - \quad 0.363 \ \text{E-5 GDP per capita} \ + \ 0.112 \ \text{E-2 Urbanization} \\
& \quad (-0.680) \qquad\qquad\qquad\qquad (1.658) \\[4pt]
& - \quad 0.081 \ \text{Industrialized} \ + \ 0.084 \ \text{FRETRAN} \ + \ 0.390 \ \text{MAJ} \quad R^2 = .274 \\
& \quad (-1.671) \qquad\qquad\qquad (1.998) \qquad\quad (1.522)
\end{aligned}
$$

As can be seen, although the coefficient of political instability is smaller and is estimated with less precision, the overall results are still broadly supportive of the political economy approach to explaining cross country differentials in inflation tax.

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[7] See, for example, Huntington (1968).

As we pointed out above, while our new INST and INSTEST indicators capture the degree of instability of the political system, the Taylor-Jodice index is a measure of government instability. This suggests that including both indices jointly in an inflation tax regression could help us distinguish between the two political economy models of Section II. When this was done the following result was obtained:

$$INFTAX = 0.137 - 0.200 \text{ E-2 Manufacturing} - 0.092 \text{ Foreign Trade}$$
$$(3.793) \quad (-1.423) \quad\quad\quad\quad (-2.944)$$

$$- 0.285 \text{ E-5 GDP per Capita} + 0.110 \text{ E-2 Urbanization}$$
$$(-0.546) \quad\quad\quad\quad\quad (1.619)$$

$$- 0.112 \text{ Industrialized} + 0.167 \text{ INST} + 0.057 \text{ FRETRAN} \quad N = 76$$
$$(-2.736) \quad\quad\quad (2.009) \quad\quad (1.308) \quad\quad\quad R^2 = 0.291$$

The fact that our new index of instability of the political system is significant, while FRETRAN is not, provides additional support to the myopic government model of inflation tax.

III.3 Sensitivity Analysis

A possible limitation of the results reported in Tables 1 and 2 refers to the potential endogeneity of the political instability variables. We deal with this issue by estimating a set of instrumental variable regressions. We used as instruments the 1950-70 averages for the following political variables: regular executive transfers, frequency of successful coups, a majority government dummy, and the frequency of unsuccessful coups and executive adjustments.

Table 3 contains a summary of the results obtained from a set of IV regressions. As can be seen, the conclusions obtained in Tables 1 and 2 are strengthened: the coefficients of the political instability indexes are still positive and are estimated with (slightly) greater precision. Also, the coefficients of the weakness proxies are still insignificant.

In order to analyze the possible role of outliers in the results reported above, an influence analysis based on Cook's distance measure was undertaken. This shows the presence of two outliers: Ghana and Uganda. When these outliers were excluded from the sample, the results were not affected significantly. Also, when the estimates were corrected for hetero-skedasticity the most important conclusions obtained above were maintained.

Summarizing, the results reported in this section provide broad support to the political economy approach to inflation. They indicate that political variables are important for explaining cross country differentials on the use of the inflation tax to finance government expenditures. More specifically, these results show that while political instability plays an important role in affecting government's reliance on seignorage, the (average) degree of weakness of government's in office does not affect the inflation tax. These results are robust to the definition of the political instability indicator, the political weakness index, the estimation procedure, outliers exclusion, heteroskedasticity correction and reversed causation.

IV. Distortive Taxes and Political Instability: Further Results

The model on the strategic use by a government of the characteristics of the tax system, which was presented in Section II.1, has implications that go beyond seignorage and the inflation tax. In fact, the main implication of that model is that in an unstable political system the government in office will not fully discount the future (i.e., it will be myopic) and, thus, it will rely on inefficient forms of taxation.

An interesting empirical extension of this type of model is that the use of other inefficient taxes, other than the inflation tax, should also be positively related to political instability. Once such type of taxes are

taxes on foreign trade. Thus, as in the case of seignorage, we would expect that after controlling for other structural variables, political instability and the reliance on taxes on foreign trade should be positively related in cross country data. In this section we test this. The dependent variable is the 1971-82 average ratio of trade taxes as a percentage of government revenues obtained from the IMF Government Financial Statistics. As in the previous section, structural and political variables are included as regressors. The results obtained from the OLS estimates were somewhat mixed: while the coefficients of INST and INSTEST were positive as expected, their t-statistics were rather low. The residuals from these OLS estimates, however, provided unmistakable evidence of heteroskedasticity. When these regressions on cross country trade taxes were reestimated using a more efficient weighted least squares method, the following result was obtained:[8]

$$\text{TRATAX} = \begin{array}{c} 0.053 \\ (0.521) \end{array} + \begin{array}{c} 0.004 \\ (2.600) \end{array} \text{Agriculture} + \begin{array}{c} 0.368 \\ (0.055) \end{array} \text{GDP Per Capita}$$

$$+ \begin{array}{c} 0.052 \\ (1.700) \end{array} \text{Foreign Trade} + \begin{array}{c} 0.169 \\ (0.171) \end{array} \text{E-3 Urbanization}$$

$$- \begin{array}{c} 0.112 \\ (-2.585) \end{array} \text{Industrialized} + \begin{array}{c} 0.164 \\ (2.229) \end{array} \text{INSTEST} \qquad \begin{array}{l} R^2 = 0.743 \\ N = 61 \end{array}$$

When the estimated instability index was replaced by the actual frequency of transfers of power INST, the results were not affected in any way: it was still the case that more unstable political systems were associated with a higher reliance on (inefficient) trade taxes. Interestingly enough, this was not the case when the variable on the frequency of

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[8]The average population for 1970-81 was used as a weight. A possible problem with this equation refers to the potential endogeneity of the foreign trade and instability variables. However, then this equation was re-estimated using instrumental variables, the results were basically unaffected.

executive transfers constructed from Taylor and Jodice was used.[9] For

example, when in the previous regression INSTEST was replaced by FRETRAN the

estimates coefficient turned out to be -0.008 with a t-statistic of -0.26.

An interesting and plausible explanation for these radically different

estimates is related to the different meanings of our instability measure

and the Taylor and Jodice base indicators. By focusing on transfers of

power from the ruling party to an opposition party, our new instability

indexes measure the degree of instability of the political system. On the

other hand, the frequency of executive adjustments indicator measures the

degree of instability of the government in office. It records every time

the head of state is replaced, independently if the new leader is from the

opposition party or the same party as the outgoing leader. In this regard

then, our indicators POLINST and POLINSTEST are more closely related to the

instability concept of the models in Section II, while the Taylor-Jodice

based index FRETRAN can be considered to be a proxy of political weakness.

Under this interpretation the results reported in this section provide

further support to the view that the degree of instability of the political

system is an important determinant of macroeconomic policy; we haven't found

evidence on the other hand, in favor of the political weakness approach.

V. Concluding Remarks

There are very large differences in the monetary and fiscal policies

implemented by different countries or in the same country at different

points in time. In this paper we have asked how can these differences be

explained? In the previous pages we argued that this is one of the central

questions to be addressed by the theory of economic policy, and we suggested

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[9]See Edwards and Tabellini (1991).

that an answer can be found by focusing on the incentive constraints faced by the policymakers. In particular, we emphasized various political constraints and incentives. The theoretical models reviewed and formulated in this paper offer at least two different hypotheses of how political instability and more generally political institutions influence the policy formation process. First, political instability determines the rate of time preference of society as a whole, and hence matters for any collective intertemporal decision. Second, political institutions and in particular the degree of political cohesion influences a society's capacity to make decisions and to change the status quo in the face of adverse economic circumstances. Weaker governments will be unable to implement politically costly adjustments and will, thus, resort to inefficient (but easy) sources of financing. Until now very little effort has been made to discriminate between these two hypotheses. This has been the purpose of this paper. The results obtained in this paper provide broad support to the myopic government hypothesis. We have found a significantly positive relationship between political instability, on the one hand, and seignorage, inflation tax and trade taxes on the other hand.

TABLE 1

Inflation Tax and Political Variables: OLS Estimates[*]

Dependent Variable: INFTAX

Explanatory Variables	All Countries				
	(1)	(2)	(3)	(4)	(5)
Intercept	0.134 (3.709)	-0.160 (-1.839)	0.136 (3.715)	0.076 (1.332)	-0.032 (-0.513)
Agriculture	-	0.514 E-2 (3.580)	-	-	0.343 E-2 (3.001)
Mining and Manufacturing	-0.120 E-3 (-0.873)	0.253 E-2 (1.047)	-0.112 E-2 (-0.877)	-0.900 E-3 (-0.711)	-
Foreign Trade	-0.087 (-2.724)	-0.052 (-1.698)	-0.086 (-2.640)	-0.083 (-2.617)	-0.062 (-1.973)
GDP Per Capita	-0.452 E-5 (-0.960)	-0.879 E-5 (-1.810)	-0.497 E-5 (-0.937)	-0.583 E-5 (-1.112)	-0.490 E-5 (-1.313)
Urbanization	0.986 E-3 (1.430)	0.275 E-2 (3.518)	0.103 E-2 (1.472)	0.116 E-2 (1.659)	0.220 (2.908)
Industrialized	-0.084) (-2.301)	-0.049 (-1.214)	-0.075 (-1.819)	-0.053 (-1.241)	-0.056 (-1.460)
INST	-	0.194 (2.647)	-	-	-
INSTEST	0.175 (2.246)	-	0.171 (2.183)	0.165 (2.117)	0.160 (2.134)
MAJ	-	-	-	0.036 (1.314)	-
COAL	-	-	-	-	-0.832 E-2 (-0.335)
NPC	-	-	-0.745 E-2 (-0.455)	-	-
R^2	0.260	0.387	0.262	0.279	0.351
N	76	76	76	76	76

[*]The numbers in parentheses ae t-statistics. R^2 is the coefficient of
correlation and N is the number of observations.

TABLE 2

Seignorage and Political Variables: OLS Estimates[*]

Dependent Variable: Seignorage (SEIG)

Explanatory Variables	All Countries				
	(6)	(7)	(8)	(9)	(10)
Intercept	0.105 (5.119)	-0.053 (-1.025)	0.109 (5.303)	0.070 (2.097)	0.031 (1.280)
Agriculture	-	0.003 (3.255)	-	0.001 (1.811)	-
Mining and	0.221 E-4 (0.330)	0.002 (2.340)	0.132 E-3 (0.198)	-	0.252 E-3 (0.932)
Foreign Trade	-0.057 (-3.153)	-0.041 (-2.290)	-0.055 (-3.027)	-0.047 (-2.587)	-0.054 (-3.140
GDP Per Capita	-0.675 E-5 (-2.291)	-0.930 E-5 (-3.243)	-0.757 E-5 (-2.535)	-0.612 E-5 (-2.470)	-0.841 E-5 (-2.919)
Urbanization	0.976 E-3 (2.134)	0.196 E-2 (4.442)	0.107 E-2 (2.881)	0.141 E-2 (3.520)	0.124 E-2 (3.400)
Industrialized	-0.064 (-3.101)	-0.041 (-1.929)	-0.049 (-2.147)	-0.045 (-2.011)	-0.031 (-1.308)
INST	-	0.087 (2.016)	-	-	-
INSTEST	0.094 (2.134)	-	0.089 (2.017)	0.745 (1.751)	0.083 (1.960)
MAJ	-	-	-	-	0.042 (2.771)
COAL	-	-	-	(-0.019) (-1.367)	-
NPC	-	-	-0.013 (-1.395)	-	-
R^2	0.366	0.445	0.383	0.421	0.429
N	78	78	78	78	78

[*]The numbers in parentheses are t-statistics. R^2 is the coefficient of correlation, and N is the number of observations.

TABLE 3

Inflation and Political Variables: Instrumental Variables Estimates

Dependent Variable:	(11) INTAX	(12) INTAX	(13) INTAX	(14) SEIG	(15) SEIG	(16) SEIG
Explanatory Variables:						
Intercept	-0.065 (-1.107)	-0.063 (-0.898)	0.112 (2.511)	0.085 (2.987)	0.024 (0.694)	0.004 (0.110)
Agriculture	0.339 E-2 (2.970)	0.347 (2.922)	-	-	-	0.928 E-3 (1.364)
Mining and Manufacturing	-	-	-0.104 E-2 (-0.798)	0.309 E-3 (0.424)	0.384 E-3 (0.555)	-
Foreign Trade	-0.054 (-1.651)	-0.058 (-1.780)	-0.081 (-2.430)	-0.051 (-2.581)	-0.506 (-2.716)	-0.042 (-2.128)
GDP Per Capita	-0.325 E-5 (-0.731)	-0.398 E-5 (-0.875)	-0.441 E-5 (-0.809)	-0.709 E-5 (-2.149)	-0.790 E-5 (-2.716)	-0.533 E-5 (-1.937)
Urbanization	0.216 E-2 (2.787)	0.228 E-2 (2.894)	0.111 E-2 (1.532)	0.115 E-2 (2.818)	0.129 E-2 (3.302)	0.147 (3.385)
Industrialized	-0.096 (-2.240)	-0.089 (-1.819)	-0.104 (-2.049)	-0.076 (-2.481)	-0.054 (-1.873)	-0.069 (-2.189)
POLINST	0.398 (2.147)	-	-	-	-	0.268 (2.292)
POLINSTEST	-	0.321 (2.009)	0.317 (1.993)	0.247 (2.570)	0.215 (2.325)	-

Table 3 (cont.)

Dependent Variable:	(11) INFTAX	(12) INFTAX	(13) INFTAX	(14) SEIG	(15) SEIG	(16) SEIG
Explanatory Variables:						
MAJ	-	-	-	-	0.037 (2.325)	0.024 (1.396)
COAL	-	0.244 E-2 (0.900)	-	-0.015 (-0.925)	-	-
NPC	-	-	-0.471 E-2 (-0.277)	-	-	-
R^2	0.308	0.307	0.225	0.273	0.350	0.323
N	76	76	76	78	78	78

APPENDIX A

Data Sources

Seignorage and Inflation Tax: International Monetary Fund; IFS and GFS

Agriculture and Manufacturing Shares: World Bank

Foreign Trade: International Monetary Fund

Taxes on Trade: International Monetary Fund

Urbanization: World Bank

MAJ: Banks; Delury (1983); Enciplopaedia Americana; Enciclopaedia
      Britannica; Mackie (1982); MacHale (1983), World Almanac of Books and
      Facts (1984); Cook (1989); Council of Foreign Relations; World Almanac
      of Books and Facts.

COAL: Enciclopaedia Americana; Enciclopaedia Britannica; Banks; Gunson
       (1989); Hopkins (1984); Keesing's Archives; McHale (1983); Council of
       Foreign Relations.

INST: Banks; da Graca (1985); Enciclopaedia Americana; Enciclopaedia
       Britannica; McHale (1983), Alexander (1982); Gunson (1989).

NPC: Banks; Enciclopaedia Americana; Enciclopaedia Britannica; McHale
      (1983); Council of Foreign Relations.

DATA APPENDIX

	cname	infta	seig	inst	instest
1.	UNITEDSTATES	2.5684	.0231037	.1538462	.1805707
2.	UNITEDKINGDOM	2.476182	.017822	.2307692	.1550697
3.	Austria	2.177805	.0277946	.0769231	.0000433
4.	Belgium	2.181223	.0188417	.0769231	.0828136
5.	Denmark	1.225061	.007939	.3076923	.3313341
6.	France	2.266526	.0213687	.0769231	.0755026
7.	GERMANYFEDREP	1.916218	.0252315	0	.0000371
8.	Italy	10.96051	.1246448	0	.0000393
9.	Netherlands	1.121292	.0112811	.3846154	.4160213
10.	Norway	1.935273	.0213666	.3076923	.3256966
11.	Sweden	1.911575	.0226449	.1538462	.1586092
12.	Canada	2.38483	.0303313	.1538462	.1577953
13.	Japan	6.525634	.0838753	0	.0000361
14.	Finland	1.097854	.0162829	.3076923	.3340799
15.	Greece	11.85985	.1461085	.3076923	.3316025
16.	Ireland	5.755154	.0584889	.3076923	.325881
17.	Portugal	17.44135	.1661706	.3846154	.4224477
18.	Spain	7.358942	.0911783	.1538462	.1740425
19.	Turkey	14.44367	.1530245	.6923077	.7528659
20.	Australia	3.002881	.0304532	.1538462	.1589881
21.	NEWZEALAND	1.892485	.0165105	.1538462	.1575114
22.	SOUTHAFRICA	2.655212	.0288339	0	.0000562
23.	Bolivia	26.63432	.2169971	.5384615	.4986581
24.	Brazil	19.22209	.1779711	0	.000023
25.	Chile	20.87917	.1752174	.1538462	.0745606
26.	Colombia	16.22666	.1714458	.1538462	.1584014
27.	DOMINICANREP	6.253706	.0679907	.1538462	.1562036
28.	Ecuador	11.74144	.1442416	.2307692	.2660377
29.	ELSALVADOR	10.87667	.1141864	.2307692	.2561646
30.	Honduras	4.389423	.0580647	.3846154	.4306026
31.	Mexico	17.03338	.2396672	0	.0000388
32.	Nicaragua	8.017736	.0888291	.0769231	.0749989
33.	Paraguay	11.43365	.1547418	0	.0000396
34.	Peru	23.84726	.2073336	.1538462	.1642161
35.	Venezuela	3.071809	.0576359	.1538462	.1859627
36.	Jamaica	5.178558	.0470576	.1538462	.1564254
37.	TRINIDADTOBAGO	2.537052	.0421451	0	.0000445
38.	Iran	8.012487	.1299662	.0769231	.0785876
39.	Jordan	18.84785	.2098226	0	.0000278
40.	Kuwait	.6797944	.0268726	.0769231	.1050604
41.	Burma	22.12839	.1524926	0	.000036
42.	SRILANKA	4.344473	.0716497	.0769231	.0783933
43.	India	9.52227	.1317317	.1538462	.1585281
44.	Indonesia	5.594211	.0901321	0	.0000393
45.	Malaysia	3.065644	.0732995	0	.0000411
46.	Pakistan	13.17453	.1288167	.2307692	.241689

47.	Philippines	6.584941	.0672753	0	.0000253
48.	Singapore	3.915327	.0880529	0	.0000378
49.	Thailand	6.131855	.0797077	.3846154	.4274431
50.	Botswana	2.893925	.0368383	0	.0000391
51.	Burundi	6.458787	.0643002	.0769231	.0856376
52.	Cameroon	3.628826	.0515769	0	.0000393
53.	CENTRALAFREP	.1036828	.2001845	.1538462	.1680651
54.	CONGOPEOPLEREP	2.090937	.0462585	.1538462	.1591828
55.	Zaire	25.51424	.1557442	0	.0000444
56.	Ethiopia	8.185186	.096008	.1538462	.1609263
57.	Gabon	1.636967	.036822	0	.0000273
58.	Ghana	62.75708	.2803814	.3846154	.3323553
59.	COTEDIVOIRE	7.19396	.011941	0	.0000398
60.	Kenya	4.712232	.0453671	0	.0000401
61.	Lesotho	.0300171	.0249794	0	.0000263
62.	Mauritania	.0365108	.0301393	.2307692	.2451791
63.	Mauritius	10.47288	.1066699	.0769231	.0745134
64.	Morocco	4.808787	.0736256	0	.0000373
65.	Niger	5.530792	.09404	.0769231	.0944255
66.	Nigeria	7.219801	.0728714	.2307692	.2400631
67.	Zimbabwe	2.557443	.0406763	.1538462	.1618276
68.	Rwanda	10.38377	.1030783	.0769231	.0792456
69.	SIERRALEONE	7.350544	.0952535	0	.0000403
70.	Somalia	7.408795	.1542583	0	.0000275
71.	Sudan	16.06421	.1693229	0	.0000416
72.	Tanzania	8.223867	.0935415	0	.0000395
73.	Togo	5.723119	.1033115	0	.0000277
74.	Tunisia	2.248703	.0497473	0	.0000398
75.	Uganda	55.65388	.248536	.2307692	.2588911
76.	Zambia	4.294756	.0265883	0	.0000397

	cname	npc	maj	coal
1.	UNITEDSTATES	1	.3076923	1
2.	UNITEDKINGDOM	1	1	1
3.	Austria	1	.9230769	1
4.	Belgium	3.384615	0	2
5.	Denmark	1.461538	0	1.166667
6.	France	3.538462	.3846154	2
7.	GERMANYFEDREP	2	0	2
8.	Italy	3.076923	0	1.916667
9.	Netherlands	3.692308	0	2
10.	Norway	1.384615	0	1.833333
11.	Sweden	1.692308	0	1.5
12.	Canada	1	.7692308	1
13.	Japan	1	.6923077	1
14.	Finland	3.769231	0	2
15.	Greece	.6923077	1.307692	.75
16.	Ireland	1.461538	.5384615	1.5
17.	Portugal	1.461538	.7692308	1.083333
18.	Spain	.4615385	1.153846	.8333333
19.	Turkey	1.923077	.5384615	1.416667
20.	Australia	1.769231	.6153846	1.75
21.	NEWZEALAND	1	1	1
22.	SOUTHAFRICA	1	1	1
23.	Bolivia	0	1.692308	.3333333
24.	Brazil	1	1	1
25.	Chile	1.461538	1.538462	.3333333
26.	Colombia	1.384615	.9230769	1.333333
27.	DOMINICANREP	1	1	1
28.	Ecuador	.7692308	1.384615	.5833333
29.	ELSALVADOR	.9230769	1.153846	.8333333
30.	Honduras	.2307692	1.538462	.25
31.	Mexico	1	1	1
32.	Nicaragua	.6923077	1.307692	.6666667
33.	Paraguay	1	1	1
34.	Peru	.2307692	1.461538	.25
35.	Venezuela	1	.3846154	1
36.	Jamaica	1	1	1
37.	TRINIDADTOBAGO	1	1	1
38.	Iran	.8	1.153846	1.416667
39.	Jordan	0	2	0
40.	Kuwait	0	2	0
41.	Burma	.6923077	1.307692	.75
42.	SRILANKA	2.076923	1	1.5
43.	India	1	.9230769	1
44.	Indonesia	1	1	1
45.	Malaysia	.9230769	1.076923	1
46.	Pakistan	1.384615	1.538462	.4166667
47.	Philippines	.1538462	1.846154	.0833333
48.	Singapore	1	1	1
49.	Thailand	.1111111	1.076923	.6666667
50.	Botswana	1	1	1
51.	Burundi	0	2	0

52.	Cameroon	1	1	1
53.	CENTRALAFREP	0	2	0
54.	CONGOPEOPLEREP	.3076923	1.692308	.3333333
55.	Zaire	1	1	1
56.	Ethiopia	0	2	0
57.	Gabon	1	1	1
58.	Ghana	.3076923	1.692308	.25
59.	COTEDIVOIRE	1	1	1
60.	Kenya	1	1	1
61.	Lesotho	0	2	0
62.	Mauritania	.6153846	1.384615	.5833333
63.	Mauritius	2.384615	.3846154	1.666667
64.	Morocco	1	1	1
65.	Niger	.3076923	1.692308	.25
66.	Nigeria	.3076923	1.384615	.3333333
67.	Zimbabwe	1.384615	1	1.333333
68.	Rwanda	.2307692	1.769231	.1666667
69.	SIERRALEONE	1	1	1
70.	Somalia	.3076923	1.692308	.3333333
71.	Sudan	.6923077	1.307692	1.5
72.	Tanzania	1	1	1
73.	Togo	.3076923	1.692308	.6666667
74.	Tunisia	1	1	1
75.	Uganda	.3076923	1.692308	.25
76.	Zambia	1	1	1

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