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Abstract

Using panel data for 106 countries in 1971-1997, we estimate generalized least squares regressions to explain IMF lending as well as monetary and fiscal policies in the recipient countries. With respect to moral hazard, we find that a country's rate of monetary expansion and its government budget deficit is higher the less it has exhausted its borrowing potential in the Fund and the more credit it has received from the Fund. Moreover, the budget deficit is shown to be larger the higher the interest subsidy offered by the IMF. As for political business cycles, our evidence indicates that, even with a considerable number of control variables, IMF credits in the more democratic recipient countries are larger in pre-election and post-election years. Thus, IMF lending seems to facilitate the generation of political business cycles, while IMF conditionality may serve as a scapegoat for unpopular corrective measures after the election. The paper concludes with implications for IMF reform.

Keywords: IMF programs, political business cycles, moral hazard
JEL classifications: D72, F33, F34

1. Introduction

The International Monetary Fund has come under increasing scrutiny and attack. It has been shown to be an almost continuous provider of aid to a few dozens of developing countries and emerging market economies. Its policy conditions have frequently been criticized as inappropriate. Its forecasts are comparatively poor and biased in favour of optimism. The growth of its staff does not seem to be related to the "need for balance of payments credits" as defined by the Fund.[1]

Recently, the International Financial Institutions Advisory Commission (IFIAC) of U.S. Congress has endorsed many of these criticisms and submitted sweeping proposals for reform.[2]

In this paper, we test for the validity of two additional criticisms of IMF policy. Both are derived from public-choice theory, and both imply that the availability of subsidized IMF credit has undesirable incentive effects on the governments which are eligible for these loans.

The first of these criticisms is the "moral-hazard hypothesis" originally proposed in Vaubel (1983). IMF lending may be interpreted as a (subsidized) income insurance against adverse shocks. The insurance cover induces the potential recipients to excessively lower their precautions against such damages or even to intentionally generate a crisis. It is easy to show that balance of payments crises "can be produced at will, virtually overnight" by an inappropriate monetary or exchange rate policy (Niehans 1985: 67f.). There is also a considerable body of evidence that the balance of payments problems of IMF borrowers have been largely of their own making[3] and that macroeconomic performance during inter-program years has been deteriorating as the number of past programs increased.[4] However, the true test of moral hazard is whether the policies causing these crises are at least partially due to the influence of the IMF. Accordingly, we explain fiscal and monetary policy by the amount of IMF credit available or received (section 2).[5]

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[1] For all these findings see Vaubel (1991) and the sources cited there.
[2] http://phantom-x.gsia.cmu.edu/IFIAC/USMRPTDV.html
[3] See the sources quoted in Vaubel (1991: 205, 207f.) and Evrensel (2000, Table 2).
[4] Evrensel (2000), Table 3. The experience of having received IMF credit in the past seems to raise the probability of going for another IMF credit in the future. This might be called a "dependency trap" or an "hysteresis effect".
[5] Of course, IMF lending may also cause moral hazard with private lenders. For empirical analysis see Lane, Phillips (2000). We do not deal with this issue.

The second criticism to be tested is that IMF lending facilitates political business cycles in the recipient countries. This hypothesis, too, has been suggested in an earlier paper:

> "The ruling politicians try to influence the domestic business cycle in their favor by generating a boom at the time of election and low popularity and by reversing the impulse thereafter. IMF lending facilitates the expansion. IMF conditionality facilitates the contraction. In this way, the IMF tends to contribute to the generation of political business cycles" (Vaubel 1991: 213).

Thus, there are two parts to this hypothesis: one relating to the pre-election boom and one to the post-election recession.

Both monetary and fiscal policy can be used to generate a pre-election boom. This is even true if the exchange rate is immutably fixed. The rate of monetary expansion compatible with a given exchange rate parity is higher, the larger the central bank's sales of foreign exchange.[6] In other words, foreign exchange interventions financed with credits from the IMF permit a higher rate of monetary expansion at a given exchange rate. Fiscal expansion, in an open economy, tends to induce a real appreciation because the increase in the budget deficit raises the real interest rate, attracts foreign capital and thereby shifts demand from foreign to domestic goods. Thus, a combination of monetary and fiscal expansion is possible even under fixed exchange rates. Credit from the IMF can be used to finance the central bank's sales of foreign exchange and the government's budget deficit.

If our hypothesis is correct, we would expect that IMF lending is larger before elections than otherwise. This presupposes that the government of the borrowing country is more attracted by the subsidized credit than put off by the policy conditions attached to it.

After the election, policy conditions negotiated with the IMF may serve as a scapegoat for unpopular corrective measures.[7] This part of the hypothesis has recently been tested by Vreeland (2000). He found that the conclusion of an IMF program is significantly more likely in a post-election year. As such programs are usually associated with additional IMF lending, we ask whether current net IMF credits are larger than usual after the election.

Both parts of the political business cycle hypothesis will be tested in Section 3.

Section 4 draws conclusions for IMF reform.

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[6] This is also true if the reserve currency country sterilizes the intervention. For a verbal explanation see Vaubel (1991: 212f.).

2. The moral hazard of IMF lending

The regression is a pooled time-series cross-section analysis (panel data). Our annual data cover the years 1971-97 and extend to the 106 countries that have obtained IMF credit during this period.[8] Since some of the data are not available for all countries or years, our panel data are unbalanced and our number of observations depends on the choice of explanatory variables. We test for fixed country and time effects. Since the time effects are not significant,[9] we include only country dummies. However, their coefficients are not reported in the tables. Since we find significant heteroscedasticity, we use generalized least squares with cross-section weights and White heteroscedasticity-consistent standard errors and covariances.[10] To avoid simultaneity bias, all explanatory variables are lagged one year. All variables, their precise definitions and data sources are listed in the appendix.

In *Table 1*, the government budget deficit relative to GDP[11] is regressed on three variables checking for moral hazard in the insurance-economic sense:

- the amount of IMF credit outstanding at the beginning of the year relative to the country's quota ("exhaustion of quota"),
- a dummy with the value of one if a country is eligible to draw under the IMF's highly concessionary SAF/ESAF facility and zero otherwise[12] and
- the London interbank rate of borrowing (LIBOR) in the previous year.

The first variable measures the quantity dimension of moral hazard: as the country's quota is increasingly exhausted and the quantity of additional credit available from the IMF diminishes accordingly, the incentive to run excessive budget deficits declines. Conversely, moral hazard increases if the country has repaid its credit to the IMF or if IMF quotas have been raised. The second and the third variable measure the price incentive to borrow from the Fund: SAF and ESAF credits are particularly cheap, and as LIBOR rises, the difference between the market rate of interest and the interest

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[7] The scapegoat interpretation has also been proposed by Spaventa (1983), Vaubel (1983, 1986, 1991), Remmer (1986), Putnam (1988), Stein (1992), Edwards and Santaella (1993), Bjork (1995), Dixit (1996) and Przeworski and Vreeland (2000).

[8] In theory, the availability of subsidized IMF credit could also have caused moral hazard with non-borrowing countries. In practice however, such effects are likely to be negligible.

[9] Contrary to this, Conway (1994) and Joyce (1992) report a significant influence of time dummies.

[10] To check for heteroscedasticity, we used a likelihood ratio test.

[11] If there is a deficit, the dependent variable has a positive value.

[12] This variable has also been used by Schuknecht (1996, 2000).

rate charged by the IMF, i.e., the interest rate subsidy, increases.[13] However, an increase of LIBOR may also raise the borrower's budget deficit because the debt service on the existing stock of debt is augmented. Since LIBOR varies only over time and not over countries, it may to some extent reflect time specific effects.

The term "moral hazard" is also sometimes used in a wider sense describing an incentive to abuse the claim to an indemnity once the accident has occurred or an incentive to abuse a loan which ought to be, but may not be, repaid. To allow for the possibility of such abuse, the budget deficit is also regressed on the amount of new net credit (net of repayment) which the country has received from the IMF outside the reserve tranche during the previous year relative to its GDP ("new net IMF credit").[14]

In addition, we use the following control variables:

- an "election dummy" which is equal to one in the election year and the pre-election year,[15]
- the rate of real GDP growth in the previous year,
- the external strength of the currency in the previous year (as measured by the ratio of the fixed official parity and the market exchange rate),
- a "war dummy" which is equal to one if there was a war in the previous year,
- the sum of exports and imports relative to GDP in the previous year,
- the change in a country's terms of trade in the previous year and
- the lagged endogenous variable.

These control variables replicate Schuknecht's analysis (1996, 2000) as closely as possible.

As expected the budget deficit falls significantly as the country's quota with the IMF is increasingly exhausted. Countries eligible for SAF/ESAF credits have significantly higher budget deficits. An increase in LIBOR raises the budget deficit significantly. New net credit (relative to GDP) has a significantly positive effect on the budget deficit. Dreher (2001), in his companion study for the World Bank, shows that the same is true for net new IBRD loans (relative to GDP).[16]

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[13] This is especially true for credits under the SAF/ESAF facility. The rate of charge under Standby arrangements and Extended Fund Facility arrangements is linked directly to the SDR interest rate, i.e. an average of treasury bill rates in the five largest countries, but the risk premium of IMF borrowers is likely to rise with LIBOR.

[14] This variable is only weakly correlated with the exhaustion of IMF credit (r = -0.064) which is a stock variable.

[15] We do not include separate dummies for the election year and the pre-election year because their coefficients were not significantly different.

[16] Borrowing from the IMF and the World Bank may enable the recipient government to obtain (more) loans in the world capital market but most studies of this issue (e.g. Hajivassiliou 1987; Taylor 1988;

The results also indicate that the budget deficit is larger at the time of elections[17] and war. Appreciation of the currency reduces the budget deficit. This may be because fiscal expansion is not needed to bring about a real appreciation if the currency is strong or because appreciation reduces the budgetary cost of servicing the foreign debt. The more open a country as measured by the sum of exports and imports relative to GDP the smaller is the government's budget deficit.[18] The government of a relatively open country is more exposed to a foreign financing constraint and international political competition. A country`s terms of trade and its growth rate of real GDP, however, do not have significant effects on the budget deficit.[19] If they are omitted, our four (potential) moral hazard variables remain significant at the 1 percent level. The lagged endogenous variable indicates partial adjustment. The whole regression explains more than 71 percent of the variance of the budget deficit.

Table 2 replicates the analysis for monetary policy as measured by the rate of monetary expansion (money and quasi money). In the case of monetary policy, LIBOR does not only reflect the interest subsidy provided by the fund but also the external monetary constraint, i.e., monetary conditions in the dollar area. We also tried the change in international reserves (net of IMF lending) and the inflation rate but we obtained coefficient signs which cannot be explained by economic theory. The same is true for interactions between the election dummy and the other explanatory variables. We dropped the variable for the external value of the currency and the SAF/ESAF-dummy because their coefficients were not significantly different from zero and their inclusion reduced the adjusted R^2.

As can be seen in Table 2, our moral hazard variables exhaustion of IMF quota and new net IMF credit take the expected signs, and both are significant at the one percent level. This is in line with Dreher's finding (2001) that new net IBRD loans have a significantly positive effect on monetary expansion. Monetary expansion is significantly more rapid prior to elections, whereas faster economic growth leads to slower monetary expansion. A tightening of monetary conditions in the dollar area significantly reduces monetary expansion elsewhere. As expected, the rate of monetary growth rises in times of war. In addition, more open economies experience lower rates

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Faini et al. 1991; Killick 1995; Bird, Rowlands 1997) show that IMF lending does not serve as a catalyst for private lending.

[17] This is in line with Schuknecht (1996, 2000).

[18] Note, that the high correlation could be due to the fact that, like the dependent variable, exports and imports are measured relative to GDP. However, the correlation remains significant if rates of change are used instead.

[19] We include these variables to keep the analysis comparable with Schuknecht (1996, 2000).

of monetary growth – probably because they are more exposed to monetary policy competition and the import price inflation that is caused by currency depreciation.[20] However, even with the country dummies, the whole regression explains only about 16 percent of the variance of monetary expansion (unweighted R^2).

To summarize, we find evidence that IMF lending generates significant moral hazard in fiscal and monetary policy. To some extent, such moral hazard may be optimal because insurance can be less costly than precautions against damage. However, moral hazard is unlikely to be optimal if the insurance cover is subsidized as is the case with the IMF.

3. Does the IMF facilitate political business cycles in the recipient countries?

In testing for political business cycles, we use the same methodology and data basis as in section 2. Once more, all quantitative explanatory variables are lagged one year.

In column 1 of *Table 3*, new net IMF credit relative to GDP[21] is exclusively regressed on three time dummies: one dummy for pre-election years, one for election years and one for post-election years. As can be seen, the pre-election and the post-election dummies have positive coefficients which are significant at the one percent level.[22] This is in line with Dreher's results (2001) for new net lending by the IBRD.

The pre- and post-election effects on new net IMF credit have to be interpreted as demand shifts: the member governments shift their credit demand functions upward, while the Fund's credit supply function remains unchanged. In fact, the borrowing governments may simply be drawing on available credit lines. Unfortunately, as the regression is enlarged by additional explanatory variables, the distinction between demand and supply effects is increasingly blurred. Almost all the additional regressors may be interpreted at the same time as determinants of the governments' credit demand and as criteria by which the Fund judges the creditworthiness of its applicants. Thus, a meaningful simultaneous or two-stage estimation is not feasible.[23] However, for our

[20] See also the theoretical arguments presented by Harry Johnson (1970: 105) and the empirical evidence presented by David Romer (1993) and Vaubel (2001: Table 3).
[21] Note that this variable may also be negative because IMF credit is measured net of repayments.
[22] The positive post-election dummy confirms the results of Przeworski and Vreeland (2000).
[23] Almost all empirical studies of IMF lending are confined to reduced-form estimates: Bird, Orme (1981), Officer (1982), Cornelius (1986), McDonald (1986), Joyce (1992), Edwards, Santaella (1993),

purpose of checking the robustness of the election effects, a reduced-form estimate is sufficient.

In column 2, we add a dummy for democratic regimes as classified by Alvarez et al. (1996). On average, as can be seen, the more democratic countries receive less credit from the IMF.[24] A conceivable explanation is that more democratic countries are usually more developed than those subject to more authoritarian regimes. However, the correlation coefficient between the democracy index and GDP per capita is only 0.14. In any case, the critique that the Fund uses its credit to support undemocratic regimes (e.g. Assetto 1988, Bandow 1994) is consistent with the evidence.

In column 3, we add three (lagged) macroeconomic policy variables:

– the rate of monetary expansion,
– the overall budget deficit relative to GDP and
– general government consumption relative to GDP.

All three variables can closely be controlled by the economic policy makers of the borrowing countries. Thus, they may be indicators of moral hazard (section 2). Owing to data constraints, the number of observations drops by almost a half.

The results of column 3 seem to suggest that high government consumption and low monetary expansion lead to large IMF credits and that the budget deficit is irrelevant.[25] However, as we introduce more variables, the results for the fiscal variables will be overturned. What is important for our purpose at this stage is the robustness of the electoral effects. The pre- and post-election dummies take even larger and more significant coefficients than before. The coefficient of the election-year dummy stays insignificant and the democratic regime dummy keeps its significantly negative influence.

Column 4 includes six additional (lagged) macroeconomic variables which are not current policy instruments but clearly affected by them:

– the rate of real GDP growth,
– the inflation rate,
– international reserves relative to imports,

Conway (1994), Rowlands (1994), Bird (1995), Thacker (1999) and Bird, Rowlands (2000). The only exceptions are Knight, Santaella (1997) and Przeworski, Vreeland (2000). However, the separation of demand from supply factors in these studies is rather dubious. For example, Knight and Santaella classify the level of international reserves exclusively as a determinant of demand even though it also affects the IMF's willingness to lend.

[24] This is in line with Edwards and Santaella (1993: 427).

[25] The results for the budget deficit are in line with Przeworski and Vreeland (2000: Table 1). The positive influence of government consumption is confirmed by Joyce (1992: Table 2).

– the share of foreign short-term private debt in total foreign debt,
– the net inflow of foreign direct investment relative to GDP and
– the current account balance as a percent of GDP.

All additional coefficients are (at least marginally) significant and easy to explain:

– An acceleration of real GDP growth reduces the demand for, and supply of, IMF credit because real growth serves as an indicator of need.[26]
– An acceleration of inflation reduces the supply of IMF credit because it signals a lack of creditworthiness.[27]
– An increase of international reserves relative to imports reduces the demand for, and the supply of, IMF credit because there is no need for support.[28]
– An increase in the share of foreign short-term private debt raises the demand for, and supply of, IMF credit because it is a sign of financial crisis.[29]
– An increase in the inward flow of foreign direct investment reduces the demand for IMF credit.[30]
– If the current account balance increases, the demand for, and supply of, IMF credit falls because the so-called "balance of payments need" diminishes.[31]

Note that the inclusion of the inflation rate destroys the significance of government consumption. But the budget deficit, like monetary expansion, now has a significantly negative coefficient.[32] The electoral effects are still present. The post-election dummy stays significant at the one percent level, while the pre-election dummy is significant at the five percent level.

In column 5, we allow for four additional variables which are not, or hardly, affected by current domestic monetary and fiscal policy:

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[26] This is in line with Bird and Rowlands (2000). Rowlands (1994), however, did not find a significant influence of real GDP growth on IMF agreements.
[27] This is contrary to most other studies: Bird and Orme (1981: 565), Bird (1995: 146) and McDonald (1986: 98) report positive coefficients. Only Evrensel (2000) found lower inflation rates in pre-program years.
[28] This is also reported by McDonald (1986: 96), Joyce (1992: Table 2), Edwards, Santaella (1993: 427), Rowlands (1994: Table 1), Knight, Santaella (1997: Table 5), Thacker (1999: Table 4), Bird, Rowlands (2000: Full Sample, Table 3) and Przeworski, Vreeland (2000: Table 1).
[29] As Diamond and Rajan (2000) point out, it is, however, not obvious which is the cause and which the effect.
[30] However, the effect on the supply for IMF credit is positive because, notably at a time of crisis, it is a sign of growing creditworthiness. Thus, as in Knight, Santaella (1997: Table 4) and Przeworski, Vreeland (2000: Table 1), the demand effect dominates.
[31] This positive relationship was also found by Bird and Orme (1981: 565), Conway (1994: Table 1), Bird (1995: 147), Thacker (1999: Table 4) and Bird, Rowlands (2000: Full Sample, Table 3).

– LIBOR,
– the share of exports to other IMF-supported countries,
– a dummy for years of war and
– a dummy for years in which IMF quotas were under review.

The results can be explained in the following way:

– A rise of LIBOR raises the interest subsidy, i.e., the demand for IMF credit. Moreover, it indicates a tightening of monetary conditions abroad which puts pressure on the exchange rate and increases the demand for, and supply, of IMF credit.[33]
– If a large share of exports goes to countries which are in crisis and supported by the Fund, the country is exposed to contagion. Moreover, IMF policy conditions usually aim at import reduction. This hits the exports of their trading partners.[34]
– During wars, credit supply from the IMF is restricted because the Fund refuses to finance wars.[35]
– At the time of a quota review, the IMF supplies more credit because its staff hopes to obtain a larger quota increase when its resources are exhausted ("hurry-up lending").[36]

The inclusion of the additional variables raises the coefficients and significance levels of the electoral variables. Both the pre- and the post-election dummies are significant at the one percent level. The coefficient of the election year dummy is negative and almost significant. While the share of foreign short-term private debt loses its significance, international reserves are now fully significant.

In column 6 we distinguish between genuinely democratic elections and elections under authoritarian regimes as classified by Alvarez et al. (1996). It turns out that elections under authoritarian regimes do not have a fully significant effect on IMF credit. Authoritarian regimes are less inclined to stimulate the economy before elections

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[32] There is a certain tension between these results and the findings of Table 1 and 2 that IMF lending raises budget deficits and monetary expansion in the following year. However, the results are consistent with rational expectations if fiscal deficits and monetary expansion raise IMF lending in the same year.
[33] Bird and Rowlands (2000: Table 3) did not find a significant influence of the absolute level in LIBOR. However, they found a positive influence of the change in LIBOR. Contrary to this, Rowlands (1994: Table 1) reports a negative influence of LIBOR on the frequency of IMF arrangements.
[34] Since countries in deep crisis have to reduce their trade deficits anyway, the reduction in imports does not prove the effectiveness of a Fund program, however.
[35] This variable was found to be insignificant in Rowlands (1994: Table 1).
[36] This effect was also significant in Vaubel (1991). In addition, we allowed for the degree to which the IMF has exhausted its lending potential (use of Fund credit/average GDP) but, unlike Przeworski and Vreeland (2000), we did not find a significant effect.

because there is no real democratic competition.[37] Under authoritarian regimes, only the post-election dummy is marginally significant. Its negative coefficient contradicts our expectations. One possible explanation is that the Fund may cut its lending after the election in order to compensate for the excessive pre-election lending and force the government into a new program and new policy conditions in the following year. Alternatively, elections in these countries may focus international attention on the authoritarian nature of their governments so that the Fund is more reluctant to lend to them.

In the democratic countries, net credit from the Fund is significantly larger before and after elections. However, the coefficient of the election year dummy is now significantly negative. Several explanations are possible. First, as the country has obtained more credit in the pre-election year, less is left in the election year. Second, the Fund may be hesitant to grant credit in an election year because it does not want to openly support the incumbents. Third, major corrective policy reforms are least likely at election time.[38] Fourth, the governments may lack the administrative capacity to negotiate an arrangement in an election year. Finally, as already mentioned, the Fund may even wish to cut its lending shortly after the election (within the election year) in order to force the government into a new program.

Once more, we tried interactions of the electoral dummies with the other explanatory variables but without success.

Finally, in column 7, we add the lagged endogenous variable to check for partial adjustment. The influence of elections is almost unchanged. The only major change is that the coefficient of international reserves drops back to insignificance.[39] The coefficient of the lagged endogenous variable indicates that 87 percent of the desired adjustment takes place within the first year.[40]

To summarize, there is strong evidence that IMF lending depends on the date of elections and contributes to political business cycles in the more democratic borrowing countries.[41] In the year prior to the election, the IMF increases its lending to democratic

[37] However, in order to demonstrate legitimacy, even authoritarian governments try to stimulate the economy in some cases. Therefore the obtained result was not clear a priori.
[38] Mecagni (1999: 223) provides evidence that countries run large budget deficits and postpone corrective measures before elections. As a consequence, the IMF may actually cancel the program. However, he only presents case studies.
[39] This may be due to multicollinearity between the lagged endogenous and other lagged variables.
[40] The fact that some of the independent variables are also used relative to GDP could influence the significance of their coefficients. However, none of those variables loses its significance if, instead, it is expressed in changes relative to the previous year.
[41] Dreher (2001) shows that the same is true for the World Bank's loans.

countries by about 0.11 percent of GDP.[42] If the credit is immediately used to finance a policy of monetary and/or fiscal expansion and if, on average, both the stimulus and the election take place in mid-year, the implicit average lag of effect on the economy at election time is one year. Since interest on IMF credit is lower than what the borrowing governments would have to pay in the world capital market (if they have access at all), the availability of subsidized IMF credit reduces the opportunity cost of over-expansionary macroeconomic policies and government transfers to marginal voters prior to elections.

For the year in which the election takes place (but possibly after the election), our results indicate a credit shortfall of similar size. In the year after the election, IMF lending rises by 0.14 percent of GDP in the democratic countries as new programs are negotiated. This is consistent with the view that, after the election, the IMF serves as a scapegoat for unpopular policy conditions in the democratic countries.

The country effects are not reported in the tables but the extreme cases ought to be mentioned. In the final equation, the largest positive country effects have been obtained for Jamaica (1.61 % of GDP), Mauretania (1.27 %), Lesotho (0.93 %) and Zimbabwe (0.78 %). However, even with the country dummies, the final equation explains only about 21 percent of the variance of IMF lending (unweighted statistics).

For which countries is the election effect on new net IMF credit significant? To answer this question, we estimated time-series regressions for all countries for which at least ten observations are available. Since the samples are much smaller than in the panel analysis, we used only six explanatory variables: the dummies for the pre-election, election and post-election year and the three quantitative variables which took the most significant regression coefficients in the complete panel analysis, i.e., real growth, the current account balance and inflation. We have tested for integration and cointegration.[43] Table 4 lists the 29 countries for which significant election effects were found.[44]

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[42] In 1996 the average new credit from the Fund among drawing countries amounts to 1.1 percent of their GDP. In that year the smallest credit drawn was 0.06 percent of GDP (for Papua New Guinea) and the largest was about 3.9 percent of GDP (for Guyana).

[43] We also tested for deterministic trends and serial correlation in the error terms. In those cases where a Lagrange Multiplier test indicated serial correlation at the 0.05 level of significance, we modelled the error structure using autoregressive terms. In the case of integration, series with significant deterministic trends were detrended. First differences were used where the series were found to be integrated of order one but were not cointegrated. Cointegrated series were used in levels. In testing for unit roots, we used the procedure proposed by Enders (1995), chapter 4.

4. Implications for IMF Reform

The moral hazard of IMF lending and its role in facilitating political business cycles calls for reform of the Fund as an international financial institution. Obviously, the most radical way to stop such abuses is to prevent the Fund from lending or abolish it altogether. Short of this, moral hazard could be reduced, first, by establishing IMF conditionality on an ex-ante basis (as suggested by Vaubel, 1991, and the International Financial Institutions Advisory Commission, 1999). For example, all member states in which monetary expansion exceeds an n-year moving average of real GDP growth by more than x percent could be excluded from IMF credits. With respect to fiscal policy, a limit for the budget deficit relative to GDP could be set (as is now in force in the European Union).

Secondly, moral hazard could be fought by raising the opportunity cost of borrowing from the IMF. The interest rate subsidy could be eliminated (Vaubel 1991). Indeed, as recommended by the IFIAC (1999), it could be replaced by a penalty so that the IMF becomes a lender of last resort. In the past, it has rather been a lender of first resort.

Thirdly, it is possible to reduce moral hazard by strictly limiting the period over which a country may obtain credit from the Fund (Vaubel 1983, IFIAC 1999). Loans could be limited to, say, three years, with no possibility of renewal or new borrowing from the Fund for another six years. This implies that the Fund would leave the task of development aid to the World Bank or other specialized development agencies.

While these solutions to the moral-hazard problem are relatively straight-forward, it is much more difficult to prevent the Fund from contributing to political business cycles. This is because such lending is merely temporary and because past performance may not be a reliable guide to the future. Ex-ante conditionality can prevent governments from turning to the Fund after having embarked on overexpansionary policies before the election. But ex-ante conditionality does not prevent governments that have behaved well in the past from obtaining IMF loans, even at an interest penalty, and then spending the proceeds to finance a pre-election boom. The conditions have to relate to the subsequent use of the loan, prohibiting a future increase of monetary expansion and the budget deficit.

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[44] Owing to the small sample size, these results are merely suggestive. Since, in several cases, we do not know the precise election date, we are unable to conduct a quarterly analysis.

It is generally assumed that the Fund has imposed such conditions in the past (even though they were usually not published during our period of observation[45]). Moreover, our results indicate that the IMF has reduced lending when monetary expansion and the budget deficit had increased in the previous year. However, as our results also show, this type of conditionality has not stopped pre-election borrowing. It seems to be necessary to improve the enforcement of such conditions by introducing more effective sanctions.

The IFIAC (1999) has suggested that borrowers should have to submit some sort of collateral. Another possibility is that governments which have violated the agreed conditions, notably prior to their reelection, are excluded, as far as possible, from development aid for at least one term of office. In this respect, cooperation between the IMF and the World Bank, the regional development agencies and the members of the Official Development Aid Committee at the OECD may have to be strengthened and formalized. In the long run, of course, countries which have repeatedly abused IMF credit to finance pre-election spending in the past, could be excluded from future IMF lending. In this respect, our time-series regressions for individual countries (Table 4) may be a useful guide.

[45] Since 1998, the conditions have been published unless the borrowing government has objected.

Definitions and data sources

Section 2:

"Monetary Expansion", International Bank for Reconstruction and Development (1999): Average annual growth rate in money and quasi money. Money and quasi money comprise the sum of currency outside banks, demand deposits other than those of the central government, and the time, savings, and foreign currency deposits of resident sectors other than the central government. The change in the money supply is measured as the difference in end-of-year totals relative to the level of M2 in the preceding year.

"Overall Budget Deficit in percent of GDP", International Bank for Reconstruction and Development (1999): Overall budget deficit is total expenditure and lending minus repayments less current and capital revenue and official grants received. Data are for central government only.

"New IMF credit in percent of GDP", International Bank for Reconstruction and Development (1999): New IMF credit denotes net changes in repurchase obligations to the IMF for all uses of IMF resources (excluding those resulting from drawings on the reserve tranche). The changes in these obligations, shown for the end of the year specified, comprise net purchases under the credit tranches, including enlarged access resources, and all special facilities (the buffer stock, compensatory financing, extended fund, and oil facilities), trust fund loans, and operations under the structural adjustment and enhanced structural adjustment facilities.

"Exhaustion of IMF Quota", International Bank for Reconstruction and Development (1999), IMF (2000): The amount of IMF credit outstanding at the beginning of the year relative to the country's quota in the IMF.

SAF/ESAF eligibility, IMF: http//www.imf.org

Election years, Gorvan (1989) and Journal of Democracy (various years)

"Real GDP growth", International Bank for Reconstruction and Development (1999): Annual percentage growth rate of GDP at market prices based on constant local currency.

"LIBOR", International Bank for Reconstruction and Development (1999): The average three-month London interbank offer rate on U.S. dollar deposits.

"External strength of the currency", International Bank for Reconstruction and Development (1999), Pick (various years), Currency Data & Intelligence (various years): Ratio of fixed official exchange rate to parallel market exchange rate, each per unit of foreign currency. The ratio of official to parallel exchange rate measures the inverse of the premium people must pay, relative to the official exchange rate, to exchange the domestic currency for dollars in the black market.

War years, The Almanac of World Military Power (1995), Bruno, Easterly (1998), Sivard (1980): The Dummy takes a value of one if there was a war in that year with at least 1000 people killed.

"Sum of Exports and Imports in percent of GDP", International Bank for Reconstruction and Development (1999)

"Change of Terms of Trade", International Bank for Reconstruction and Development (1999): Measures the change in a country's terms of trade compared to the previous year.

Section 3 (additional variables):

"Dummy for democratic regime", Alvarez et al. (1996): Dummy which takes the value of one, if a country is classified as democratic in that year. A country is not classified as democratic when its chief executive and legislature were not elected and there are not at least two political parties.

"Government consumption as a share of GDP", International Bank for Reconstruction and Development (1999)

”Inflation”, International Bank for Reconstruction and Development (1999): Consumer price index in percent.

“International reserves/ imports”, International Bank for Reconstruction and Development (1999): Gross international reserves comprise holdings of monetary gold and holdings of foreign exchange under the control of monetary authorities. The gold component of these reserves is valued at year-end (December 31) London prices. Reserves are expressed in terms of the number of months of imports of goods and services which could be paid for. It is net of transactions with the IMF.

“Foreign short-term private debt/ foreign debt”, International Bank for Reconstruction and Development (1999): Short-term debt includes all debt having an original maturity of one year or less and interest in arrears on long-term debt. Total external debt is debt owed to nonresidents repayable in foreign currency, goods, or services. Total external debt is the sum of public, publicly guaranteed, and private nonguaranteed long-term debt and short-term debt.

“Net inflow of foreign direct investment in percent of GDP”, International Bank for Reconstruction and Development (1999): Net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments.

“Current account balance in percent of GDP”, International Bank for Reconstruction and Development (1999)

“Share of exports to other IMF supported countries”, United Nations: International Trade Statistics Yearbook (various years): Share of a country’s exports to countries with an IMF program in that year.

“Dummy for year of IMF quota review”, IMF: http//www.imf.org: Dummy which takes the value of one for years in which IMF quotas were under review and zero otherwise.

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Table 1

Government budget deficit in percent of GDP[a]

(panel data, 64 countries, 1972-97, generalized least squares)

explanatory variables	
exhaustion of IMF quota (t-1)	– 0.114 (– 2.84*)
LIBOR (t-1)	0.122 (11.79*)
dummy for SAF/ESAF eligibility	1.039 (7.66*)
new net IMF credit in percent of GDP (t-1)	0.143 (2.83*)
real GDP growth (t-1)	0.003 (0.45)
external strength of the currency (t-1)	-0.002 (-4.25*)
change of terms of trade (t-1)	-1.87E-07 (-1.23)
sum of exports and imports in percent of GDP (t-1)	-0.018 (-5.12*)
dummy for election and pre-election years	0.263 (4.44*)
dummy for war year (t-1)	0.302 (3.50*)
lagged endogenous variable	0.515 (17.12*)
R^2 (unweighted)	0.710
no. of observations	874

Notes:

The coefficients of the country dummies are not reported.

[a] If there is a budget deficit, the dependent variable has a positive value.

t-statistics in parentheses:

*: significant at the 1 percent level

Table 2

Monetary expansion, money and quasi-money

(panel data, 76 countries, 1972-97, generalized least squares)

explanatory variables	
exhaustion of IMF quota (t-1)	– 0.235 (– 3.57*)
LIBOR (t-1)	– 0.130 (– 11.35*)
new net IMF credit in percent of GDP (t-1)	0.280 (2.90*)
real GDP growth (t-1)	– 0.330 (– 24.55*)
sum of exports and imports in percent of GDP (t-1)	– 0.054 (– 2.23**)
dummy for election and pre-election year	0.798 (7.38*)
dummy for war year (t-1)	9.033 (11.38*)
lagged endogenous variable	0.354 (3.89*)
R^2 (unweighted)	0.157
no. of observations	1,588

Notes:

The coefficients of the country dummies are not reported.

t-statistics in parentheses:

*: significant at the 1 percent level

**: significant at the 5 percent level

Table 3

New net credit from the IMF in percent of GDP

(panel data, 106 countries, 1971-97, generalized least squares)

explanatory variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
dummy for pre-election year	0.009 (2.69*)	0.031 (3.75*)	0.048 (5.30*)	0.044 (2.36**)	0.052 (2.81*)		
dummy for pre-election year * dummy for democratic regime						0.102 (5.36*)	0.111 (5.89*)
dummy for pre-election year * dummy for authoritarian regime						0.040 (0.99)	0.026 (0.68)
dummy for election year	0.001 (0.25)	0.009 (1.08)	0.010 (1.21)	-0.008 (-0.48)	-0.033 (-1.88^{o})		
dummy for election year * dummy for democratic regime						-0.103 (-5.85*)	-0.103 (-6.01*)
dummy for election year * dummy for authoritarian regime						0.010 (0.25)	0.018 (0.47)
dummy for post-election year	0.013 (3.53*)	0.017 (1.95^{o})	0.030 (3.62*)	0.058 (3.13*)	0.069 (3.57*)		
dummy for post-election year * dummy for democratic regime						0.128 (5.70*)	0.138 (6.23*)
dummy for post-election year * dummy for authoritarian regime						-0.061 (-1.67^{o})	-0.068 (-1.90^{o})
dummy for democratic regime		-0.022 (-2.76*)	-0.058 (-6.20*)	-0.105 (-4.94*)	-0.131 (-5.03*)	-0.136 (-3.98*)	-0.124 (-3.66*)
monetary expansion (t-1)			-9.56^{a} (-4.76*)	-9.36^{a} (-2.51**)	-0.11^{b} (-2.72*)	-0.11^{b} (-2.74*)	-0.12^{b} (-2.84*)
budget deficit in percent of GDP (t-1)			0.001 (0.26)	-0.009 (-2.37**)	-0.011 (-2.70*)	-0.008 (-1.93**)	-0.007 (-1.70^{o})

continued	(1)	(2)	(3)	(4)	(5)	(6)	(7)
government consumption in percent of GDP (t-1)			0.012 (5.46*)	0.007 (1.32)	0.009 (1.62)	0.004 (0.66)	0.002 (0.35)
real GDP growth (t-1)				-0.013 (-7.26*)	-0.017 (-9.14*)	-0.018 (-8.96*)	-0.017 (-7.98*)
inflation (t-1)				-9.16[b] (-5.07*)	-9.75[b] (-5.14*)	-9.68[b] (-4.83*)	-8.68[b] (-4.47*)
international reserves/ imports (t-1)				-0.008 (-1.87[o])	-0.013 (-3.07*)	-0.011 (-2.32*)	-0.006 (-1.48)
foreign short-term private debt/foreign debt (t-1)				0.005 (4.24*)	0.002 (1.53)	0.003 (1.62)	0.003 (1.82[o])
net inflow of foreign direct investment in percent of GDP (t-1)				-0.041 (-5.61*)	-0.042 (-5.19*)	-0.039 (-4.57*)	-0.033 (-3.99*)
current account balance in percent of GDP (t-1)				-0.018 (-7.46*)	-0.026 (-8.25*)	-0.026 (-7.78*)	-0.025 (-7.36*)
LIBOR (t-1)					0.013 (4.11*)	0.017 (5.01*)	0.015 (4.40*)
share of exports to other IMF supported countries (t-1)					0.007 (5.20*)	0.007 (5.01*)	0.006 (4.41*)
dummy for war year (t-1)					-0.105 (-4.46*)	-0.116 (-4.54*)	-0.107 (-4.31*)
dummy for year of IMF quota review					0.100 (4.43*)	0.080 (3.36*)	0.080 (3.57*)
lagged endogenous variable							0.129 (4.11*)
R^2 (unweighted) R^2 adj. (unweighted)	0.079 0.033	0.084 0.042	0.173 0.112	0.189 0.113	0.208 0.126	0.211 0.126	0.207 0.121
No. of observations	2,244	2,033	1,251	993	923	923	923

Notes:
The coefficients of the country dummies are not reported.
t-statistics in parentheses:
*: significant at the 1 percent level **: significant at the 5 percent level [o]: significant at the 10 percent level
[a]: E-07
[b]: E-05

Table 4

New net credit from the IMF in percent of GDP

(time series analysis)

country	pre-election year effect	election year effect	post-election year effect	AR-terms	$\bar{R}^2$	period
Albania	-0.474 (-1.92)	0.527 (2.77^{o})	-0.847 (-2.26^{o})	1	0.91	1986-97
Bangladesh	0.221 (0.94)	-0.177 (-1.10)	0.312 (2.62**)	2	0.09	1973-97
Benin	0.638 (1.83^{o})	-0.106 (-0.52)	0.023 (0.08)		0.21	1975-95
Bolivia	0.337 (0.68)	0.702 (1.52)	1.025 (2.13^{o})		0.55	1976-97
Brasilia	0.076 (0.76)	0.057 (0.69)	0.216 (2.37**)	1,2	0.67	1978-97
Bulgaria	0.320 (0.29)	3.814 (3.93**)	-0.235 (-0.44)	1	0.57	1986-97
Burkina Faso	0.411 (2.02^{o})	-0.483 (-1.67)	0.319 (2.12^{o})	1	0.33	1976-95
Burundi	0.834 (4.55*)	-0.147 (-0.50)	0.421 (3.29**)		0.92	1986-97
Chad	0.925 (3.92*)	-0.711 (-1.39)	0.703 (0.85)	1	0.33	1972-97
Costa Rica	1.043 (1.99^{o})	0.210 (0.45)	1.093 (2.14^{o})		0.41	1978-97
Ethiopia	0.368 (2.84**)	0.078 (0.41)	0.173 (0.74)	1	0.40	1984-97
Guinea	0.579 (12.84**)	0.166 (1.34)	-0.144 (-1.69)	1	0.91	1988-97
Guyana	0.664 (0.70)	4.824 (4.21**)	3.228 (4.34**)		0.75	1979-96
Hungary	1.329 (5.21**)	0.448 (1.66)	1.871 (5.84*)	3	0.82	1987-97
Indonesia	0.276 (0.97)	0.653 (2.03^{o})	0.077 (0.35)		0.30	1982-97
Jamaica	1.529 (1.20)	-1.441 (-1.85)	3.293 (2.47**)	2,4	0.33	1982-97

Country	pre-election year effect	election year effect	post-election year effect	AR-terms	$\bar{R}^2$	period
Jordan	1.244 (4.31*)	0.173 (0.27)	1.449 (3.66*)	4	0.10	1983-97
Mauritania	1.443 (3.25*)	-1.143 (-4.28*)	-0.602 (-0.68)	2	0.78	1979-96
Morocco	0.053 (0.16)	0.953 (4.69*)	0.665 (1.40)	4	0.56	1981-97
Nepal	0.231 (1.73o)	0.177 (1.12)	0.023 (0.11)		0.03	1971-97
Niger	-0.617 (-2.06o)	-0.084 (-0.13)	0.840 (2.71**)		-0.17	1976-96
Pakistan	-0.123 (-0.73)	-0.451 (-2.05o)	0.825 (3.04*)	4	0.57	1975-97
Panama	1.690 (2.54**)	1.184 (1.95o)	0.385 (0.66)	1	0.49	1979-96
Philippines	0.753 (2.71**)	0.306 (0.96)	0.312 (1.02)		0.31	1978-97
Sierra Leone	2.995 (2.30**)	-1.036 (-1.11)	2.448 (2.71**)		0.46	1979-96
Sri Lanka	2.193 (3.94*)	-0.146 (-0.39)	2.267 (4.19*)	2	0.30	1978-97
Togo	0.628 (1.44)	2.254 (3.71*)	2.988 (7.63*)	3	0.40	1978-95
Tunisia	0.024 (0.06)	1.222 (2.43**)	-0.142 (-0.25)	2	0.08	1979-97
Uruguay	-0.063 (-0.10)	-1.692 (-2.82**)	1.159 (1.88o)	1	0.60	1981-97

*: significant at the 1 percent level

**: significant at the 5 percent level

o: significant at the 10 percent level

The intercepts and the regression coefficients and t-statistics of the three quantitative variables (real growth, current account balance, inflation) are not reported.