

# The Politics of IMF Forecasts

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## Abstract

Using panel data for 155 countries over the period 1999-2005 we empirically investigate the politics involved in IMF economic forecasts. We find a systematic bias in growth and inflation forecasts. Our results indicate that countries voting in line with the US in the UN General Assembly receive better inflation forecasts. As the US is the Fund's major shareholder, this result supports the hypothesis that the Fund's forecasts are not purely based on economic considerations. The "defensive lending" hypothesis is, to some extent, confirmed by the results as inflation forecasts are systematically biased downwards for countries more exposed to the IMF.

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## 1. Introduction

A core responsibility of the IMF is to promote a dialogue among its member countries on the national and international consequences of their economic and financial policies. This process of monitoring and consultation is normally referred to as “surveillance.” In a globalized world, where the economic and financial policies of one country may affect many other countries, international cooperation to monitor economic developments on a global scale is essential.<sup>1</sup> At the last spring meetings, the IMF was actually given the duty to devote more effort to “multilateral surveillance,” monitoring how each member's policies affect everyone else in order to look for collective solutions (The Economist, April 27th 2006). This role of the IMF will probably become more and more important as the Fund seems to be getting out of the lending business.

IMF surveillance of its member countries provides important input to the global and regional surveillance processes. Specifically, the IMF regularly forecasts major macroeconomic developments in various developed and developing countries to monitor the world economy and evaluate the effectiveness of its programs. Such forecasts are bi-annually published in the World Economic Outlook (WEO), which also discusses prospects for the world economy and provides in-depth analysis of specific issues.

Given the strategic role of such surveillance function, and its growing importance, it is vital that this task is performed accurately. Previous studies have used statistical tests to determine the accuracy of IMF forecasts in the WEO.<sup>2</sup> Beach *et al.* (1999) find some first evidence that the IMF forecasts for developing regions were overly optimistic: the WEO forecasts overestimated output and underestimated inflation. This was not the case of the major industrialized countries whose forecasts of GDP and inflation were both unbiased and efficient (but only for GDP growth). In addition, these authors found that the error

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<sup>1</sup> Such importance has actually been confirmed by the recent episodes of financial crises.

<sup>2</sup> Among others, see Artis (1996) and (2001); Barrionuevo (1993); Beach *et al.* (1999); Loungani (2000); Batchelor (2000); Pons (2000); Aldenhoff (2006).

term was increasing with the IMF loans, suggesting some kind of support of the Fund's lending activity.<sup>3</sup>

Finally, recent evidence from Aldenhoff (2006) indicates that IMF forecasts are distorted for political reasons. According to the results of Aldenhoff, growth forecasts for the industrial countries are biased in favor of optimism, and the same is true regarding IMF projections for developing regions. As developing countries are concerned, he attributes this bias to the IMF's own interests in promising prospects for countries being under a program. Regarding industrial countries, the bias in longer-term growth forecasts is significantly correlated with elections in the US.

In this paper, we start by evaluating the accuracy of the IMF forecast (i.e. unbiasedness and efficiency) using, for the first time in such analysis, panel data for individual developing countries, as opposed to regional averages. We then seek to investigate whether political or reputational motivations may explain the bias detected in the IMF's economic forecasts in the previous literature.

Regarding the political/strategic type of motivations, clearly, the top five IMF shareholders – the US, Japan, Germany, France and the United Kingdom – control major Fund decisions.<sup>4</sup> With about 17 percent of the total votes, the US by itself has veto power over major decisions at the IMF, including the appointment of the IMF Managing Director.

Indeed, it has been shown that the IMF acts as a tool of the US and other major shareholders to some extent.<sup>5</sup> Thacker (1999), for example, shows that governments that

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<sup>3</sup> Because IMF loans are tied to policy recommendations, its forecasts for each country requesting a loan could mirror the expected outcome of the policies suggested by the IMF and this bias would result in forecasts that are too optimistic. Indeed a less than positive forecast would indicate that the IMF program is expected to be ineffective by the Fund itself.

<sup>4</sup> These members alone control nearly 40 percent of the vote share and are the only countries that automatically have seats on the IMF 24 member Executive Board. The rest of the world views for representation through elections and shared seats.

<sup>5</sup> See Fratianni and Pattison (2005). See Gisselquist (1981), Loxley (1986) and Andersen, Hansen and Markussen (2006) for anecdotal evidence.

vote along the lines of the US on key issues in the United Nations General Assembly are more likely to participate in IMF programs – presumably as the IMF loan acts as a reward. Stone (2002, 2004) shows that governments receiving more US foreign aid receive lighter punishments for noncompliance with policy conditions under IMF programs. The recent empirical literature on political influences on the IMF clearly shows that developing countries get better terms from the IMF when they have closer ties with the US, as measured by their voting behavior in the UN General Assembly (Barro and Lee 2005, Vreeland 2005, Oatley and Yackee 2004, Dreher and Jensen 2007) and while being temporary members of the UN Security Council (Dreher, Sturm, and Vreeland 2006).

When governments are interested in optimistic economic forecasts, we would expect the Fund's major shareholders and their allies to receive those optimistic forecasts, while forecasts for countries opposed to those major shareholders are likely to be more pessimistic.<sup>6</sup>

Finally, the Fund itself might have some private interests in providing biased forecasts, in the case of developing countries, as over optimistic forecasts could represent a way to justify its own lending programs. For example, Marchesi and Sabani (2005, 2006) show that the existence of a Fund reputational concern of being a good monitor/advisor of reforms might distort its lending decisions towards greater laxity (relative to social optimum) in punishing non-compliance with economic reforms. Such departures from efficiency of the IMF lending rule are meant to be associated with a longer relationship between a country and the Fund. Therefore, we would expect the bias to increase with the duration of the relationship between a country and the Fund.<sup>7</sup>

Moreover, the IMF may also care about its reputation of getting repaid (i.e., of being a good manager of its resources). In this case, to avoid reporting a loss in its balance sheets,

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<sup>6</sup> Arguably, the IMF cannot produce any forecasts it might wish to and so there should be a limit to such a bias.

<sup>7</sup> Goldsbrough et al. (2002), for example, show that prolonged users' programs often had an optimistic bias, especially the projections of real GDP growth and export growth (see Table 2, p. 4).

the IMF might want to extend new loans to borrowers with repayment difficulties to ensure that the existing ones are paid back on schedule (Ramcharan 2001, 2003). Therefore, in this latter case, we would expect the bias to increase with the size of the IMF loans outstanding (relative to GDP).

To anticipate our results, we find a systematic bias in growth and inflation forecasts. Our results indicate that countries voting in line with the US in the UN General Assembly receive better inflation forecasts. As the US is the Fund's major shareholder this result supports the hypothesis that the Fund's forecasts are not purely based on economic considerations. Our results also show that the Fund's forecasts (to some extent) confirm the defensive lending hypothesis as inflation forecasts are systematically biased downwards for countries more heavily indebted to the IMF.

We continue as follows. The next section presents our hypotheses. Section three tests for bias and efficiency of the IMF's forecasts. Section four describes data and method, while our results are shown in section five. The final section concludes.

## 2. Hypotheses

Basically, the analysis distinguishes two sets of explanations for the optimism observed in IMF economic forecasts. The first set of hypotheses will be related to political/strategic reasons, according to which the Fund may, either explicitly or implicitly, be put under pressure by the governments of the member states (both developed and developing) to make overly optimistic economic forecasts.

The second set of hypotheses will instead focus on the IMF's own incentives in making optimistic economic forecasts to sustain its lending activity to developing countries, in order to protect its own reputation as an international financial organisation.

Thus, according to the first group of hypotheses, governments are likely to generally be interested in optimistic forecasts, as economic environments perceived to be 'good' will increase approval by their citizens. Whether and to what extent the IMF will serve the interests of governments, however, arguably depends on these countries' own power in the Fund and, additionally, the support a government receives from (other) powerful members (Dreher, 2004).<sup>8</sup> As Bird and Rowlands (2003) argue, a countries' power to negotiate is influenced by other countries' willingness to support the potential borrowers. According to Gould (2003), IMF programs also include conditions which are in the interest of private banks. When IMF lending takes bank interests into account, the same might be true with its forecasts. Based on this reasoning we expect:

**Hypothesis 1: The greater a country's influence in the Fund, the more optimistic are the IMF's forecasts.**

**Hypothesis 2: Allies of the Fund's major stakeholders receive more optimistic IMF forecasts.**

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<sup>8</sup> We should note also that there is interplay between the Fund and national authorities as advanced economies and the largest developing countries provide a full set of projections for each WEO exercise while most smaller countries provide updates of key variables for each WEO exercise.

Arguably, optimistic forecasts are more important for the government at some times than at others. In particular, the incumbent will be interested in optimistic forecasts prior to a national election. As Aldenhoff's (2006) time series analysis for the US shows, over optimism is indeed significantly more prevalent prior to elections. We expect to find a similar pattern for other major shareholders of the Fund and their allies:

**Hypothesis 3: Major IMF shareholders and their allies receive more optimistic forecasts at election time.**

The second group of hypotheses relates to the existence of some private interests in the Fund objective function. Such interests may imply the existence of some "defensive lending" by the Fund, according to which the Fund might decide to keep on lending to borrowers with repayment difficulties not to report a loss in its balance sheets. However, if the country does not adopt policy changes to ameliorate economic conditions, rolling over the debt simply postpones the default crisis.

To understand the Fund's defensive lending we should then refer either to some "political cost" borne by current IMF officials after a borrower's inability to pay has become public (as current officials have a shorter horizon than the institution they work for), or to the possibility that postponing default might come at a relatively lower pecuniary cost due, for example, to catalytic finance (Shin, 2005) or to future debt relief programs (Ramcharan, 2001, 2003).<sup>9</sup> We would then expect that countries with a higher stock of debt owed to the Fund (relative to GDP), or alternatively accounting for a larger share of the Fund portfolio, obtain renewal of their programs more frequently. Based on this we would expect the following to hold:

**Hypothesis 4: Countries with a higher stock of debt owed to the Fund (relative to GDP), receive more optimistic IMF forecasts.**

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<sup>9</sup> For example, the most powerful Fund members might refrain from increasing the Fund's resources if its reputation as good manager of "public resources" is damaged.

Marchesi and Sabani (2007a, 2007b) explicitly modeled the political cost borne by the IMF by considering the dual role played by the Fund, acting at the same time as a lender and a monitor/advisor of economic adjustments. A borrower's inability to repay might be disruptive for the IMF's reputation as far as the latter can be, at least partially, responsible of a country's bad performances.<sup>10</sup> Specifically, the longer the relationship with the borrowing country, the more disruptive for IMF reputation the decision not to refinance a country, since this outcome will have been influenced by many past monitoring (or counseling) actions. The empirical results of Marchesi and Sabani show that a longer relationship does increase IMF disbursements. That said, we hypothesize:

**Hypothesis 5: Countries with longer IMF relations receive more optimistic forecasts.**

The next section tests for bias and efficiency of IMF forecasts.

### 3. Testing for Bias and Efficiency

The analysis starts by replicating previous work on IMF economic forecasts with our sample data. The accuracy of a forecast is based on the properties of the forecast error. A forecast is considered to be accurate if it is unbiased and efficient. A forecast is unbiased if its average deviation from the outcome is zero. Bias may be identified with the significance of the mean forecast error, as indicated by a simple regression of the error on a constant term, testing whether it is significantly different from zero (Holden and Peel, 1990). The test for biasedness is then based on the regression expressed as:

$$e_{it} = \mu + u_{it}, \quad (1)$$

with  $u_{it}$  being the residual and where  $e_{it} \equiv F_{it} - R_{it}$ . We define as forecast error  $e$  the difference between the forecast (F) and its respective realization (R) for year  $t$  and country  $i$  and the mean forecast error (ME) as:

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<sup>10</sup> This may happen for of at least two reasons: either because the Fund has prescribed the wrong reforms, or because it has not been able to detect, as a monitor, some deviations from the prescribed reforms early enough to get the country back on track, by threatening immediate interruption of its financial assistance.



$$ME = \frac{1}{T \cdot I} \sum_{i=1}^I \sum_{t=1}^T e_{it}, \quad (2)$$

Forecast efficiency implies that the deviation between the outcome and the projection is not related to information available at the time the projection was made (Barrionuevo, 1993; Holden and Peel, 1990). This condition is tested by measuring the statistical significance of the co-movements between the deviation of the outcome of the forecast and the forecast itself ( $\beta$ -test), and the co-movement between the deviation of the outcome of the forecast in the current period and that in the previous period ( $\rho$ -test).  $\beta$  is estimated by a least-squares regression of the forecast error on a constant and the forecast (equation 3), and  $\rho$  is estimated by a regression of the current-period forecast error on a constant and the previous period error (equation 4). Therefore, a condition for efficiency is that both  $\beta$  and  $\rho$  be zero.

$$e_{it} = \alpha_i + \beta_i F_{it} + u_{it}, \quad (3)$$

$$e_{it} = \gamma_i + \rho_i e_{it-1} + u_{it}, \quad (4)$$

where  $e$  and  $F$  denote forecast error and forecast, respectively.

If  $\beta$  and  $\rho$  are both different from zero, the inefficiency is partly due to the way in which new information is incorporated into projected values and partly because the present errors are highly correlated with past ones (Barrionuevo, 1993; Pons, 2000).

Table 1 reports the results separated for industrial and developing countries. As can be seen, IMF forecasts are indeed biased. In industrial countries, inflation forecasts are significantly biased downwards, at the five percent level of significance. The Fund's growth forecasts, to the contrary, are too pessimistic for developing countries, with a coefficient significant at the five percent level. Turning to our tests for efficiency, Table 1 shows that the previous error in estimating inflation and, respectively, economic growth, significantly contributes to explaining the current one in both country groups. At the one percent level of significance, the magnitude of the error in developing countries also depends on the magnitude of the forecast itself, with higher forecasts implying bigger mistakes.

The next section outlines our strategy in identifying the determinants of the bias.

#### 4. Data and Method

We test our hypotheses regressing the forecast error on a number of variables suggested as determinants of IMF loans in the previous literature. Specifically, we test:

$$e_{it} = \alpha + \beta_1' HYP_{it} + \beta_2 F_{it} + \beta_3 e_{it-1} + \eta_i + u_{it}, \quad (5)$$

where  $e_{it}$  represents the forecast error in country  $i$  at year  $t$ , and  $HYP$  is a vector containing the variables testing for our hypotheses as introduced above. Note that we also include the level of the forecast and the lagged forecast error, given their significance in most specifications above. Finally,  $\eta_i$  are country fixed effects which we include as the Hausman test rejects a random effects specification. Time dummies are not jointly significant, so we do not include them.

Turning to the specific variables employed to test our hypotheses, “power” is proxied by per capita GDP, following Dreher (2004). Both a country’s own (direct) influence in the Fund and support by other countries probably rise with its per capita GDP. Moreover, countries with higher per capita GDP are more important for the world economy. This variable is measured in constant 2000 US\$, taken from the World Bank’s (2006) World Development Indicators.

Ideally, we would also employ a country’s quota in the Fund, determining its voting power. However, given that our analysis includes dummies for each country, and quotas did not change over the period of study, we cannot use it.

Our second set of hypotheses is broadly related to the influence of countries’ allies on the Fund. We test the influence of private creditors by including countries’ arrears on private debt, taken from World Bank (2006). Sometimes governments press the IMF to lend to countries which are in arrears to them or to their banks (Dreher 2004). The Fund might want to present an optimistic forecast in order to avoid outright default.

Next, we employ two proxies for countries' standing with the Fund's most important stakeholder. We follow the bulk of literature and employ data on voting coincidence in the UN General Assembly as provided by Voeten (2004). In particular, we follow Thacker (1999), coding votes in agreement with the US as 1, votes in disagreement as 0, and abstentions or absences as 0.5. The resulting numbers are then divided by the total number of votes in each year. This results in a variable ranging from zero to one, with zero indicating total disagreement with the U.S., and one showing full agreement. Contrary to Thacker (1999), we do not include only key votes, as this would reduce our sample to some extent.

The recent work in Dreher, Sturm and Vreeland (2006) suggests an additional proxy for US and other major Fund members' interests. Their analysis shows that non-permanent members of the United Nations Security Council are more likely to receive IMF programs and fewer conditions under these programs. They attribute this to the influence of the Fund's major shareholders, bribing or rewarding temporary members of the Security Council to vote according to their interests. Consequently, we include temporary Security Council membership as an additional variable.

In testing hypothesis 3, we follow Dreher and Vaubel (2006) and include a variable measuring the share of a certain year that is within 12 months prior to a national (legislative or executive) election, the voting in line with the US variable, and the interaction of the two variables. Data on elections is based on Beck et al. (1999), and has been updated employing various sources, so data are available until 2006.

Hypothesis 4 is tested by including each country outstanding credit in percent of GDP under all IMF facilities (as provided by the World Bank, 2006) and, alternatively, each country share in the Fund's portfolio.

The duration of the Fund's relationship with a country (hypothesis 5) is proxied by the number of past IMF arrangements since 1970 and, alternatively, the number of past consecutive arrangements.

Note, that the within groups estimator is inconsistent in the presence of a lagged dependent variable in a short panel (Nickell 1981). We therefore apply the GMM estimator as suggested by Arellano and Bond (1991). This estimator consists in first-differencing the estimating equation and using lags of the dependent variable from at least two periods earlier as well as lags of the right-hand side variables as instruments. Since there are more instruments than right-hand side variables, the equations are over-identified and instruments must be weighted in an appropriate way. We present only results from the Arellano-Bond two-step GMM estimator, implemented by Roodman (2005) to Stata, including Windmeijer's (2005) finite sample correction. We report results of the Hansen test on the validity of the instruments used (amounting to a test for the exogeneity of the covariates), and the Arellano-Bond test of second order autocorrelation, which must be absent from the data in order for the estimator to be consistent.

Applying the Arellano-Bond estimator leads, however, to a dramatic loss of observations, since information from two periods is discarded by differencing and instrumenting. We expect this to result in generally lower t-statistics. In some cases, results are merely suggestive.

The next section reports the results.

#### 4. Results

Table 2 presents the OLS results for the political determinants of the bias in inflation forecasts.<sup>11</sup> Where appropriate, we show results for all countries, as well as separate results for developing and industrial countries for each variable. As can be seen, the previous period's forecast error is positively related to the contemporaneous one at the one percent level of significance in all 14 regressions. Regarding the magnitude of the forecast, results are somewhat mixed, with the majority of the coefficients not being significant at conventional levels. Turning to our variables of primary interest, Table 2 shows significant coefficients. Surprisingly, the forecast error rises with per capita GDP in developing countries, at the one percent level of significance, while this is not the case with industrial countries. In line with our a priori expectations, to the contrary, inflation forecasts are more optimistic for countries voting with the US in the full sample and those containing developing countries only. We do expect relatively poorer countries to be more easily affected by US pressure. This remains true when the pre-election index and its interaction with UN voting behavior are included. However, the interaction variable and the pre-election index are not individually significant at conventional levels.

Regarding the quantitative impact of voting with the US in the UN General Assembly, the results show that changing voting behaviour from voting fully against to completely in line with the U.S. reduces inflation forecasts by about 50 percentage points. To set this result in perspective, changing the voting behaviour from the average developing country to the average industrial country reduces the forecast by 0.06 percentage points.

The results also show that arrears to private creditors and membership in the UN Security Council do not matter for the forecast bias.

Table 3 reports results for the IMF-related variables. Only one of our hypotheses is actually supported by the data: Inflation forecasts are lower relative to the outcome with

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<sup>11</sup> Among the four possible alternatives (short spring, long-spring; short fall, long fall) we chose to use the long fall forecasts for both inflation and growth.

higher IMF loans outstanding (in percent of GDP).<sup>12</sup> Arguably, this provides evidence that the IMF cares about its reputation as a good manager of its Fund resources (i.e., it does not like financing “bad performing” countries). According to the coefficients, the quantitative impact is similar in the overall and the developing country sample. Changing the voting behaviour from the average developing country to the average industrial country reduces the forecast by about 0.05 percentage points.

The results also show that the forecast bias is not related to the number of years consecutively under an IMF arrangement, while the number of past arrangements significantly increases inflation forecast errors rather than reducing it (as one would expect according to our hypothesis 5). This results suggest that the Fund concern for reputation as a good monitor of economic reforms does not play any role in influencing its forecasts. To the contrary it seems the IMF is getting more cautious in countries with a longer history of IMF arrangements.

Tables 4 and 5 replicate the analysis employing GMM instead of OLS for estimation. Most results remain. As the main exception, the number of years already spent under an IMF arrangement is no longer significant. Voting with the US remains significant in the overall sample but becomes insignificant when the sample is restricted to developing countries. Note, however, that the small sample size makes the GMM estimates merely suggestive.

In Tables 6-9, finally, the analysis is replicated for economic growth forecasts. As can be seen, most of our hypotheses receive no support by the data. To summarize the results, GDP per capita reduces the forecast relative to the outcome. This is true according to all three samples when estimated with OLS, and the two sub-samples when estimated with GMM. However, the interaction variable between the pre-election index and the UN voting behaviour is positive and significant (at 10% only), which weakly confirms hypothesis 3 (this is true also with GMM)

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<sup>12</sup> On the contrary, the countries share in the Fund portfolio is never significant.

There is also evidence that growth is forecasted to be lower relative to the outcome with a rising number of past overall and consecutive IMF arrangements. Again, it seems the IMF is getting more cautious in countries with a history of IMF arrangements. These considerations dominate reputational concerns here (this is true also with GMM).

## **5. Conclusion**

Using panel data for 155 countries over the period 1999-2005, we have empirically investigated the politics involved in IMF economic forecasts. We find a systematic bias in growth and inflation forecasts. Our results indicate that countries voting in line with the US in the UN General Assembly receive better inflation forecasts. As the US is the Fund's major shareholder this result supports the hypothesis that the Fund's forecasts are not purely based on economic considerations. Our results also show that the Fund's forecasts (to some extent) confirm the defensive lending hypothesis as inflation forecasts are systematically biased downwards for countries more heavily indebted to the IMF.

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**Table 1: Bias and Efficiency, OLS**

	(1)	(2)	(3)	(4)	(5)	(6)
	Bias		Previous Error		Forecast	
	Inflation	Growth	Inflation	Growth	Inflation	Growth
Industrial countries	-0.19 (2.49**)	-0.04 (0.24)	0.19 (2.70***)	0.23 (3.30***)	0.10 (0.25)	0.16 (1.18)
Number of countries	32	33	32	33	32	33
Number of observations	188	194	156	161	188	194
Developing countries	0.27 (0.41)	-0.34 (2.01**)	0.46 (9.89***)	0.13 (2.41**)	0.32 (30.74***)	0.46 (9.37***)
Number of countries	123	136	123	131	123	135
Number of observations	520	558	395	419	520	558

\*\* denotes significant at 5% level; \*\*\* significant at 1% level.

**Table 2: Explaining the Bias in Inflation Forecasts, Political Variables, OLS**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	all	dev.	ind.	all	dev.	all	dev.	ind.	all	dev.	ind.	all	dev.	ind.
Forecast error (t-1)	0.717 (10.81)***	0.747 (9.03)***	0.941 (5.02)***	0.783 (12.63)***	0.783 (10.47)***	0.775 (12.61)***	0.774 (10.44)***	0.698 (4.45)***	0.722 (6.72)***	0.722 (5.79)***	1.539 (3.40)***	0.709 (6.52)***	0.699 (5.51)***	1.431 (3.34)***
Forecast (t)	0.123 (2.94)***	0.100 (1.91)*	0.165 (1.59)	-0.070 (1.80)*	-0.071 (1.51)	-0.068 (1.74)*	-0.068 (1.45)	0.149 (1.81)*	0.101 (1.31)	0.103 (1.14)	0.160 (0.51)	0.086 (1.09)	0.097 (1.03)	-0.038 (0.13)
GDP per capita	0.001 (1.27)	0.010 (3.08)***	0.000 (1.16)											
Arrears (in percent of GDP)				-28.644 (0.72)	-28.837 (0.60)									
UNSC membership, dummy						0.582 (0.43)	0.966 (0.47)	-0.059 (0.20)						
Voting with USA									-49.034 (2.58)**	-53.278 (2.30)**	-5.803 (0.43)	-47.112 (2.45)**	-54.769 (2.30)**	-9.431 (0.69)
Pre-election period												6.920 (1.10)	4.441 (0.49)	3.492 (1.02)
Voting*pre-election												-13.344 (0.66)	1.406 (0.04)	-12.960 (1.74)
Number of countries	148	119	29	155	123	155	123	32	69	51	18	69	51	18
Number of observations	389	268	121	551	395	551	395	156	135	100	35	135	100	35
R <sup>2</sup> (overall)	0.35	0.39	0.23	0.33	0.33	0.33	0.33	0.14	0.50	0.50	0.46	0.51	0.52	0.63

\* denotes significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

All regressions include fixed country dummies.

**Table 3: Explaining the Bias in Inflation Forecasts, IMF Variables, OLS**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(8)	(10)
	all	dev.	all	dev.	all	dev.	all	dev.	all	dev.
Forecast error (t-1)	0.813 (13.08)***	0.814 (10.84)***	0.775 (12.64)***	0.776 (10.48)***	0.771 (12.64)***	0.772 (10.48)***	0.776 (12.64)***	0.777 (10.48)***	0.778 (12.69)***	0.779 (10.52)***
Forecast (t)	-0.068 (1.76)*	-0.069 (1.48)	-0.069 (1.78)*	-0.070 (1.49)	-0.077 (1.98)**	-0.078 (1.66)*	-0.068 (1.74)*	-0.069 (1.46)	-0.069 (1.77)*	-0.070 (1.49)
Use of IMF credit	-44.239 (2.81)***	-44.294 (2.33)**								
Consecutive IMF arrangements			0.220 (0.83)	0.220 (0.69)						
Past IMF arrangements					2.451 (2.27)**	2.454 (1.89)*				
Pre-program year, dummy							-0.012 (0.01)	-0.014 (0.01)		
Program in effect, dummy									-1.295 (0.94)	-1.297 (0.79)
Number of countries	155	123	155	123	155	123	155	123	155	123
Number of observations	551	395	551	395	551	395	551	395	551	395
R <sup>2</sup> (overall)	0.35	0.35	0.33	0.33	0.34	0.34	0.33	0.33	0.33	0.34

\* denotes significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

All regressions include fixed country dummies.

**Table 4: Explaining the Bias in Inflation Forecasts, Political Variables, GMM**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	all	dev.	ind.	all	dev.	all	dev.	ind.	all	dev.	ind.	all	dev.	ind.
Forecast error (t-1)	0.143 (0.50)	0.097 (0.38)	0.197 (0.00)	-0.014 (0.06)	-0.015 (0.07)	0.019 (0.08)	0.019 (0.08)	0.341 (2.01)**	-0.068 (0.16)	0.030 (0.08)	0.400 (0.39)	-0.143 (0.48)	-0.050 (0.15)	-0.181 (0.42)
Forecast (t)	1.401 (3.83)***	1.258 (4.59)***	1.378 (0.00)	1.183 (3.59)***	1.178 (3.52)***	1.297 (4.63)***	1.272 (4.59)***	2.164 (5.29)***	1.276 (2.77)***	1.146 (2.28)**	2.223 (1.18)	1.046 (2.98)***	0.935 (2.71)***	1.526 (1.85)*
GDP per capita	0.002 (2.09)**	0.012 (1.86)*	0.000 (0.00)											
Arrears (in percent of GDP)				-141.335 (1.36)	-140.413 (1.32)									
UNSC membership, dummy						10.620 (0.69)	4.313 (0.20)	0.488 (0.28)						
Voting with USA									-42.639 (1.90)*	-39.472 (1.40)	5.917 (0.21)	-41.238 (1.98)**	-29.882 (1.04)	-9.792 (0.83)
Pre-election period												1.689 (0.27)	3.982 (0.40)	6.137 (1.22)
Voting*pre-election												-12.738 (1.13)	-16.862 (0.66)	-17.982 (1.87)*
Number of countries	79	51	28	155	123	155	123	32	66	49	17	66	49	17
Number of observations	240	148	92	395	271	395	271	124	66	49	17	66	49	17
Hansen test (Prob > chi2)	0.61	0.20	0.00	0.30	0.21	0.36	0.18	0.55	0.27	0.11	0.15	0.32	0.13	0.38
Arellano-Bond Test (Prob>z)	0.77	0.20	1.00	0.61	0.63	0.32	0.47	0.25	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

\* denotes significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

All regressions include fixed country dummies.

**Table 5: Explaining the Bias in Inflation Forecasts, IMF Variables, GMM**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	all	dev.	all	dev.	all	dev.	all	dev.	all	dev.
Forecast error (t-1)	-0.005 (0.02)	-0.007 (0.03)	0.018 (0.07)	0.019 (0.07)	0.008 (0.03)	0.009 (0.04)	0.033 (0.12)	0.036 (0.13)	-0.004 (0.02)	-0.004 (0.02)
Forecast (t)	1.276 (4.10)***	1.272 (4.13)***	1.289 (3.72)***	1.288 (3.70)***	1.250 (3.66)***	1.250 (3.68)***	1.294 (3.50)***	1.298 (3.51)***	1.269 (4.09)***	1.265 (4.04)***
Use of IMF credit	-71.421 (1.67)*	-71.146 (1.69)*								
Consecutive IMF arrangements			0.201 (0.67)	0.202 (0.66)						
Past IMF arrangements					1.537 (0.89)	1.568 (0.92)				
Pre-program year, dummy							-0.192 (0.14)	-0.157 (0.11)		
Program in effect, dummy									-1.264 (0.61)	-1.273 (0.61)
Number of countries	155	123	155	123	155	123	155	123	155	123
Number of observations	395	271	395	271	395	271	395	271	395	271
Hansen test (Prob > chi2)	0.11	0.06	0.46	0.36	0.07	0.04	0.07	0.04	0.43	0.34
Arellano-Bond Test (Prob>z)	0.48	0.49	0.47	0.48	0.42	0.43	0.48	0.49	0.43	0.44

\* denotes significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

All regressions include fixed country dummies.



**Table 6: Explaining the Bias in Growth Forecasts, Political Variables, OLS**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	all	dev.	ind.	all	dev.	all	dev.	ind.	all	dev.	ind.	all	dev.	ind.
Forecast error (t-1)	0.663 (3.44)***	0.663 (2.82)***	1.069 (3.89)***	0.996 (12.28)***	0.999 (10.47)***	0.994 (12.25)***	0.994 (10.41)***	0.940 (4.39)***	0.344 (0.84)	0.225 (0.41)	0.664 (1.38)	0.352 (0.82)	0.373 (0.65)	0.528 (1.19)
Forecast (t)	-0.055 (0.84)	-0.125 (1.52)	-0.069 (0.79)	0.013 (0.24)	0.014 (0.21)	0.016 (0.29)	0.016 (0.24)	0.003 (0.04)	-0.373 (4.13)***	-0.397 (3.25)***	-0.328 (3.25)***	-0.370 (3.85)***	-0.368 (2.95)***	-0.495 (4.04)***
GDP per capita	-0.002 (4.15)***	-0.007 (5.80)***	-0.001 (3.35)***											
Arrears (in percent of GDP)				12.318 (0.68)	12.285 (0.59)									
UNSC membership, dummy						-0.513 (0.86)	-0.819 (0.91)	-0.077 (0.14)						
Voting with USA									-8.905 (1.00)	-7.947 (0.76)	-17.591 (0.95)	-8.868 (0.98)	-6.861 (0.66)	-29.923 (1.56)
Pre-election period												0.272 (0.10)	3.858 (1.04)	-10.040 (1.74)
Voting*pre-election												-0.780 (0.09)	-17.692 (1.24)	27.295 (2.09)*
Number of countries	157	127	30	164	131	164	131	33	75	56	19	75	56	19
Number of observations	412	287	125	580	419	580	419	161	147	110	37	147	110	37
R <sup>2</sup> (overall)	0.11	0.20	0.27	0.30	0.32	0.30	0.32	0.15	0.26	0.22	0.53	0.26	0.24	0.67

\* denotes significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

All regressions include fixed country dummies.

**Table 7: Explaining the Bias in Growth Forecasts, IMF Variables, OLS**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	all	dev.	all	dev.	all	dev.	all	dev.	all	dev.
Forecast error (t-1)	0.995 (12.27)***	0.998 (10.46)***	0.975 (12.13)***	0.976 (10.32)***	0.968 (11.98)***	0.969 (10.19)***	0.995 (12.18)***	0.999 (10.38)***	0.996 (12.29)***	1.000 (10.48)***
Forecast (t)	0.014 (0.25)	0.015 (0.23)	-0.001 (0.02)	-0.002 (0.04)	-0.001 (0.01)	-0.002 (0.02)	0.018 (0.33)	0.020 (0.31)	0.017 (0.32)	0.020 (0.29)
Use of IMF credit	3.104 (0.43)	3.077 (0.37)								
Consecutive IMF arrangements			-0.388 (3.24)***	-0.388 (2.84)***						
Past IMF arrangements					-1.470 (3.03)***	-1.471 (2.66)***				
Pre-program year, dummy							-0.020 (0.03)	-0.018 (0.03)		
Program in effect, dummy									0.401 (0.81)	0.401 (0.71)
Number of countries	164	131	164	131	164	131	164	131	164	131
Number of observations	580	419	580	419	580	419	580	419	580	419
R <sup>2</sup> (overall)	0.30	0.31	0.32	0.33	0.32	0.33	0.30	0.31	0.30	0.32

\* denotes significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

All regressions include fixed country dummies.

**Table 8: Explaining the Bias in Growth Forecasts, Political Variables, GMM**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
	all	dev.	ind.	all	dev.	all	dev.	ind.	all	dev.	ind.	all	dev.	ind.
Forecast error (t-1)	-0.130 (0.00)	-0.208 (1.55)	-0.065 (0.64)	0.043 (0.40)	0.051 (0.40)	0.031 (0.23)	-0.005 (0.03)	0.120 (1.10)	-0.316 (1.61)	-0.348 (1.67)*	-0.400 (1.04)	-0.188 (1.06)	-0.195 (0.96)	-0.468 (3.59)***
Forecast (t)	1.108 (0.00)	0.682 (1.01)	1.271 (2.47)**	1.556 (5.22)***	1.493 (4.25)***	1.593 (5.32)***	1.616 (4.79)***	3.406 (4.71)***	-0.088 (0.09)	0.681 (0.68)	0.251 (0.20)	1.440 (1.59)	1.845 (1.69)*	0.596 (3.92)***
GDP per capita	-0.002 (0.01)	-0.007 (2.73)***	-0.001 (1.93)*											
Arrears (in percent of GDP)				23.391 (1.40)	21.032 (1.10)									
UNSC membership, dummy						-3.665 (1.25)	-13.297 (1.47)	-1.692 (0.65)						
Voting with USA									-3.437 (0.21)	-7.315 (0.50)	-23.987 (0.53)	-12.363 (0.84)	-11.914 (1.12)	-31.736 (7.26)***
Pre-election period												3.072 (1.72)*	5.150 (3.11)***	-13.534 (2.12)**
Voting*pre-election												-9.409 (1.78)*	-19.841 (3.64)***	33.380 (2.10)**
Number of countries	84	55	29	164	131	164	131	33	72	54	18	72	54	18
Number of observations	253	158	95	414	286	414	286	128	72	54	18	72	54	18
Hansen test (Prob > chi2)	0.28	0.36	0.86	0.51	0.22	0.17	0.26	0.46	0.11	0.25	0.18	0.20	0.32	0.50
Arellano-Bond Test (Prob>z)	0.99	0.29	0.24	0.18	0.21	0.09	0.09	0.06	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

\* denotes significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

All regressions include fixed country dummies.

**Table 9: Explaining the Bias in Growth Forecasts, IMF Variables, GMM**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	all	dev.	all	dev.	all	dev.	all	dev.	all	dev.
Forecast error (t-1)	0.066 (0.58)	0.070 (0.51)	0.049 (0.44)	0.072 (0.53)	0.011 (0.11)	0.019 (0.16)	0.060 (0.53)	0.087 (0.65)	0.066 (0.59)	0.092 (0.72)
Forecast (t)	1.506 (3.80)***	1.423 (3.58)***	1.620 (2.57)**	1.494 (2.33)**	1.507 (2.88)***	1.369 (2.57)**	1.555 (3.58)***	1.495 (3.06)***	1.677 (3.36)***	1.608 (2.84)***
Use of IMF credit	1.196 (0.13)	0.996 (0.11)								
Consecutive IMF arrangements			-0.260 (2.10)**	-0.277 (2.14)**						
Past IMF arrangements					-3.150 (2.68)***	-1.002 (1.27)				
Pre-program year, dummy							0.144 (0.43)	0.163 (0.48)		
Program in effect, dummy									0.514 (0.85)	0.402 (0.73)
Number of countries	164	131	164	131	164	131	164	131	164	131
Number of observations	414	286	414	286	414	286	414	286	414	286
Hansen test (Prob > chi2)	0.25	0.16	0.25	0.09	0.23	0.13	0.25	0.12	0.24	0.20
Arellano-Bond Test (Prob>z)	0.18	0.21	0.15	0.19	0.12	0.16	0.16	0.21	0.17	0.22

\* denotes significant at 10% level; \*\* significant at 5% level; \*\*\* significant at 1% level.

All regressions include fixed country dummies.