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Are Public Preferences Reflected in Monetary Policy Reaction Functions?

Abstract

In this paper, we test whether public preferences for price stability (obtained from the Eurobarometer survey) are actually reflected in the interest rates set by eight central banks. We estimate augmented Taylor (1993) rules for the period 1976–1993 using the dynamic GMM estimator. We find, first, that interest rates do reflect society's preferences since the central banks raise rates when society's inflation aversion is above its long-run trend. Second, the reaction to inflation is non-linearly increasing in the degree of inflation aversion. Third, this emphasis on fighting inflation does not have a detrimental effect on output stabilization. We conclude with some implications concerning the democratic legitimation of central banks.

1. Introduction

A fundamental principle of democratic societies is that power should not be concentrated in the hands of any single individual or held solely by a small group. However, the mainstream view in economics is that a society is better off if this principle is ignored. Central bank independence and the delegation of monetary policy to a conservative central banker (Barro and Gordon, 1983a; Rogoff, 1985) are considered to be the most appropriate ways of overcoming the so-called time-inconsistency problem in monetary economics (Kydland and Prescott, 1977). And, indeed, there is an increasing tendency around the world to devolve responsibility for managing monetary policy on an independent central bank. Supporting the wisdom of this trend, the vast majority of empirical literature on the topic finds a negative relationship between central bank independence and inflation (see the literature surveys by Eijffinger and de Haan, 1996; Berger et al., 2001; Hayo and Hefeker, 2002).

Delegating monetary policy to a small group of central bankers is not without its costs. Decisions made by the central bank involve trade-offs. Judgments have to be made about whether the risks of inflation are worth the benefits of boosting the real economy and vice versa. Typically, those who make the decisions are not representative of society as a whole (Stiglitz, 1998). For instance, according to Rogoff (1985), central bankers should be more conservative with respect to fighting inflation than the rest of society. As a consequence, it is often stressed that central banks lack democratic accountability. Ideally, in a democratic society, it is elected politicians who should be defining and ranking monetary policy objectives (de Haan and Eijffinger, 2000). Accordingly, it is up to the electorate to choose an appropriate institutional setting that fulfills its purposes. In short, in a democracy, monetary policy should reflect the public's preferences.

> The fact that monetary policy involves trade-offs ... has one clear implication in a democratic society. The way those decisions are made should be representative of the values of those that comprise society. At the very least, they [the monetary policy decision-makers] should see as their objective the application of their expertise to reflect broader societal values. The central bank should not be seen as a mechanism for the imposition of the values of a subset of the population on the whole. (Stiglitz, 1998, 218)

Therefore, it should be straightforward to test empirically if public values or preferences are reflected in monetary policy; however, the extant literature provides only indirect evidence, and not much of even that. For instance, Hayo (1998) shows that some sort of price stability culture exists in low inflation countries. Hayo and Hefeker (2002) model the choice of a certain degree of central bank independence as a two-step process. In the first step, society decides on the importance it attaches to fighting inflation. In the second step, society chooses the best institutional arrangement for achieving price stability.

To date, there has been no direct test of whether public preferences are actually reflected in the interest rates set by central banks. We address this gap in the literature and ask the following research question: *Are public preferences with regard to price stability reflected in monetary policy reaction functions (in addition to the reaction to inflation and output)?* An affirmative answer should provide central banks with a certain degree of democratic legitimation. Reflecting the public's values or preferences in everyday monetary policy should strengthen the authority of the central bank.

In this paper, we augment a standard Taylor (1993) rule by an indicator that captures public concern about inflation. This indicator is obtained from the Eurobarometer survey, which collects public opinion polls on how people in different countries of the European Community value price stability. It is available as a continuous time series for eight countries and the period 1976 to 1993. Econometrically, we use the dynamic panel GMM estimator.

The remainder of the paper is structured as follows. Section 2 discusses the relationship between a society's preferences for price stability and the Taylor rule, as well as the corresponding preferences of central bankers. Section 3 introduces the data and Section 4 the empirical methodology. Section 5 discusses the empirical results. Section 6 concludes.

2. Preferences for Price Stability and Taylor Rules

In a first step, we identify the relationship between a society's preferences for price stability and the Taylor rule by means of an illustrative model. In a second step, we link this relationship to the degree of inflation aversion of central bankers, who—according to economic theory—should be more hawkish than society as a whole.

The economic structure is described by the following New Keynesian Phillips curve and the IS curve, respectively:

$$(1)\ \pi_t = \beta E_t \pi_{t+1} + \gamma x_t + e_t$$

$$(2)\ x_t = E_t x_{t+1} - \frac{1}{\sigma}(i_t - E_t \pi_{t+1})$$

π_t is the inflation rate, x_t is the output gap, $e_t = \rho e_{t-1} + \varepsilon_t$ is a persistent supply shock (ε_t is i.i.d.), i_t the short-term interest rate, and E_t is the expectations operator. The coefficients $\beta, \gamma,$ and σ are strictly positive.

When setting monetary policy objectives, a society faces a trade-off between stabilizing inflation and stabilizing the real economy. The standard quadratic loss function by Barro and Gordon (1983b) is a useful shorthand description of this trade-off:

$$(3)\ L = \frac{1}{2}(\pi_t^2 + \lambda x_t^2)$$

λ is the weight attached to output gap stabilization relative to inflation stabilization. A society with a small value for λ is more willing to tolerate output gap fluctuations than inflation fluctuations. The society minimizes this loss function under discretion, taking expectations of future inflation and future output as given. Optimal monetary policy then results in the standard targeting rule:

$$(4)\ \pi_t = -\frac{\lambda}{\gamma} x_t$$

Following Walsh (2003), we guess a solution of the form $x_t = \delta e_t$ which provides us with $E_t x_{t+1} = \delta \rho e_t$ for the expected output gap since the supply shock is persistent. Using this solution and inserting the targeting rule (Eq. (4)) into the Phillips curve (Eq. (1)) provides us with equilibrium values for the inflation rate and the output gap:

$$(5)\ \pi_t = \frac{\lambda}{\lambda(1 - \beta\rho) + \gamma^2} e_t$$

$$(6)\ x_t = -\frac{\gamma}{\lambda(1 - \beta\rho) + \gamma^2} e_t$$

To estimate the implied interest rate (i_t), we insert Eqs. (5) and (6) into the IS curve (Eq. (2)) and solve for i_t:

$$(7)\ i_t = \frac{\sigma\gamma(1 - \rho) + \lambda\rho}{\lambda(1 - \beta\rho) + \gamma^2} e_t$$

The interest rate setting is represented by a Taylor rule with the sensitivity parameters ϕ_π (inflation) and ϕ_x (output gap):

$$(8)\ i_t = \phi_\pi \pi_t + \phi_x x_t$$

Inserting the solutions for the inflation rate (Eq. (5)), the output gap (Eq. (6)), and the interest rate (Eq. (7)) into the Taylor rule (Eq. (8)) and solving for ϕ_π yields the sensitivity of the interest rate function with respect to inflation:

$$(9)\ \phi_\pi = \frac{\sigma\gamma(1-\rho) + \gamma\phi_x}{\lambda} + \rho$$

The Taylor rule parameter for the reaction to inflation is inversely related to λ. Accordingly, a lower value for λ in the loss function should be reflected in a relatively more hawkish interest rate setting. Most strikingly, the change in responsiveness to inflation becomes relatively stronger for smaller values of λ, that is, it increases in a non-linear fashion in the degree of inflation aversion.

As stated in the introduction to this paper, according to economic theory, a society is better off by delegating monetary policy to a conservative central banker. Walsh (2003) shows that is optimal to appoint a central bank with the following degree of inflation-aversion:[1]

$$(10)\ \lambda^{CB} = (1 - \beta\rho)\lambda$$

Consequently, monetary policy reaction functions should reflect society's preferences not only for reasons of democratic legitimation, but also because, according to economic theory, the optimal degree of conservativeness is a linear function of society's preferences. The central banker's degree of inflation aversion is increasing in society's inflation aversion and, accordingly, the interest rate set by the central bank should be positively correlated with society's preferences.

3. Data

The most difficult task in our analysis is to come up with an indicator that will measure society's preferences. Unfortunately, survey data measuring the trade-off between inflation and output (unemployment) stabilization are not available as a continuous time

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[1] Tillmann (2008) provides an interesting discussion about the consequences of too-conservative versus too-liberal central bankers.

series (Scheve, 2004).[2] However, one specific question in the Eurobarometer—which is a series of surveys regularly conducted on behalf of the European Commission—asks for the relevance of price stability in comparison to other objectives. It provides a measure for the so-called Inglehart (1977) index:[3]

> There is a lot of talk these days about what this country's goals should be for the next ten or fifteen years. On this card are listed some of the goals that different people say should be given top priority. Would you please say which of them you yourself consider to be most important in the long run? And what would be your second choice?
> - Maintaining order in the nation
> - Giving people more say in important government decisions
> - Fighting rising prices
> - Protecting freedom of speech

Although the Inglehart (1977) index does not provide us with a measure of the choice between inflation and output stabilization, it does at least provide some indication of how important fighting inflation is in comparison to other objectives. Respondents have to choose a specific item from the above list and if, for example, they choose "fighting rising prices," it is at the expense of other goals. Put differently, if concerns about inflation are strong enough to overrule other important objectives, then this is some evidence that a society really puts great emphasis on the inflation goal.[4] Accordingly, the importance of fighting rising prices should be reflected by the central bank in its interest rate setting.

In line with Hayo (1998), we employ two variables in the empirical setup: (1) the share of people who consider fighting rising prices as the most important long-term goal and (2) the share of respondents who believe fighting inflation is either the first or the

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[2] The trade-off between inflation and unemployment is surveyed, for instance, in the Eurobarometer 5 in 1976 and Eurobarometer 48 in 1997, as well as in the 1985, 1990, and 1996 waves of the International Social Survey Program.

[3] Source: http://www.gesis.org/eurobarometer-data-service/topics-trends/eb-trends-trend-files/list-of-trends/postmat/.

[4] Note that one could argue in favor of an indicator measuring society's absolute inflation aversion for the subsequent analysis. However, a question like "How important do you consider the achievement of price stability?" would not generate more insight as in answering this type of question, people experience no sanctions. This is a "soft" question. Finally, given the very stable political environment in the sample countries, it is likely that a relative change in the importance of fighting rising prices reflects an absolute change in people's preferences, too.

second most important objective. The latter variable should provide a more stable measure over time, since it is less influenced by current events than the former. Both variables are available as a continuous yearly time series for eight countries and the time period 1976–1993.[5]

Our sample consists of eight European Community countries: Belgium, Denmark, France, Great Britain, Ireland, Italy, the Netherlands, and West Germany.[6] The data for central bank rates, inflation, and industrial production[7] cover the period Q1-1976 to Q4-1993 since the indicator measuring the preference for price stability is available as continuous time series only during that period. To avoid drawing conclusions based on 18 observations in the preferences indicator, we employ a panel framework.[8]

Panel unit root tests (see Table A1 in the Appendix) indicate that central bank rates (see Figure A1 in the Appendix) and the output gap, derived from trend industrial production using a Hodrick-Prescott (1997) (HP) filter with $\lambda = 1600$ (see Figure A3 in the Appendix), are stationary. In contrast, the inflation rate, measured as growth rate in the consumer price index compared to the previous year's period, and both preference indicators are non-stationary. Figures A2, A4, and A5 in the Appendix indicate that there is some sort of declining trend in all three variables. De-trending the series using the HP filter with $\lambda = 1600$ (inflation) and $\lambda = 100$ (preference indicators) yields stationary series.[9] Consequently, we employ an inflation gap measure and the deviation of inflation aversion from its long-run trend as explanatory variables.[10] Henceforth, for the sake of

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[5] Note, first, that there are some other countries covered in the Eurobarometer but none of these for the complete period 1976–1993. Second, there are some detached observations for the eight sample countries as the survey was not conducted continuously before 1976 and after 1993.

[6] Northern Ireland and East Germany (after German Reunification) are excluded from the analysis as the political situation in these regions is "abnormal" compared to the other countries. The survey answers in the former region display a much stronger emphasis on "maintaining order in the nation" due to the unstable political situation, whereas people in the latter region are more concerned about "protecting freedom of speech" after the transition to a democracy.

[7] Data sources: central bank rates (IMF), consumer price indexes (OECD), and industrial production (OECD). Note that the data used in this analysis are ex post data due to the lack of real-time data for all eight countries and the complete sample period.

[8] Note that estimating monetary policy reaction functions with a yearly frequency—which would be in line with the frequency of the preference indicator—is not an appropriate description of actual interest rate decisions, which are made quarterly or even more frequently.

[9] Note that augmenting the unit root tests with a standard time trend also fails to reject the null hypothesis for inflation and fighting inflation as the 1st or 2nd priority indicator. In case of the 1st priority indicator, the null hypothesis can be rejected at the 10% significance level.

[10] It can be argued that central banks more aim at eliminating inflation that is significantly above or below its trend when making monetary policy decisions during a decade of disinflation (see Vašíček, 2011). If, on the contrary, the target level of inflation was constant, the episode of disinflation would have been accompanied by a much stronger initial increase in the central bank rates than actually observed (see Figure A1 in the Appendix). The same holds for society's preferences. A society decides about its policy goals and creates the appropriate *institutional framework* based on long-run preferences. If there is a

simplicity, we refer to these variables as "fighting inflation as 1st priority" and "fighting inflation as 1st or 2nd priority," respectively.

4. Econometric Methodology

Our benchmark empirical specification (Model (M1)) follows the monetary policy reaction function proposed by Taylor (1993) with an interest rate smoothing term ρ (Goodfriend, 1991):[11]

$$(M1)\; i_{i,t} = \rho i_{i,t-1} + (1-\rho)\big(\alpha_i + \beta_0 \tilde{\pi}_{i,t} + \beta_1 \tilde{y}_{i,t}\big) + \mu_{i,t}$$

The central bank rate in country i at time t ($i_{i,t}$) is explained by the lagged central bank rate ($i_{i,t-1}$), which is included to measure the degree of inertia in monetary policy. The other explanatory variables are the current inflation gap ($\tilde{\pi}_{i,t}$) and the output gap ($\tilde{y}_{i,t}$). Finally, α_i represents a country fixed effect and $\mu_{i,t}$ the error term.

After having established this benchmark regression, we incorporate the preference indicators into Model (M1). First, we want to test if the degree of inflation aversion as measured by the priority indicators is reflected in the reaction function in addition to the other explanatory variables (Model (M2)):

$$(M2)\; i_{i,t} = \rho i_{i,t-1} + (1-\rho)\big(\alpha_i + \beta_0 \tilde{\pi}_{i,t} + \beta_1 \tilde{y}_{i,t} + \gamma_0 pri_{i,t}^k\big) + \mu_{i,t}$$

$pri_{i,t}^k$ indicates the share of people in country i at time t who consider fighting inflation as a 1st priority ($k = 1$) and a 1st or 2nd priority ($k = 2$). A positive coefficient for γ_0 would indicate that society's preferences have an influence on monetary policy that goes beyond the current inflation gap. Larger preferences for fighting inflation are then reflected in more hawkish monetary policy. Or, to put it differently, the central bank reflects the public's preferences when setting interest rates. Since economic theory suggests that central bankers' preferences (and, accordingly, the reaction to inflation)

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short-run change in the importance of fighting inflation, it should be reflected in the central bank's *policy rate*. Finally, a preference gap measure is in line with the standard symmetric quadratic loss function in Eq. (3) since it allows for positive and negative deviations from a trend, whereas the absolute preference level does not.

[11] As part of our robustness test, we also included an exchange rate variable measuring the gap of the respective country's currency against the German mark (derived using an HP filter and $\lambda = 1600$). We stick with the parsimonious Models (M1)–(M3) since the results in Section 5 are virtually unaffected by the inclusion of the exchange rate gap. This is in line with research on estimated as well as optimal Taylor rules; for instance, Clarida (2001) and Collins and Siklos (2004) show that adding an exchange rate series does not make much difference to inferences based on the standard Taylor rule specification.

should be a linear function of society's preferences (see Section 2) we expect a (partial) crowding-out effect of γ_0 on the coefficient for the inflation gap (β_0).

Second, public preferences in favor of fighting inflation could also reinforce the reaction to the inflation gap. A test for an additional non-linear reaction to inflation (see Section 2 for a theoretical illustration) is set out in Model (M3):

$$(M3)\ i_{i,t} = \rho i_{i,t-1}$$
$$+ (1-\rho)\left(\alpha_i + \beta_0\tilde{\pi}_{i,t} + \beta_1\tilde{y}_{i,t} + \gamma_0 pri_{i,t}^k + \gamma_1\left(\tilde{\pi}_{i,t} \cdot pri_{i,t}^k\right)\right.$$
$$\left.+ \gamma_2\left(\tilde{y}_{i,t} \cdot pri_{i,t}^k\right)\right) + \mu_{i,t}$$

γ_1 measures the strength of the interaction effect between the inflation gap and the priority indicator. A significantly positive coefficient would indicate an additional non-linear reaction to inflation when the degree of inflation aversion is above its trend (and vice versa). Finally, this setup also accounts for the possibility that accommodating society's preferences with regard to price stability and the additional non-linear reaction to the inflation gap might come at the expense of stabilizing output. γ_2 measures the strength of the interaction effect between the output gap and the priority indicator. A significantly negative coefficient would indicate that a central bank reacts less to output fluctuations when the degree of inflation aversion is above its trend.

Models (M1)–(M3) are estimated using the dynamic panel GMM estimator.[12] GMM weights are based on the assumption of contemporaneous correlation between the cross-sections, which is convenient as central bank rates, inflation, and the output gap show a substantial degree of correlation across the sample countries. As instruments for the lagged dependent variable, we employ its second to fifth lag following the procedure proposed by Roodman (2009).[13] To ensure the robustness of our findings and address Kiviet's (1995) criticism of dynamic panel GMM estimators, we additionally estimate Models (M1)–(M3) using panel generalized least squares and weights based on the assumption of contemporaneous correlation between the cross-sections.

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[12] Note that the panel is strongly balanced. There are only very few missing observations for industrial production at the beginning of the sample.

[13] Note that standard econometric software is not able to invert the matrix of instruments when using all valid lags to define moment conditions (Arellano and Bond, 1991). Furthermore, simulation studies show that there is a trade-off when increasing the number of lags: although efficiency increases, so does the finite sample bias of the GMM estimates (Judson and Owen, 1997).

5. Empirical Results

Table 1 sets out the results for Models (M1)–(M3) using the "fighting inflation as 1st priority" indicator.

Table 1: Taylor Rules and Inflation Aversion (Fighting Inflation as 1st Priority)

	(M1)		(M2)		(M3)	
IR Smoothing (ρ)	0.910	***	0.906	***	0.901	***
Inflation Gap (β_0)	0.914	***	0.547	**	0.660	***
Output Gap (β_1)	0.283	***	0.297	***	0.280	***
Fight Infl. 1st Prior. (γ_0)			0.364	***	0.328	***
… * Inflation Gap (γ_1)					0.122	*
… * Output Gap (γ_2)					0.042	
R^2	0.950		0.951		0.952	
σ	1.068		1.062		1.066	
J-Statistic	5.189		5.163		5.724	

Notes: Estimates are for Models (M1)–(M3). Number of observations: 563. GMM with a White (1980) cross-section instrument weighting matrix is used as the estimation technique. Lags 2–5 of the dependent variable are employed as instruments. The models include country fixed effects (not shown). Reported coefficients are estimates for the long-run coefficients, i.e., for $i_t = i_{t-1}$. Panel-robust standard errors are reported. ***/**/* indicate significance at the 1%/5%/10% level, respectively.

The results for the baseline Model (M1) indicate that interest rate setting is highly persistent (0.91) in our sample countries. Furthermore, the central banks follow a Taylor rule as an increase in either inflation or the output gap is accompanied by a rise in the central bank rate. The coefficient for output (0.28) is roughly in line with expectations as, for instance, Taylor (1993) recommends a coefficient of 0.5. The coefficient for the inflation gap (0.91) is smaller than 1, which implies that the Taylor principle, that is, raising the central bank rate by more than the actual increase in inflation, is not followed.[14]

The results for the augmented Models (M2) and (M3) show that including society's preferences does not affect the degree of inertia, which is still very large (ranging from 0.90–0.91). Furthermore, the coefficient for the output gap remains

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[14] It is well known that monetary policy was considered "passive" during the 1970s in many Western economies (see, e.g., Lubik and Schorfheide, 2004) leading to such estimates. Not surprisingly, the reaction to the inflation gap is significantly larger than 1 as soon as the starting point of the sample is restricted to 1979 or later.

between 0.28 and 0.30. Nevertheless, the augmented specifications reveal several interesting insights.

First, in line with our expectations, the central banks reflect the public's preferences in their interest rate setting. They increase the interest rate if society's degree of inflation aversion is above its long-run trend—even when controlling for the actual inflation gap (Model (M2)). Consequently, a central bank is more hawkish (in addition to inflation) in its interest rate setting if society's current priorities favor such a policy. Furthermore, the coefficients for the inflation gap are lower in Models (M2) (and (M3)) compared to Model (M1), which does not include the preference indicator. This indicates a positive (but not perfect) correlation between the preferences of the central bankers and those of society (as suggested by theory), which leads to a partial crowding out of the coefficient on the inflation gap.

Second, the public's preferences are also reflected in the significant additional non-linear reaction to inflation (Model (M3)). If the degree of inflation aversion is above its long-run trend, central banks put even more weight on the inflation gap (and vice versa). However, this additional emphasis on fighting inflation does not come at the expense of stabilizing output as the interaction term between the priority indicator and the output gap is insignificant.

Table 2 presents the corresponding results for the "fighting inflation as 1st or 2nd priority" indicator. In general, the findings from the first set of results carry over.[15] First, central banks raise interest rates if society's degree of inflation aversion is above its long-run trend—even when controlling for the actual inflation gap. Second, there is an additional non-linear reaction to the inflation gap, whereas the interaction effect between the output gap and the preference indicator is not significant.

Tables A2 and A3 in the Appendix provide the corresponding panel generalized least squares results as a robustness test. The results are in line with the GMM estimates above[16] and confirm the finding that public preferences with regard to price stability are actually reflected in monetary policy reaction functions. A central bank is more hawkish in its interest rate setting if society's current priorities favor such a policy.

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[15] Note that there are only two minor differences. First, the coefficients for interest rate smoothing are slightly lower in Model (M2) and (M3) of Table 2 in comparison to Table 1. Second, the interaction effect between the priority indicator and the inflation gap is significant at the 5% level (Table 2) compared to the 10% level (Table 1).

[16] The coefficients for interest rate smoothing are marginally larger than in case of the GMM estimations. This is also reflected in slightly larger long-run coefficients for the other explanatory variables. However, the signs and significances carry over from the GMM estimates, as do our conclusions.

Table 2: Taylor Rules and Inflation Aversion (Fighting Inflation as 1st or 2nd Priority)

	(M1)		(M2)		(M3)	
IR Smoothing (ρ)	0.910	***	0.898	***	0.893	***
Inflation Gap (β_0)	0.914	***	0.574	**	0.647	***
Output Gap (β_1)	0.283	***	0.281	***	0.271	***
Fight Infl. 1st or 2nd Prior. (γ_0)			0.240	***	0.195	***
... * Inflation Gap (γ_1)					0.114	***
... * Output Gap (γ_2)					0.017	
R^2	0.950		0.951		0.952	
σ	1.068		1.064		1.063	
J-Statistic	5.189		5.638		5.888	

Notes: Estimates are for Models (M1)–(M3). Number of observations: 563. GMM with a White (1980) cross-section instrument weighting matrix is used as the estimation technique. Lags 2–5 of the dependent variable are employed as instruments. The models include country fixed effects (not shown). Reported coefficients are estimates for the long-run coefficients, i.e., for $i_t = i_{t-1}$. Panel-robust standard errors are reported. ***/**/* indicate significance at the 1%/5%/10% level, respectively.

6. Conclusions

In this paper, we test whether public preferences for price stability are actually reflected in the interest rates set by central banks. We use public preferences obtained from the Eurobarometer survey and augment a Taylor (1993) rule with a variable measuring the deviation of a society's inflation aversion from its long-run trend. The sample covers eight countries and the period 1976 to 1993. Econometrically, we use the dynamic panel GMM estimator. Our results are as follows.

First, central banks reflect the public's preferences in their interest rate setting. They raise interest rates when society's degree of inflation aversion is above its long-run trend—even when controlling for the actual inflation gap. Consequently, a central bank is more hawkish (in addition to inflation) in its interest rate setting when society's current priorities favor such a policy. Our results also indicate that there is a positive (but not perfect) correlation between the preferences of central bankers and those of society.

Second, the public's preferences are also reflected in the significant additional non-linear reaction to inflation. If the degree of inflation aversion is above its long-run trend, the central banks put even more weight on the inflation gap (and vice versa). Finally, this additional emphasis on fighting inflation does not come at the expense of

stabilizing output as the interaction between the priority indicator and output is insignificant.

Our results have some implications for the debate about the democratic accountability of central banks. Economic theory and the empirical evidence clearly support the delegation of monetary policy to a small group. However, a fundamental principle in democratic societies is that power should not be concentrated in the hands of any single individual or held solely by a small group. Worse, central bankers as a group are not typically representative of society as a whole. Nevertheless, if the design of monetary policy and the actual interest rate course (as found in this paper) reflect society's values and preferences, it is at least some indication of democratic legitimation for central banks. Indeed, one could view this way of legitimation for central banks as similar to that of fiscal authorities in regularly elections. Both authorities face trade-offs, the former between stable prices and economic growth, the latter between low public deficits and appropriate provision of public goods. In the end, both authorities should (and want to) reflect the public's preferences and, therefore, conduct their policies accordingly.

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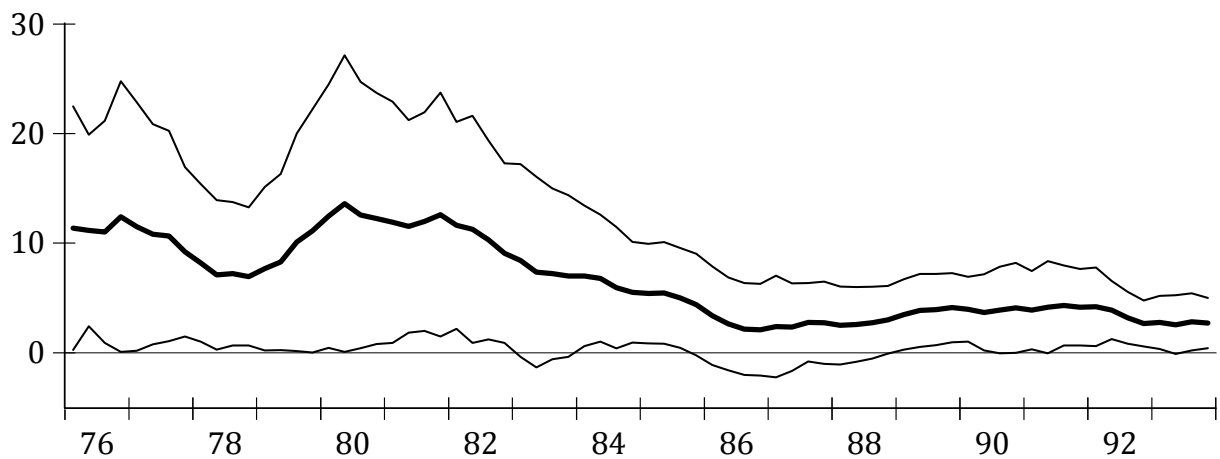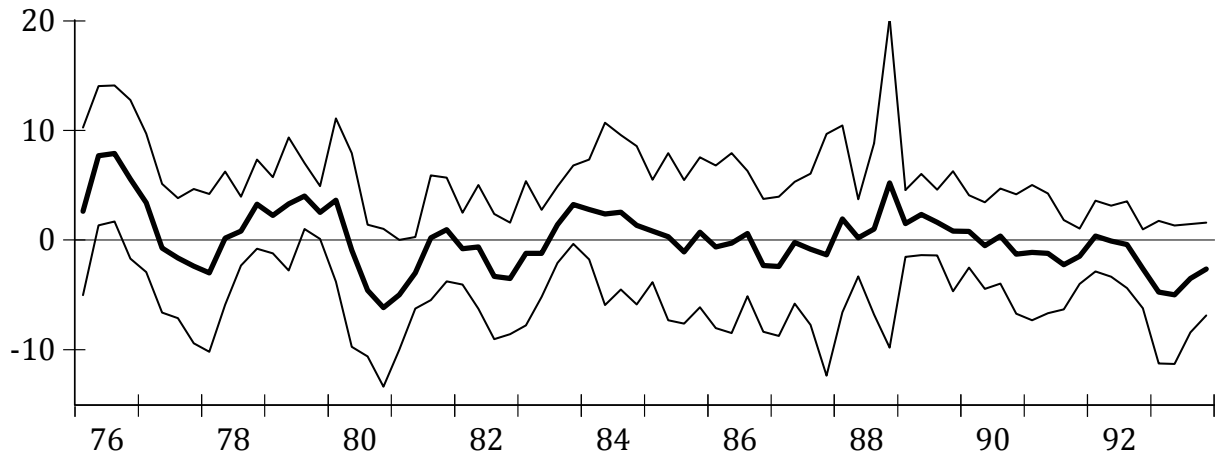
Appendix

Figure A1: Central Bank Rates
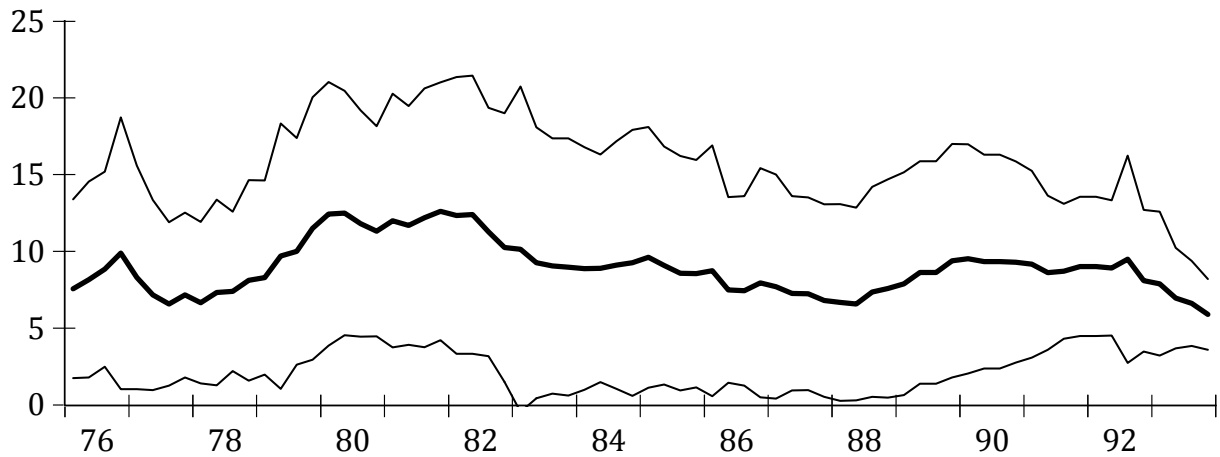
Note: The bold line indicates the cross-sectional mean of central bank rates; the thin lines represent the corresponding two standard deviation bands.
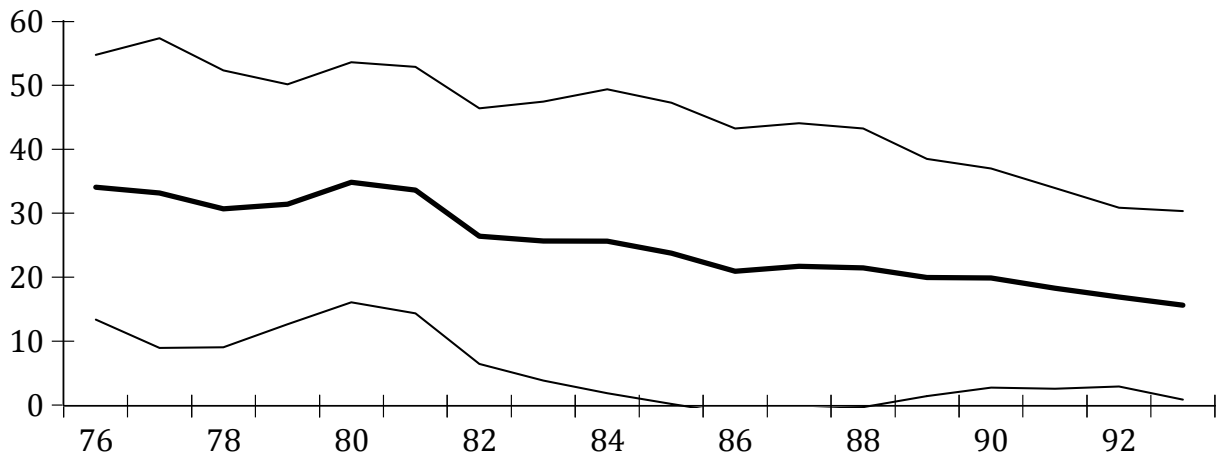
Figure A2: Consumer Price Index Inflation Rates

Note: The bold line indicates the cross-sectional mean of consumer price index inflation; the thin lines represent the corresponding two standard deviation bands.
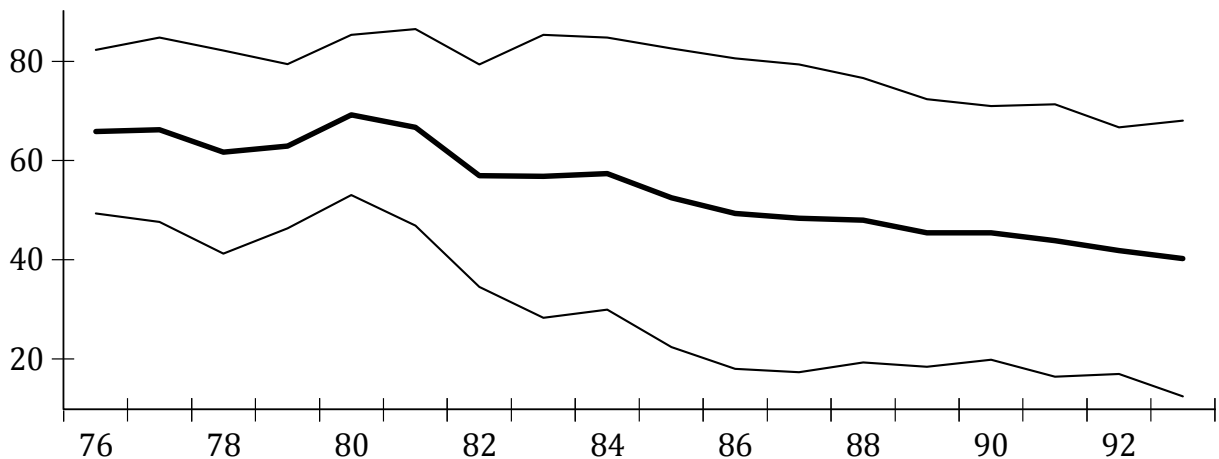
Figure A3: Output Gaps

Note: The bold line indicates the cross-sectional mean of output gaps; the thin lines represent the corresponding two standard deviation bands.

Figure A4: Fighting Inflation as 1st Priority

Note: The bold line indicates the cross-sectional mean of fighting inflation as 1st priority; the thin lines represent the corresponding two standard deviation bands.

Figure A5: Fighting Inflation as 1st or 2nd Priority

Note: The bold line indicates the cross-sectional mean of fighting inflation as 1st or 2nd priority; the thin lines represent the corresponding two standard deviation bands.

Table A1: Unit Root Tests

	Test statistic
Central Bank Rates	−2.500 ***
Inflation	0.158
Inflation (including linear trend)	−1.156
Inflation Gap (derived using HP filter)	−2.330 ***
Output Gap	−2.847 ***
Fight Infl. 1st Prior.	0.506
Fight Infl. 1st Prior. (including linear trend)	−1.477 *
Fight Infl. 1st Prior. (derived using HP filter)	−4.739 ***
Fight Infl. 1st or 2nd Prior.	0.622
Fight Infl. 1st or 2nd Prior. (including linear trend)	−0.945
Fight Infl. 1st or 2nd Prior. Gap (derived using HP filter)	−3.785 ***

Note: Breitung (2000) test of null hypothesis "panel contains unit roots" against alternative hypothesis "panel is stationary." Test statistic is robust to cross-sectional correlation (Breitung and Das, 2005). ***/**/* indicate significance at the 1%/5%/10% level, respectively.

Table A2: Taylor Rules and Inflation Aversion (Fighting Inflation as 1st Priority): Robustness Test

	(M1)	(M2)	(M3)
IR Smoothing (ρ)	0.926 ***	0.924 ***	0.920 ***
Inflation Gap (β_0)	1.070 ***	0.654 *	0.750 **
Output Gap (β_1)	0.496 ***	0.507 ***	0.478 ***
Fight Infl. 1st Prior. (γ_0)		0.400 ***	0.364 ***
... * Inflation Gap (γ_1)			0.154 *
... * Output Gap (γ_2)			0.058
R^2	0.950	0.951	0.952
σ	1.066	1.060	1.064

Notes: Estimates are for Models (M1)–(M3). Number of observations: 570. Panel generalized least squares with a White (1980) cross-section weighting matrix is used as the estimation technique. The models include country fixed effects (not shown). Reported coefficients are estimates for the long-run coefficients, i.e., for $i_t = i_{t-1}$. Panel-robust standard errors are reported. ***/**/* indicate significance at the 1%/5%/10% level, respectively.

Table A3: Taylor Rules and Inflation Aversion (Fighting Inflation as 1st or 2nd Priority): Robustness Test

	(M1)		(M2)		(M3)	
IR Smoothing (ρ)	0.926	***	0.918	***	0.914	***
Inflation Gap (β_0)	1.070	***	0.672	*	0.746	**
Output Gap (β_1)	0.496	***	0.478	***	0.452	***
Fight Infl. 1st or 2nd Prior. (γ_0)			0.256	***	0.213	***
... * Inflation Gap (γ_1)					0.130	**
... * Output Gap (γ_2)					0.025	
R^2	0.950		0.951		0.952	
σ	1.066		1.062		1.062	

Notes: Estimates are for Models (M1)–(M3). Number of observations: 570. Panel generalized least squares with a White (1980) cross-section weighting matrix is used as the estimation technique. The models include country fixed effects (not shown). Reported coefficients are estimates for the long-run coefficients, i.e., for $i_t = i_{t-1}$. Panel-robust standard errors are reported. ***/**/* indicate significance at the 1%/5%/10% level, respectively.