DOES HIGH INFLATION CAUSE CENTRAL BANKERS TO LOSE THEIR JOB? EVIDENCE BASED ON A NEW DATA SET

AXEL DREHER
JAN-EGBERT STURM
JAKOB DE HAAN

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Abstract

This paper introduces new data on the term in office of central bank governors in 137 countries for 1970-2004. Our panel models show that the probability that a central bank governor is replaced in a particular year is positively related to the share of the term in office elapsed, political and regime instability, the occurrence of elections, and inflation. The latter result suggests that the turnover rate of central bank governors (TOR) is a poor indicator of central bank independence. This is confirmed in models for cross-section inflation in which TOR becomes insignificant once its endogeneity is taken into account.

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Keywords: central bank governors, central bank independence, inflation.

Axel Dreher
ETH Zurich
KOF Swiss Economic Institute
WEH D4
Weinbergstr. 35
8092 Zurich
Switzerland
mail@axel-dreher.de

Jan-Egbert Sturm
ETH Zurich
KOF Swiss Economic Institute
WEH D4
Weinbergstr. 35
8092 Zurich
Switzerland
sturm@kof.ethz.ch

Jakob de Haan
Department of Economics
University of Groningen
P.O. Box 800
9700 AV Groningen
The Netherlands
jakob.de.haan@rug.nl

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1. Introduction

In this paper we examine which political and economic factors affect the likelihood that a central bank governor will be replaced. We present new data on the term in office of central bank governors for 137 countries covering the period 1970-2004, thereby substantially extending previous datasets, both regarding the number of countries and the number of years covered.[1] We estimate conditional Logit models of the probability that the central bank governor will be replaced. Our results show that the share of the current term in office elapsed, high levels of political and regime instability, the occurrence of elections, and inflation increase the probability of a turnover.

Our main contribution is that we criticize the use of the so-called turnover rate of central bank governors (TOR) as an indicator of central bank independence (CBI).[2] To examine whether there is any relationship between CBI and inflation, one needs an indicator measuring the extent to which the monetary authorities are independent from politicians. Most empirical studies use an indicator based on central bank laws in place. However, legal measures of CBI may not reflect the true relationship between the central bank and the government (Forder, 1996 and Mangano, 1998). Especially in countries where the rule of law is less strongly embedded in the political culture, there can be wide gaps between the formal, legal institutional arrangements and their practical impact (Walsh, 2005). This is particularly likely in many developing economies. Cukierman (1992) argues that the TOR may therefore be a better proxy for CBI in these countries than measures based on central bank laws. The TOR is based on the presumption that, at least above some threshold, a higher turnover of central bank governors indicates a lower level of independence. Various studies report that countries that experienced rapid turnover among their central bank heads also tended to experience high rates of inflation (see, for instance, Cukierman, 1992). This is a case, however, in which causality is difficult to evaluate; is inflation high because of political interference that leads to rapid turnover of central bank officials? Or are central bank officials tossed out because they can't keep inflation down? (Walsh, 2005). In the latter case, the TOR is a poor indicator of CBI.[3]

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[1] The datasets of Cukierman (1992) and De Haan and Kooi (2000) are the most widely used previous datasets.

[2] See Berger *et al*. (2001) for a survey of the literature on central bank independence.

[3] A few studies have sounded a warning that conclusions on the relationship between inflation and the TOR are highly sensitive to influential observations. De Haan and Kooi (2000) and Sturm and De Haan (2001) report that the TOR indicator only becomes significant if high inflation countries are added to the sample. This suggests that causality may run from inflation to turnovers rather than the other way round.

Our empirical results suggest that using the TOR as a proxy for CBI is problematic when it comes to measuring the impact of central bank independence on inflation. Since inflation increases the likelihood that the central bank governor will be replaced, turnovers are endogenous to inflation. This is confirmed in models for cross-section inflation differentials in which the TOR becomes insignificant once its endogeneity is taken into account.

The remainder of the paper is structured as follows. Section 2 describes our data and section 3 discusses the methodology used. Section 4 presents our estimation results for the likelihood that a central bank governor will be replaced, while section 5 contains the models for cross-section inflation. The final section offers some concluding comments.

2. Data

The database contains information on the term in office of the central bank governor for 137 countries covering the period 1970-2004. Most information was received directly from central banks. Some central banks provide data on previous governors on their homepage, while for many other central banks we got the information by writing emails and letters. A second source is Morgan Stanley Dean Witter's *Central Bank Directory*. Our data cover all geographic regions fairly well. While we tried to get data going back as far as 1970, we did not always succeed either because data were not available for the entire period or because countries came into existence after 1970. Table A1 in the Appendix shows the countries and periods for which we have information, as well as the number of times the central bank governor was replaced during those periods and the average TOR.

Figure 1. Frequency distribution of number of governor changes (# countries)
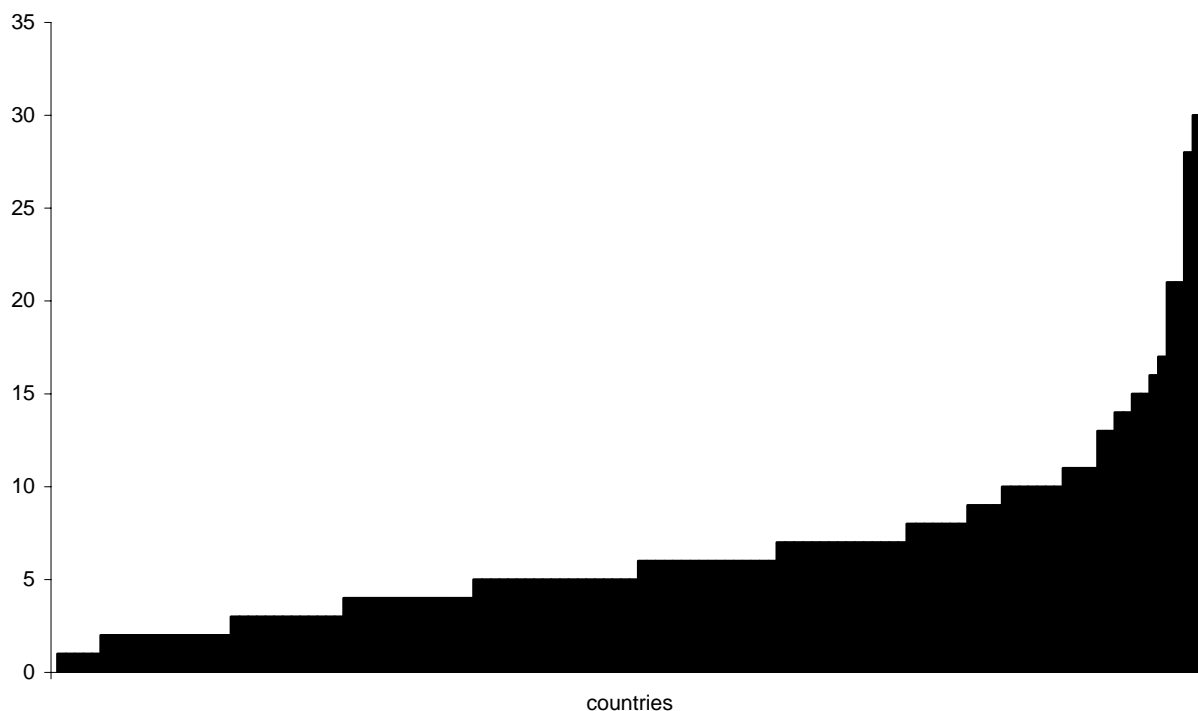

Figure 1 shows the frequency distribution of the number of governor changes during the time period for which we have information, while Figure 2 presents the average TOR for the countries in our sample. According to our dataset, on average a central bank governor remained in office for 3.6 years. On average, a turnover occurred in 22 percent of the country-years. Argentina (with an average TOR of 0.86) and Ecuador (average 0.80) have the highest turnover rates of the countries in our sample.

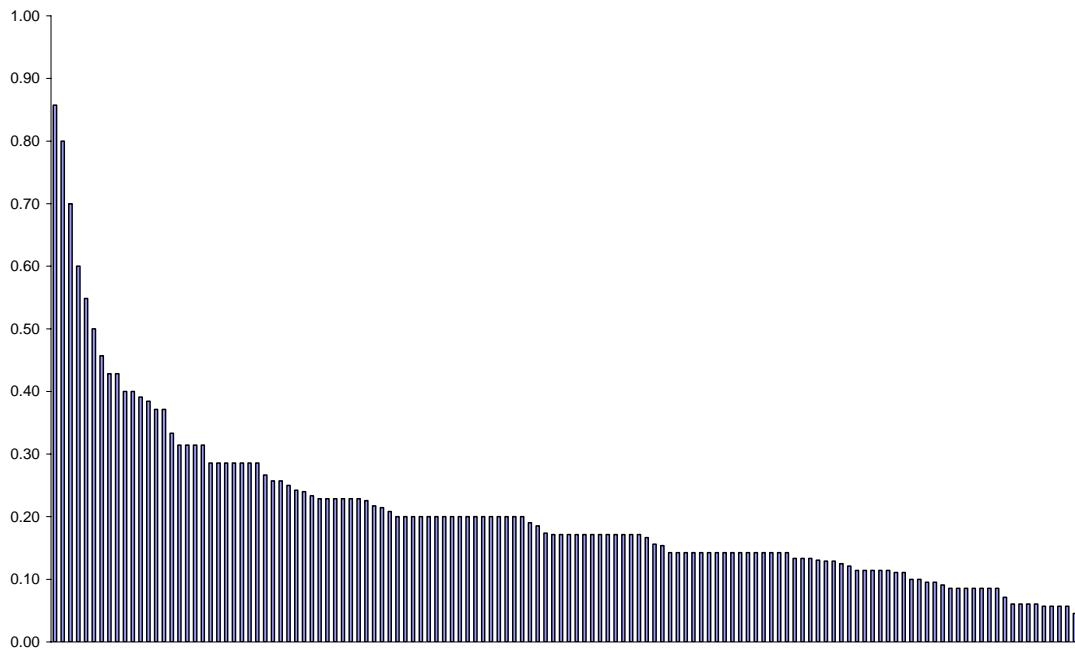*Figure 2. Average turnover rate for the countries in our sample*

Figure 3 shows the yearly average turnover for our full sample. It is interesting that after 1995, when many countries increased the legal independence of their central bank, the average number of turnovers decreases.[4] Figure 4 shows the average turnover for various regions, using the World Bank classification of regions. It becomes clear that there is quite some variation across regions. For instance, in Latin-America and Sub-Saharan Africa the turnover decreases at the end of the sample period, but there is no clear trend in some of the other regions, like Europe and Central Asia.

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[4] This result is not driven by the increasing number of countries in our sample in more recent years. When restricting the sample to countries with at least 30 observations, the overall picture looks very much alike.

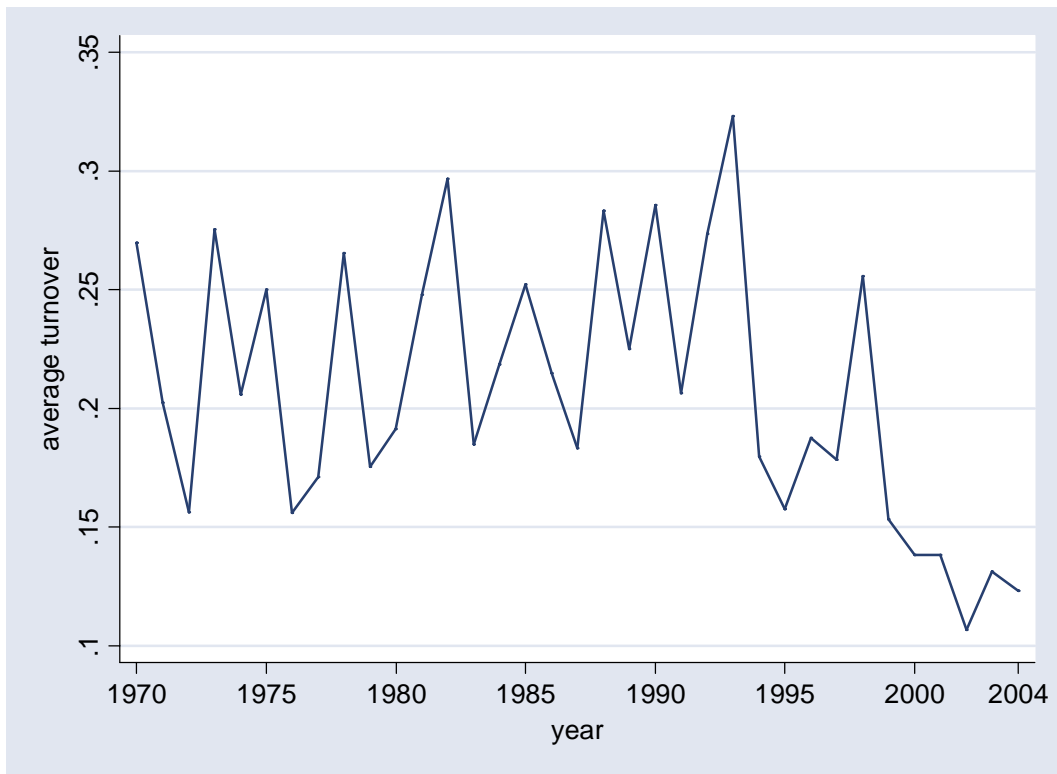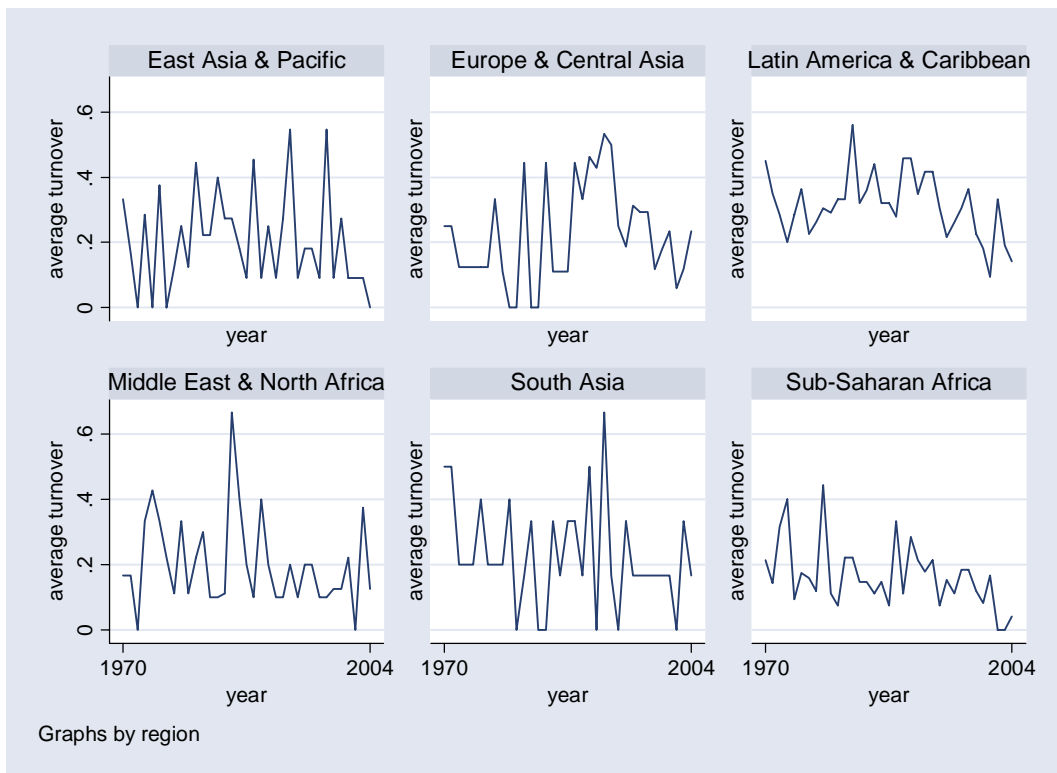*Figure 3. Average annual turnover rate, 1970-2004*

Figure 4. Average turnover in various regions, 1970-2004

Our dataset also includes information on the legal term in office of the central bank governor. Unfortunately, data is not available for all country-years in our sample. We obtained data on regular office terms for 91 countries, for an average of 31 years, ranging from 8-36. In some cases the governor's term in office is unlimited, and the most likely reason for a turnover is retirement due to age.

3. Methodology

According to Cukierman (1992), high and sustained inflation leads to the evolution of automatic or semi-automatic accommodative mechanisms, like indexation of contracts in the labour and capital markets, that may undermine central bank independence. Alternatively, it may be argued that a high inflation rate may cause the replacement of the central bank governor due to dissatisfaction with this policy outcome (Walsh, 2005). Both arguments, although fundamentally different in their reasoning, lead to the hypothesis that the higher the rate of inflation the shorter the term in office of the governor will be. We test this hypothesis using our new dataset.

We first estimate a model for the likelihood that a central bank governor is being replaced. Our dependent variable is binary, and takes the value one if the central bank governor was replaced in a particular year and country. We estimate our model employing conditional fixed effects Logit. In case of binary choice variables with panel data we observe:

$$
\begin{aligned}
y_{it} &= 1 \quad if \quad y_{it}^* > 0 \\
y_{it} &= 0 \quad if \quad y_{it}^* \le 0
\end{aligned}
\tag{1}
$$

where: $y_{it}^* = x'_{it}\beta + \alpha_i + v_{it}$. This function can be interpreted as the inclination of the government to replace the central bank governor, which is dependent on observed variables (x), unobserved individual (country) characteristics (α) and a random error term (v). The probability that we observe a replacement is:

$$
P(y_{it} = 1) = P(y_{it}^* > 0) = P(v_{it} > -x'_{it}\beta - \alpha_i) = F(x'_{it}\beta + \alpha_i).
\tag{2}
$$

In a fixed effects context, the number of parameters increases with the number of countries. This is known as the incidental parameters problem. Chamberlain (1980) shows that it is impossible to estimate the parameters of this binary choice model consistently and he therefore proposes a method to circumvent this problem, i.e. conditional Logit estimation. The idea of this approach is to condition the likelihood function on a minimal sufficient statistic for the fixed effects. Chamberlain argues that $\sum_{t=1}^{T} y_{it}$ is such a minimum sufficient statistic. The conditional likelihood function can now be written as:

$$L = \prod_{i=1}^{N} P(y_{i1}, \cdots, y_{iT} \mid \sum_{i=t}^{T} y_{it}) \tag{3}$$

The probability of the observed replacement of the central bank governor (by construction) no longer depends on the fixed effects and hence the coefficients of the variables of interest can be estimated consistently. In essence, the conditional fixed effects Logit estimator compares all observations within a given country when there is a replacement of the central bank governor with all the observations when there is no such change.[5]

Since some of the data are not available for all country-years, the panel data are unbalanced. All explanatory economic variables are lagged by one year to avoid simultaneity. The explanatory variable of prime interest, i.e. the inflation rate p, is transformed by the formula (p/100)/(1+(p/100)= π) to reduce the influence of extreme observations. The estimated model is:

$$govchange_{i,t} = \alpha + \beta_1 shelap_{i,t-1} + \beta_2 \pi_{t-1} + \beta_3 X_{i,t-1} + \eta_i + u_{i,t}, \tag{4}$$

where *govchange* is one in year *t* when at least one change of the central bank governor occurred in that year; *shelap* is the share of the governor's legal term in office elapsed, and *X* is a vector of control variables. η_i are the country dummies and u_{it} is an i.i.d. disturbance.

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[5] There is one obvious drawback in employing the conditional fixed effects Logit model: we cannot include explanatory variables that do not vary over time.

We include the share of the governors' term in office as stipulated by the central bank law that has elapsed. For instance, if the legal term in office is 8 years, and the governor has been in office for 4 years this variable is 0.5. However, in case of an indefinite or unknown term in office it is not obvious how to construct this variable. In those cases we presume that the maximum legal term in office is 8 years.[6]

To determine which control variables should be taken up, we have screened the literature to come up with a long list of potential control variables.[7] The variables are listed in Table A2 in the Appendix. We apply a general to specific approach to come up with our base model. Finally, we employ the so-called Extreme Bounds Analysis (EBA) to examine the robustness of our findings. This approach can be explained as follows. We estimate equations of the following general form:

$$govchange_{i,t} = \alpha M_{i,t} + \beta F_{i,t} + \gamma Z_{i,t} + u_{i,t} \,, \tag{5}$$

where M is a vector of 'standard' explanatory variables; F is the variable of interest (in our case: recent inflation); Z is a vector of up to three (here we follow Levine and Renelt, 1992) possible additional explanatory variables, which according to the literature may be related to the dependent variable; and u is an error term. We use the CDF(0) test suggested by Sala-i-Martin (1997), which is based on the fraction of the cumulative distribution function (CDF) lying on each side of zero. CDF(0) indicates the larger of the areas under the density function either above or below zero; in other words, regardless of whether this is CDF(0) or 1-CDF(0). So CDF(0) will always be a number between 0.5 and 1.0. Following Sala-i-Martin, a variable is considered to be robust if the CDF(0) test statistic > 0.90.[8]

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[6] We have also experimented with two alternatives. First, we assumed the term in office for countries with indefinite or unknown term in office to be equal to the average time in office in our sample, i.e. 3.6 years. Second, we took the average of those countries that have specified the term in office of the CB governor in their central bank law (5 years). It turned out that our main results are very similar under both alternatives (results available on request).

[7] Those few studies that explicitly estimate models explaining cross-country variation in CBI suggest various control variables. A good example is Stasavage and Keefer (2003) who argue that political replacement of a central bank governor is more likely in the presence of multiple political veto players; to take this argument into account we employ Henisz's (2000) data on political constraints. Frankel (2005) reports that in the year following a currency crash the finance minister or central bank governor – whoever held the office of the country's governor of the IMF – often lost his job. To take this argument into account, we employ a dummy variable reflecting the occurrence of a currency crisis. A very detailed motivation and description of the control variables is provided in Dreher *et al.* (2007).

[8] Recently, Sala-i-Martin *et al.* (2004) proposed a so-called Bayesian Averaging of Classical Estimates (BACE) approach to check the robustness of different explanatory variables in growth regressions. This approach builds upon the procedure suggested by Sala-i-Martin (1997) in the sense that different

In the final part of our analysis we estimate panel and cross-section models for inflation using a model similar to that of Campillo and Miron (1997). The models are first estimated by OLS, assuming that the TOR is exogenous. Next, we take the endogeneity of the TOR into account, using the results of our conditional fixed effects Logit model for the likelihood that a central bank governor is being replaced.

4. Results for the logit model

Table 1 shows the estimation results for equation (4). The specification is chosen on the basis of a general to specific approach applied to various possible control variables – shown in Table A2 of the Appendix – that all have been suggested to affect the term in office of central bank governors (see Dreher *et al*. 2007 for an extensive discussion). The estimation results suggest that five variables are significant determinants of the likelihood that a central bank governor will be replaced: the share of the legal term in office that has elapsed, the share of political veto players who drop, a post-election variable measuring the part of a year which is within 12 months after an election, a dummy for coups d'etats, and – most important for our analysis – (lagged) inflation.

Past inflation increases the probability that the central bank governor will be replaced at the five percent level of significance. According to the marginal effect, a percentage point increase in inflation increases the probability of a turnover by 21 percent.

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specifications are estimated (by OLS) to check the sensitivity of the coefficient estimate of the variable of interest. The biggest disadvantages of the BACE approach are the need of having a balanced data set, i.e. an equal number of observations for all regressions (due to the chosen weighting scheme) and the restriction of limiting the list of potential variables to be less than the number of observations.

Table 1. The impact of inflation on the likelihood

that a central bank governor will be replaced

	(1)
Share of term elapsed	0.825
	(7.97***)
Percentage of veto players who drop	0.340
	(1.92*)
Election	0.650
	(3.93***)
Coups	1.040
	(3.05***)
Inflation, t-1	1.020
	(2.32**)
Method	Logit
Fixed effects	yes
Prob > Chi2	0.00
Number of countries	119
Number of observations	2339

Table 2 shows the outcome of the EBA. We have employed two specifications for the M-vector. In the restricted model, only the share of the legal term if office that has elapsed is included in the M-vector, while the remaining variables listed in Table A2 in the Appendix are included in the Z-vector. In the full model, all variables arising from the general-to-specific approach as shown in Table 1 are taken up in the M vector, while the remaining variables are in the Z-vector. As can be seen, according to both specifications, the CDF(0) test indicates that inflation is robustly related to the likelihood that the central bank governor will be replaced.

Table 2. Is past inflation robustly related to the likelihood that CB governor is being replaced?

	CDF(0)
Restricted model	0.96
Full model	0.91

Now that we have shown that inflation has a robust impact on the likelihood that a central bank governor will be replaced, we will examine in the next section the

implications of this finding for models explaining cross-country inflation differentials using the TOR as a procy for CBI.

5. Inflation models

In this section we report panel and cross-section models for inflation. The dependent variable is our transformed inflation variable. Following Campillo and Miron (1997), we include the following explanatory variables:

- An indicator for openness (OPEN, defined as sum of export and import in relation to GDP) over the period under consideration (taken from the World Bank's *World Development Indicators*).

- The log of the level of GDP per capita (GDPCAP) at the beginning of the period (again from the *World Development Indicators*).

- A proxy for political instability (PI), measured by the first principal component of the number of assassinations, strikes, guerrilla warfare, major crises, riots, and revolutions in a particular country and year taken from the Databanks International (2005) Cross-National Time-Series Data Archive.

- An exchange rate dummy, which is one if the country's exchange rate is classified as fixed according to the de-facto classification of exchange rate regimes in Levy-Yeyati and Sturzenegger (2005), and zero otherwise. This variable is used to examine the impact of the exchange rate regime and is denoted as XRATE.

As it is well-known that the TOR may not be a good indicator of CBI in industrial countries (Cukierman, 1992), we not only include the TOR in the model, but also its interaction with a dummy that is one if the country concerned is an OECD country and zero otherwise.

The first column of Table 3 shows the results for a panel, using the averages or starting values of the variables for the periods 1970-79, 1980-89 and 1990-2004. In line with most previous studies, the coefficient of the TOR is positive and highly significant. Figure 5 shows recursive regressions of this model; the 30 countries with the lowest inflation are always included – additional countries are added one by one. In line with the findings of Sturm and De Haan (2001), the effect of the TOR only becomes significant if high-inflation countries are included. This suggests that the causality may run from inflation to turnovers rather than the other way round. Therefore, we next treat

the TOR as an endogenous variable using the variables that we found to be significant determinants of the likelihood that a central bank governor will be replaced as instruments. F-tests on the joint significance of our instruments (the average share of the legal term in office that has elapsed, percentage of veto players who drop, elections, and number of coups) in the first-stage regressions show that they are good predictors of turnovers, conditional on the full set of exogenous variables in the system. As the F-tests reported in Table 3 indicate, the Staiger-Stock critical value of 10 is easily passed in all regressions. In all regressions, the overidentifying restrictions are also accepted at the five percent level of significance at least.

The results are shown in column (2) of Table 3. It turns out that the TOR no longer has a significant impact on inflation. The same conclusion is reached for the cross-section models shown in columns (3) – (8) of Table 3. If the TOR is used in the OLS regression, its coefficient is generally significantly different from zero. However, in the 2SLS models, the TOR never has a significant impact on inflation.

*Table 3. Inflation: cross-country and panel models, 1970-2004*

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	1970-2004		1970-79		1980-89		1990-2004	
Instability	0.032	0.048	0.040	0.045	0.010	0.011	0.045	0.041
	(2.48)**	(2.53)**	(2.07)**	(1.56)	(0.26)	(0.29)	(1.79)*	(1.46)
Trade openness	0.000	0.000	-0.000	-0.000	-0.001	-0.001	-0.000	-0.000
	(0.74)	(0.44)	(1.54)	(1.47)	(2.29)**	(1.65)	(0.54)	(0.63)
(log) GDP p.c.	-0.127	-0.121	0.014	0.016	0.009	0.004	-0.029	-0.023
	(5.25)***	(3.46)***	(1.20)	(1.09)	(0.51)	(0.16)	(2.35)**	(1.15)
Fixed exchange rate, dummy	-0.084	-0.089	-0.078	-0.109	-0.084	-0.074	-0.022	-0.036
	(5.24)***	(4.09)***	(2.09)**	(1.99)*	(2.30)**	(1.95)*	(0.75)	(0.95)
Turnover	0.155	0.220	0.077	0.161	0.293	0.314	0.239	0.017
	(5.06)***	(1.24)	(1.66)	(1.51)	(3.61)***	(1.36)	(2.58)**	(0.06)
Turnover, OECD	-0.120	-0.855	-0.184	-1.412	0.157	-0.449	0.059	0.572
	(1.71)*	(0.95)	(1.11)	(1.23)	(0.49)	(0.33)	(0.22)	(0.31)
OECD, dummy			-0.032	0.137	-0.085	0.032	-0.023	-0.124
			(0.83)	(0.82)	(1.08)	(0.11)	(0.41)	(0.36)
Constant	1.207	1.185	0.039	0.021	0.109	0.137	0.335	0.341
	(6.08)***	(3.98)***	(0.41)	(0.17)	(0.78)	(0.84)	(3.45)***	(3.15)***
Method	Fixed effects	2SLS, Fixed effects	OLS	2SLS	OLS	2SLS	OLS	2SLS
Observations	598	483	81	78	100	99	116	115
Number of id	118	118						
R-squared	0.18		0.27		0.32		0.28	
Sargan test (p-value)		0.07		0.19		0.66		0.83
First-stage F-test		29.77		12.39		13.74		25.66

Absolute value of t statistics in parentheses
* significant at 10%; ** significant at 5%; *** significant at 1%

Note: In 2SLS, Turnover and ist interaction with the OECD dummy are instrumented with the average share of term elapsed, percentage of veto players who drop, elections, and number of coups.

Figure 5. Recursive regressions of the model shown in column (1) of Table 3
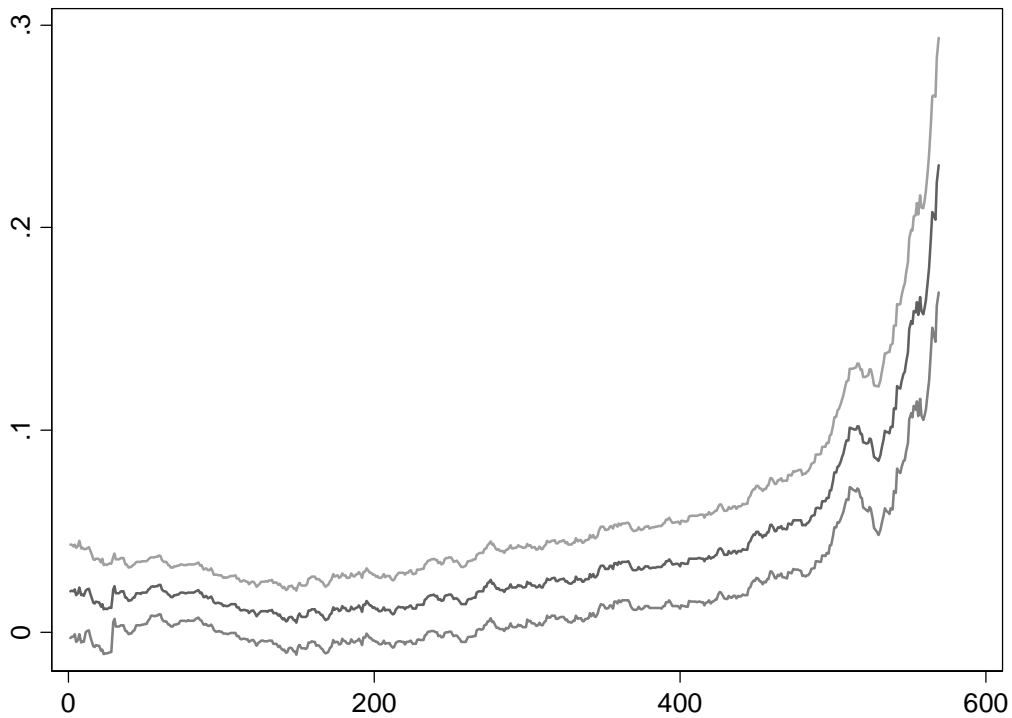
6. Concluding comments

Using a new data set on the term in office of central bank governors in 137 countries covering the period 1970-2004, we find that inflation increases the likelihood that the central bank governor will be replaced. This has implications for the so-called turnover rate of central bank governors, which is often used as an indicator of central bank independence (CBI). One objection that has been raised against the turnover rate as a proxy for CBI is that it may be endogenous to economic performance as causality may well run in the opposite direction. Our findings support this critique. In panel and cross-section models for inflation the turnover rate becomes insignificant once its endogeneity is taken into account.

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Appendix Table A1. A summary of the dataset on the turnover rate of central bank governors

Country	period	# changes	av. TOR	Country	period	# changes	av. TOR
Albania	1993-2005	5	0,38	Kenya	1971-2005	4	0,11
Algeria	1976-2005	6	0,20	Korea, Dem. Rep.	1971-2005	10	0,29
Argentina	1971-2005	30	0,86	Kuwait	1971-2005	3	0,09
Australia	1971-2005	4	0,11	Latvia	1992-2005	2	0,14
Austria	1971-2005	6	0,17	Lebanon	1971-2005	7	0,20
Bahamas, The	1975-2005	4	0,13	Lesotho	1979-2005	5	0,19
Bahrain	1971-2005	4	0,11	Libya	1982-1996	4	0,27
Bangladesh	1973-2005	8	0,24	Lithuania	1991-2005	3	0,20
Barbados	1973-2005	4	0,12	Luxembourg	1999-2005	1	0,14
Belgium	1971-2005	6	0,17	Madagascar	1974-2005	3	0,10
Belize	1983-2005	4	0,19	Malawi	1971-2005	7	0,20
Bermuda	1971-2005	6	0,17	Malaysia	1971-2005	5	0,14
Bhutan	1983-2005	3	0,13	Malta	1971-2005	8	0,23
Bolivia	1971-2005	21	0,70	Mauritius	1971-2005	4	0,11
Bosnia and Herzegovina	1998-2005	1	0,13	Mexico	1971-2005	7	0,20
Botswana	1976-2005	7	0,23	Mongolia	1971-2005	6	0,17
Brazil	1971-2005	21	0,60	Morocco	1971-2005	3	0,09
Bulgaria	1971-2005	7	0,20	Mozambique	1976-2005	4	0,13
Burundi	1978-2005	4	0,14	Namibia	1991-2005	3	0,20
Canada	1971-2005	5	0,14	Nepal	1971-2005	7	0,20
Cape Verde	1977-1998	2	0,09	Netherlands	1971-2005	2	0,06
Central African Republic	1971-2005	3	0,09	Netherlands Antilles	1971-2005	5	0,14
Chad	1973-2005	2	0,06	New Zealand	1971-2005	5	0,14
Chile	1971-2005	15	0,43	Nicaragua	1980-1997	9	0,50
China	1971-2005	8	0,23	Nigeria	1971-2005	5	0,14
Colombia	1971-2005	5	0,14	Norway	1971-2005	5	0,14
Congo, Dem. Rep.	1973-2005	2	0,06	Pakistan	1971-2005	10	0,29
Costa Rica	1971-2005	16	0,46	Panama	1971-1988	2	0,11
Croatia	1991-2005	3	0,20	Paraguay	1971-2005	8	0,23
Cyprus	1971-2005	2	0,06	Peru	1971-1993	9	0,39
Czech Republic	1971-2005	7	0,20	Philippines	1971-2005	6	0,17
Denmark	1971-2005	5	0,14	Poland	1971-2005	11	0,31
Djibouti	1978-1998	2	0,10	Portugal	1971-2005	11	0,31
Dominican Republic	1971-2005	14	0,40	Qatar	1975-1998	1	0,10
Ecuador	1971-2005	28	0,80	Romania	1971-2005	6	0,17
Egypt, Arab Rep.	1971-2005	7	0,20	Russian Federation	1991-2005	5	0,33
El Salvador	1971-2005	13	0,37	Samoa	1985-2005	2	0,10
Equatorial Guinea	1973-2005	2	0,06	Saudi Arabia	1971-2005	2	0,06
Estonia	1991-2005	2	0,13	Serbia and Montenegro	1971-2005	10	0,29
Ethiopia	1971-2005	7	0,20	Seychelles	1979-2005	3	0,11
Fiji	1975-2005	7	0,23	Singapore	1971-2005	8	0,23
Finland	1971-2005	6	0,17	Slovak Republic	1994-2005	2	0,17
France	1971-2005	6	0,17	Slovenia	1992-2005	1	0,07
Gabon	1973-2005	2	0,06	Solomon Islands	1984-2005	1	0,05
Gambia, The	1973-1998	4	0,15	South Africa	1971-2005	3	0,09
Georgia	1978-2005	7	0,25	Spain	1971-2005	5	0,14
Germany	1971-2005	7	0,20	Sri Lanka	1971-2005	6	0,17
Ghana	1971-2005	6	0,17	Sudan	1971-2005	10	0,29
Greece	1971-2005	9	0,26	Suriname	1971-2000	4	0,13
Guatemala	1971-2005	15	0,43	Swaziland	1975-2005	4	0,13
Guinea	1977-1999	5	0,22	Sweden	1971-2005	6	0,17
Guyana	1971-2005	3	0,09	Switzerland	1971-2005	5	0,14
Haiti	1975-2005	17	0,55	Syrian Arab Republic	1975-1998	5	0,21
Honduras	1976-2005	6	0,20	Tanzania	1971-2005	4	0,11
Hungary	1971-2005	6	0,17	Thailand	1971-2005	10	0,29
Iceland	1971-2005	2	0,06	Trinidad and Tobago	1971-2005	5	0,14
India	1971-2005	11	0,31	Tunisia	1976-2005	6	0,21
Indonesia	1974-2005	5	0,16	Turkey	1971-2005	10	0,29
Iran, Islamic Rep.	1971-2005	11	0,31	Uganda	1971-2005	8	0,23
Ireland	1971-2005	5	0,14	United Kingdom	1971-2005	7	0,20
Israel	1971-2005	7	0,20	United States	1971-2005	3	0,09
Italy	1971-2005	3	0,09	Uruguay	1971-2005	14	0,40
Jamaica	1971-2005	10	0,29	Vanuatu	1981-2005	6	0,24
Japan	1971-2005	7	0,20	Venezuela, RB	1971-2005	13	0,37
Jordan	1971-2005	5	0,14	Zambia	1971-2005	9	0,26
Kazakhstan	1971-2005	8	0,23	Zimbabwe	1971-1993	4	0,17

Appendix. Table A2. Variables used: definition and descriptive statistics

Variable	Obs.	Mean	Std.Dev.	Min	Max
Governor changed, dummy	4226	0.20	0.40	0.00	1.00
Share of term elapsed	4278	0.64	0.74	0.00	5.67
Percentage of veto players who drop	4887	0.10	0.27	0.00	1.00
Part of a year which is within 12 months after an executive or legislative election	6448	0.14	0.28	0.00	1.00
Coups d'etat, dummy	4916	0.03	0.17	0.00	2.00
Transformed inflation	4436	0.11	0.15	-0.28	1.00
External debt of central government scaled to GDP (%)	3568	68.09	87.96	0.00	1598.22
Government budget balance as % of GDP	907	2.23	8.70	-21.25	203.72
Average of 4 indicators (surrender of export proceeds, multiple exchange rate, capital account restrictions, current account restrictions)	3618	0.54	0.33	0.00	1.00
New chief executive party, dummy	7488	0.05	0.22	0.00	1.00
Change in the Polity democracy variable > 3, dummy	7488	0.01	0.11	0.00	1.00
First principal component of various instablity indicators	5296	0.00	0.67	-0.52	17.84
Private credit by deposit money banks and other financial institutions scaled to GDP	3614	0.37	0.32	0.00	1.79
Polarization*checks and balances	4805	1.21	3.14	0.00	32.00
Party of chief executive is left-wing, dummy	6863	0.21	0.41	0.00	1.00
Depreciation of the nominal exchange rate with respect to the US$	5688	0.00	0.03	-0.01	0.96
A country is defined as experiencing a currency crisis when index covering the rate of change of the exchange rate and international currency reserves is one standard deviation greater than the index mean	4694	0.10	0.30	0.00	1.00
Political constraints	5076	0.31	0.34	0.00	0.89
Sum of exports and imports of goods and services measured as a share of gross domestic product	4965	76.01	44.23	1.53	330.60

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