What Really Matters:
Conservativeness or Independence?

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1. Introduction

Nowadays it is often believed that a high level of central bank independence coupled with some explicit mandate for the bank to restrain inflation are important institutional devices to assure price stability. Indeed, most recent research suggests that countries with an independent central bank have a better inflation performance than countries where the government has much influence on the conduct of monetary policy.

Central bank independence refers to three areas in which the influence of government must be excluded or drastically curtailed: independence in personnel matters, financial autonomy and policy independence (Eijffinger and de Haan 1996). *Personnel independence* refers to the influence that government has in appointment procedures. Various criteria are relevant here, like governmental representation in the governing body of the central bank, appointment procedures, term of office and procedures governing dismissal of the board of the bank. It is clear that politicians can influence the central bank if the government is able to finance its expenditure either directly or indirectly via central bank credits. In that case there is no *financial independence.*[1] *Policy independence* is related to the ma-

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[1] Sometimes another interpretation is given to the concept of financial independence, namely that the central bank should be able to avail itself of the appropriate means to fulfil its mandate. So there should be no need for financial support of the government. Similarly, the budget of the central bank should not require approval of government or parliament.

noeuvering room given to the central bank in the formulation and execution of monetary policy. As has been pointed out by Debelle and Fischer (1995), it may be useful to distinguish between goal independence and instrument independence. With respect to goal independence, two related issues are important: the scope for the central bank to exercise its own discretion, and whether the central bank has monetary stability as its primary goal. If the central bank has been trusted with various goals – such as achieving low inflation and low unemployment – it has the greatest possible scope for discretion. In that case the central bank has considerable *goal independence* since it is free to set the final goals of monetary policy. Alternatively, the central bank's discretionary powers may be restricted by giving it either general or specific objectives with respect to price stability. Finally, a central bank that has *instrument independence* is free to choose the means by which it seeks to achieve its goals. Clearly, if government approval is required of the central bank's use of policy instruments, no instrument independence exists.[2]

An important assumption in the empirical literature on central bank independence is that central banks in which the only policy goal (as specified in the law) is price stability are classified as being more independent than central banks with a number of objectives in addition to price stability. However, it will be clear that when the central bank cannot determine the goals of monetary policy, the central bank under consideration has no goal independence. The reason that many authors take the presence of statutory objectives into account in constructing indicators of central bank independence is that in the theoretical literature the degree of inflation aversion ("conservativeness") plays a central role. The concepts of "conservativeness" and independence should however be clearly distinguished, not only in theoretical but also in empirical research. In this paper we therefore decompose two indicators of central bank independence into an indicator for the "conservative bias" of the central bank as embodied in the law and an indicator for independence proper. It is shown that notably instrument independence matters for the inflation performance, whereas the "conservativeness" of the central bank and other aspects of independence (like personnel independence) have little or no impact on inflation (variability). Both independence and "conservativeness" are not related to output variability.

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[2] It will be clear that if the central bank is obliged to finance budget deficits, there is also no instrument independence. In that sense financial independence and instrument independence are related; instrument independence is, however, much broader.

The remainder of the paper is organized as follows. Section 2 briefly reviews the literature. Here we will also comment on some recent publications in this journal in which the finding of an inverse relationship between central bank independence and inflation has been questioned. Section 3 shows our decomposition of the indicators of Grilli, Masciandaro and Tabellini (1991) and Cukierman (1992), while Section 4 presents the estimation results. The final Section offers some concluding comments.

2. Review of the literature

The starting point of the modern theoretical literature on central bank independence is the inflationary bias inherent to monetary policy due to the time inconsistency problem (Kydland and Prescott 1977, Barro and Gordon 1983). If policy makers are able to convince the public of a certain inflation target and the public behaves accordingly, the government has an incentive to create unexpected inflation as that entails certain benefits (like lower unemployment). In case of rational expectations, the public is aware of these incentives and takes them into account in forming inflationary expectations. Now the government has little choice but to validate these expectations. So inflation is considerably higher if government behaves in this way in comparison to a situation in which policy makers stick to a certain policy rule. As the same level of output is realised in both cases, the latter outcome is clearly superior. No matter what factors exactly cause the dynamic inconsistency problem,[3] in all cases the resulting rate of inflation is sub-optimal. So in the literature devices have been suggested to reduce the inflationary bias.

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[3] One consideration would be the lower unemployment rate resulting from a monetary surprise. Other sources of the time inconsistency problem originate with the public finances. The dynamic inconsistency of monetary policy may first arise, because the incentives for the government to inflate change before and after the public has settled for a nominal interest rate, taking into account its expected rate of inflation. Before the public commits itself, the central bank has an incentive to abstain from making inflation. After positions in government bonds have been taken, policy makers have an incentive to create inflation. Another source of the inconsistency problem also originates in the finances of government and may be referred to as the 'revenue' or 'seigniorage' motive for monetary expansion. The dynamic inconsistency of monetary policy arises here, because incentives for the government to inflate change before and after the public has chosen the level of real money balances.

Rogoff (1985) has proposed to delegate monetary policy to a central banker who is more averse to inflation than the government, in the sense that he places a greater weight on the loss from inflation than the government does. The Appendix presents a simplified model to show this. It follows from this model that if monetary policy is delegated to a "conservative" central bank, which is independent, the inflationary bias is reduced. The variance of output is, however, an increasing function of the "conservativeness" of the central banker. So, although the appointment of an independent and "conservative" central banker will reduce inflation, it has a price in terms of higher output variability. However, this last conclusion will change if another source of output variability is introduced in the Rogoff model. Alesina and Gatti (1995), for instance, included uncertainty about the future course of policy, which is due to uncertain electoral outcomes in case there are two contending parties with different preferences over inflation and output. Now the overall effect of central bank independence/"conservativeness" on output variability is ambiguous.

Recently Eijffinger and Hoeberichts (1996) have shown that there is a trade off between the degree of "conservativeness" of the central bank and its independence. In line with Rogoff's approach, these authors define "conservativeness" as the weight the central bank puts on inflation losses, whereas independence is defined in terms of policy independence, i.e. the degree to which the central bank can pursue monetary policy without interference from government. It is shown by Eijffinger and Hoeberichts that the same policy outcomes can be reached under different combinations of "conservativeness" and independence (see the Appendix for further details). In other words, more independence and a higher degree of "conservativeness" both may help in reducing inflation. In Section 4 we will present some simple regressions in which we make a distinction between "conservativeness" and independence. But before doing so, we first will briefly review the state of the art of the empirical literature on central bank independence.

In the empirical literature initially most authors reported a negative relationship between central bank independence and inflation (see Eijffinger and de Haan 1996). However, in more recent contributions it has been argued that this conclusion may be premature. Akhtar (1995) argues, for instance, that the time inconsistency theory of inflationary bias is consistent with the inflation experience of the 1970s in most industrial countries, but that the various adverse

shocks which hit the world economy during that period forms an alternative explanation. As most policy makers at the time accepted the same version of the Phillips curve trade off, they were ready to let these shocks pass into higher inflation. However, this argument cannot explain the considerable differences in monetary policy between countries during the 1970s.

Some recent studies question the robustness and relevance of the inverse relationship between central bank independence and inflation. Cargill (1995) argues, for instance, that the inverse relationship critically hinges on countries and time periods included and on the regression specification. However, this argument is unconvincing, as Cargill uses only one measure of central bank independence. As pointed out by Eijffinger and de Haan (1996), there exist various indicators for central bank independence, which are quite diverging. Furthermore, one would expect different results under fixed and under floating exchange rate regimes. Under the Bretton Woods system of fixed exchange rates, countries were committed to an exchange rate target and had little room to conduct an autonomous domestic monetary policy. Thus, the relation between central bank independence and inflation is likely to be much less straightforward before 1973. Regression analysis by Grilli, Masciandaro and Tabellini (1991) and de Haan and Sturm (1992) supports this view.

In our view the relationship between indicators of central bank independence and inflation is quite robust, also if various control variables are included. For instance, Havrilesky and Granato (1993) take the strength of corporatist structures into account, while Al-Marhubi and Willett (1995), in addition, employ indicators for openness, the degree exchange rates are fixed and budget deficits. Again, the coefficients of the various indicators for central bank independence remain significant. Recently, Jenkins (1996) has reached a different conclusion. If his index of corporatism is included, the coefficient of the index of central bank independence is no longer significantly different from zero. However, this author only employs Cukierman's index in his regressions so it is not clear whether his finding is robust. In most previous research the Cukierman-index also appeared to have the lowest correlation with inflation.

The foregoing does not imply, however, that we accept the conclusions of the empirical literature as such. As pointed out in the introduction, many empirical indicators of central bank independence, notably those of Grilli, Masciandaro and Tabellini (1991;

hereafter GMT) and of Cukierman (1992), also take into account whether the central bank should aim for price stability. However, the value of these codings increases, the more stringent the objective of price stability is, i.e. the *less* goal independent the central bank in fact is. As pointed out before, the reason for this is that the indices under discussion suppose to measure the "conservativeness" of the central bank. So in fact, the Cukierman and GMT indicators are hybrid in the sense that they both measure "conservativeness" as embodied in the law and independence properly. In the following Section we will therefore decompose both indices.

3. "Conservativeness" versus independence

From a practical point the concept of a "conservative" central banker seems void, if only since the preferences of possible candidates for positions in the governing board of a central bank are generally not very easy to identify and may change after they have been appointed. So it is hard to find some real world example of a "conservative" central banker. Still, one could argue that the statute of the central bank can be relevant here, especially with respect to the question of whether or not it defines price stability as the primary goal of monetary policy. Indeed, in constructing his measure of central bank independence, Cukierman (1992) takes this issue into account. If the statute of a central bank defines price stability as the primary policy goal, the central bank concerned gets a high score on this part of his index, since "in Rogoff's terminology, it measures how strong is the "conservative bias" of the central bank as embodied in the law" (Cukierman 1992, p. 377). Following this line of thought we have decomposed the indicators of Cukierman and GMT (1991) into "conservativeness" and various aspects of independence (personnel independence, financial independence and policy independence).

The index of Cukierman (1992) and Cukierman, Webb and Neyapti (1992) is based upon interpretation of various elements of central bank laws which are in turn grouped into four clusters. For each variable in these clusters Cukierman discerns various possibilities, which get a numerical coding between zero and one. For instance, in the cluster on policy objectives the following possibi-

lities exist: price stability is the major or only objective and in case of conflict the central bank has the final word (1); price stability is the only objective (0.8); price stability is one goal, with other compatible objectives (0.6); price stability is one goal, together with other, potentially conflicting objectives (0.4); the charter does not state any objective (0.2); and, finally, stated objectives do not include price stability (0). The numerical coding is shown in parentheses.

The clusters are very similar to the various aspects of central bank independence as distinguished previously, i.e. personnel independence, instrument independence and financial independence. Therefore, we have them used as the basis to construct four variables:

a) appointment. This is the sum of all variables in the first cluster as distinguished by Cukierman (1992).[4] It is a proxy for personnel independence;

b) instrument. This is the sum of the variables in the second cluster, except for one.[5] This variable proxies instrument independence;

c) conservative. This is the score for the third cluster, and proxies the "conservativeness" of the bank;

d) financial, which includes most variables in the fourth cluster as discerned by Cukierman (1992).[6] It proxies financial independence.

The proxies for the various aspects of central bank independence are constructed for the period 1972-1979 and 1980-1989 for 21 industrial countries.[7]

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[4] To be precise, these variables are: too (term of office of central bank president), app (who appoints the president?), diss (provisions for dismissal) and off (is president allowed to hold another office?).

[5] In this cluster Cukierman (1992) also discerns whether the central bank has an active role in the formulation of government's budget, which has – in our view – nothing to do with central bank independence. The variables included are: monpol (who formulates monetary policy?) and conf (government directives and resolution of conflict).

[6] Not included are: ltype (type of limit on lending to government), for which there were too many missing observations, and lprim (prohibition on lending in primary market), which is zero in all countries in our sample.

[7] There are only some minor differences between these two periods. Only Spain and Switzerland receive slightly different scores. The countries in our sample are: Australia, Austria, Belgium, Canada, Switzerland, Germany, Denmark, Spain, Finland, France, UK, Greece, Ireland, Iceland, Italy, Japan, the Netherlands, Norway, New Zealand, Sweden and the USA.

In a similar vein we have decomposed the index of GMT (1991). This index consists of two parts. The first part focusses on appointment procedures for board officials, the length of their term to office and the existence of the statutory requirement to pursue monetary stability. The economic independence indicator focusses on the extent to which the central bank is free from government influence in implementing monetary policy. Generally the total score on the political and economic independence is employed as indicator for legal central bank independence. We have constructed the four variables as follows:

a) appointment. This is the sum of the first five questions in the GMT index of political independence that all relate to appointment procedures;

b) instrument. This is the sum of questions 6 and 8 of the political independence and question 6 of the economic independence index;[8]

c) conservative. This is the score on the question of whether there are statutory requirements that the bank pursues monetary stability among its goals;

d) financial, which is the sum of the first 5 question of the GMT index of economic independence that all relate to the monetary financing of the budget deficit.

Table 1 provides a correlation matrix. It follows from this Table that the correlation between the various aspects of central bank independence and "conservativeness" is generally very low, except for the proxies for instrument and financial independence. As has already been explained in note 2, these concepts of independence may show some overlapping. This conclusion holds both for the decomposition of the Cukierman index and for the decomposition of the GMT index, with the exception of the correlation between "conservativeness" and instrument independence based on GMT. As our proxies for instrument and financial independence are also from a theoretical point of view related, we have also calculated the sum

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[8] The questions are: is government approval of monetary policy required? are there legal provisions that strengthen the bank's position in case of conflict with the government? and is the discount rate determined by the central bank? Note that our decomposition of the GMT index is different from that of Debelle and Fischer (1995).

TABLE 1

CORRELATION MATRIX

Correlation matrix Cukierman index			
	Instrument	Appointment	Financial
Conservativeness	0.25	0.11	0.22
Instrument		0.05	0.61
Appointment			0.23
Correlation matrix GMT index			
Conservativeness	0.84	0.13	0.42
Instrument		0.01	0.57
Appointment			0.02

of both variables which we consider as an alternative proxy for instrument independence.

4. Estimation results

Table 2 presents the regression outcomes of pooled cross-section time series for the periods 1972-1979 and 1980-1989, with inflation (measured as the change in the CPI) as the dependent variable.[9] The first rows show the outcomes if one of the variables that we have constructed are added subsequently. It follows from Table 2 that our proxies for instrument independence are always significantly related to inflation. This is not true for the proxies for "conservativeness". In the upper part of the Table its coefficient is never significantly different from zero, while in the lower part of the Table its coefficient looses significance as soon as one of our proxies for instrument independence is included. It also follows from Table 2 that our proxies for personnel independence are never significantly different from zero. This is also true if these proxies are the only explanatory variables included (not shown).

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[9] Data are from IMF (1994).

TABLE 2

INFLATION, CENTRAL BANK "CONSERVATIVENESS" AND INDEPENDENCE

Variable	(1)	(2)	(3)	(4)	(5)
Conservative	0.92 (0.43)	2.06 (1.05)	2.13 (1.10)	2.23 (1.12)	2.08 (1.05)
Instrument		-3.04 (-3.73)**	-3.02 (-3.83)**	-2.27 (-2.01)*	-1.04 (-3.37)**
Appointment			-0.36 (-0.58)	-0.16 (-0.26)	-0.03 (-0.05)
Financial				-0.58 (-0.95)	
Dummy 1972-79	2.38 (2.10)*	2.41 (2.28)*	2.39 (2.25)*	2.40 (2.24)*	2.40 (2.25)*
R² (Adj.)	0.73	0.76	0.76	0.76	0.76
Conservative	-3.46 (-3.50)**	1.05 (0.66)	1.22 (0.74)	1.15 (0.69)	-0.57 (-0.43)
Instrument		-2.63 (-3.39)**	-2.70 (-3.34)**	-2.32 (-2.64)*	-1.00 (-3.02)**
Appointment			-0.16 (-0.40)	-0.16 (-0.40)	-0.06 (0.14)
Financial				-0.47 (-1.06)	
Dummy 1972-79	3.72 (3.77)**	3.62 (4.26)**	3.61 (4.19)**	3.55 (4.11)**	3.52 (3.96)**
R² (Adj.)	0.53	0.65	0.64	0.64	0.62

Notes: The upper part of Table 2 shows the results for the decomposition of the Cukierman index, while the lower part shows the outcomes for the GMT decomposition. A constant and a dummy for Iceland are included in all regressions in the upper part of Table 2. A constant and a dummy for Greece in the second subperiod are included in all regressions in the lower part of Table 2. The qualitative conclusions are not sensitive to the inclusion of these dummies. T-statistics are in parentheses.
*,** Denote significance at 5% and 1% level, respectively.
In column (5) the indicator for instrument independence consists of the sum of "instrument" and "financial".

Table 3 shows the results for inflation variability. Similar results show up as for inflation. Again our proxies for instrument independence show the highest correlation.

Table 4 presents the outcomes for the standard deviation of economic growth. The data for economic growth have been taken from the OECD *Economic Outlook*. As has been pointed out in Section 2, the effect of central bank independence/"conservativeness"

TABLE 3

INFLATION VARIABILITY, CENTRAL BANK "CONSERVATIVENESS" AND INDEPENDENCE

Variable	(1)	(2)	(3)	(4)	(5)
Conservative	-0.05 (-0.06)	0.31 (0.43)	0.30 (0.41)	0.33 (0.45)	0.28 (0.39)
Instrument		-0.96 (-3.16)**	-0.97 (-3.12)**	-0.73 (-1.52)*	-0.33 (-2.72)**
Appointment			0.06 (0.25)	0.12 (0.48)	0.17 (0.72)
Financial				-0.18 (-0.70)	
Dummy 1972-79	-0.40 (-0.82)	-0.39 (-0.82)	-0.39 (-0.81)	-0.38 (-0.80)	-0.39 (-0.81)
R² (Adj.)	0.76	0.78	0.77	0.77	0.77
Conservative	-1.32 (-3.33)**	-0.12 (-0.15)	-0.09 (-0.11)	-0.24 (-0.31)	-0.52 (-0.97)
Instrument		-0.69 (-1.89)*	-0.70 (-1.84)*	-0.48 (-1.13)	-0.28 (-2.16)**
Appointment			-0.03 (-0.17)	-0.02 (-0.11)	-0.00 (-0.03)
Financial				-0.22 (-0.17)	
Dummy 1972-79	0.15 (0.38)	0.20 (0.52)	0.20 (0.52)	0.19 (0.50)	0.18 (0.47)
R² (Adj.)	0.33	0.38	0.36	0.37	0.39

Notes: The upper part of Table 3 shows the results for the decomposition of the Cukierman index, while the lower part shows the outcomes for the GMT decomposition. A constant and a dummy for Iceland are included in all regressions in the upper part of Table 3. A constant and a dummy for Ireland in the second subperiod are included in all regressions in the lower part of Table 3. The qualitative conclusions are not sensitive to the inclusion of these dummies. T-statistics are in parentheses.
*,** Denote significance at 5% and 1% level, respectively.
In column (5) the indicator for instrument independence consists of the sum of "instrument" and "financial".

on output variability is not *a priori* clear. Indeed, in the regressions shown in Table 3 none of the coefficients for our proxies for "conservativeness" and various aspects of independence are ever significant.

Finally, we have examined whether our proxies are related to economic growth, private investment and unemployment. We do not

TABLE 4

OUTPUT VARIABILITY, CENTRAL BANK "CONSERVATIVENESS"
AND INDEPENDENCE

Variable	(1)	(2)	(3)	(4)	(5)
Conservative	0.08 (0.24)	0.15 (0.40)	0.14 (0.38)	0.10 (0.28)	0.04 (0.10)
Instrument	.	−0.16 (0.65)	−0.17 (−0.65)	−0.45 (−1.46)	−0.04 (0.45)
Appointment			0.03 (0.20)	−0.03 (−0.19)	0.01 (0.10)
Financial				0.21 (0.57)	
Dummy 1972-79	0.49 (2.18)*	0.50 (2.20)**	0.50 (2.18)**	0.50 (2.21)**	0.48 (2.11)**
R² (Adj.)	0.43	0.42	0.41	0.43	0.41
Conservative	0.04 (0.19)	0.16 (0.41)	0.18 (0.46)	0.18 (0.43)	0.12 (0.41)
Instrument		−0.07 (−0.37)	−0.08 (−0.41)	−0.03 (−0.31)	(−0.39)
Appointment			−0.03 (−0.32)	−0.03 (−0.31)	−0.03 (−0.29)
Financial				−0.01 (−0.13)	
Dummy 1972-79	0.62 (2.98)**	0.62 (2.94)**	0.63 (2.90)**	0.63 (2.85)**	0.63 (2.90)**
R² (Adj.)	0.59	0.58	0.62	0.55	0.56

Notes: The upper part of Table 4 shows the results for the decomposition of the Cukierman index, while the lower part shows the outcomes for the GMT decomposition. A constant and a dummy for New Zealand in the first period are included in all regressions in Table 4. The qualitative conclusions are not sensitive to the inclusion of this dummy. T-statistics are in parentheses.
*,** Denote significance at 5% and 1% level, respectively.
In column (5) the indicator for instrument independence consists of the sum of "instrument" and "financial".

find indications that they are. These results could be interpreted differently. On the one hand one can argue that instrument independence lowers inflation without increasing output variability or unemployment. However, the absence of a significant influence of our proxies for central bank independence and "conservativeness" on the rate of economic growth and unemployment can also be interpreted in a less positive way. Stable monetary policy aimed at low inflation is, usually, considered to be an important condition for sustainable economic growth. However, like most previous empirical studies for industrial countries, our results suggest that central bank autonomy does not enhance economic growth and employment (see Eijffinger and de Haan 1996).

5. Concluding comments

Most recent empirical research suggests that countries with an independent central bank have a better inflation performance than countries where the government has much influence on the conduct of monetary policy. This finding is in line with the theoretical literature, initiated by Rogoff (1985) and further developed by Cukierman (1992) and Eijffinger and Hoeberichts (1996). Although the theoretical literature distinguishes between independence and "conservativeness" (inflation aversion) of the central bank, empirical studies on the relationship between central bank independence and inflation do not make a distinction between both concepts. Indeed, many indicators of legal central bank independence are hybrid in the sense that they both measure "conservativeness" as embodied in the law and independence properly. In this paper we have therefore decomposed two indicators for central bank independence into the "conservativeness" of the central bank as embodied in the law and aspects of independence, namely personnel independence, financial independence and instrument independence. Using data for OECD countries over the periods 1972-79 and 1980-89 it is concluded that notably instrument independence matters for the inflation performance, whereas the "conservativeness" of the central bank and other aspects of independence have little or no impact on inflation (variability). Both independence and "conservativeness" are not related to output variability.

APPENDIX

We can summarize Rogoff's argument as follows (see also Eijffinger and de Haan 1996). Government's loss function is given by

$$L_t = \frac{1}{2} \pi_t^2 + \frac{\chi}{2}(y_t - \hat{y}_t)^2 \qquad (1)$$

where the weight on output stabilization $\chi > 0$ and $\hat{y} > 0$, so that the desired level of output, $\hat{y}$, is above the natural level. Rogoff shows that it is optimal to choose an independent central banker who assigns a higher weight to price stability in his loss function (i.e., who is more "conservative" than the government):

$$I_t = \frac{1 + \varepsilon}{2} \pi_t^2 + \frac{\chi}{2}(y_t - \hat{y}_t)^2 \qquad (2)$$

where ε, the additional weight on the inflation goal (the "conservativeness" of the central banker), lies between zero and infinity ($0 < \varepsilon < \infty$).

Substituting a simple Lucas supply curve

$$y_t = y_n + \beta(\pi_t - \pi_t^e) + u_t \qquad (3)$$

where π is inflation, π^e is expected inflation, y_t is output, y_n is the natural output and u_t is a random shock and taking first-order conditions with respect to π_t and solving for rational expectations, we obtain:

$$\pi_t = \frac{\chi}{1 + \varepsilon} \hat{y} - \frac{\chi}{1 + \varepsilon + \chi} \mu_t \qquad (4)$$

It follows that the introduction of a conservative central banker ($\varepsilon > 0$) leads to a lower inflationary bias.[1]

Recently Eijffinger and Hoeberichts (1996) have shown that there is a trade off between the degree of "conservativeness" of the central bank and its independence. Defining independence of the central bank as the extent to which the bank determines monetary policy without the interference of the government, one can write monetary policy M_t as:

$$M_t = \gamma I_t + (1 - \gamma)L_t \qquad (5)$$

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[1] This can be shown very easily by calculating the inflation rate through optimizing equation (1) after substitution of equation (3). The inflation rate under equation (4) is lower.

So monetary policy is driven by the loss function of the government (L) and that of the central bank (I), with weights γ and $1 - \gamma$. The factor γ indicates the degree of independence of the central bank, since it indicates whether the central bank or government determines monetary policy. Eijffinger and Hoeberichts (1996) show that the product of ε and γ matters for monetary policy. This follows from the substitution of the loss functions of society and the central bank into equation (5). They show that there is an optimal combination of independence and "conservativeness" that minimizes M_t (see Figure 1). Or, in other words, given a certain degree of independence (or "conservativeness"), there is one optimal level of "conservativeness" (independence).

FIGURE 1
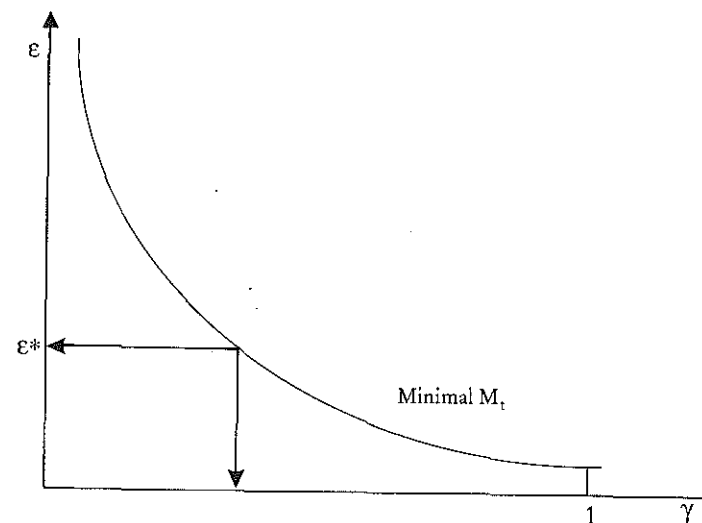
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