Voting Transparency and Conflicting Interests in Central Bank Councils

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Abstract

Voting Transparency and Conflicting Interestes in Central Bank Councils

This paper examines whether it is socially desirable for the individual voting records of central bank council members to be published when central bankers'preferences differ. We show that the misrepresentation of their preferences is not advantageous for central bankers although central bankers take into account the fact that they might not be re-elected. Thus, the publication of voting records is beneficial since the government can distinguish central bankers‘ in terms of their preferences and can align the central bank council's preferences with those of the general public over time by means of its re-election decisions.

Zusammenfassung

Abstimmungstransparenz und Interessenkonflikte in Zentralbankräten

In diesem Papier wird untersucht, ob die Veröffentlichung über das individuelle Abstimmungsverhalten von Zentralbankratsmitgliedern sozial wünschenswert ist, wenn diese unterschiedliche Präferenzen haben. Wir zeigen, dass eine falsche Darstellung ihrer Präferenzen für die Mitglieder des Zentralbankrats nicht vorteilhaft ist, auch wenn die Zentralbankratsmitglieder berücksichtigen, dass sie vielleicht nicht wiedergewählt werden. Die Veröffentlichung der Abstimmung ist somit nützlich, weil die Regierung die unterschiedlichen Präferenzen der Zentralbankratsmitglieder im Lauf der Zeit mit denen der Öffentlichkeit durch entsprechende Entscheidungen in Bezug auf die Wiederwahl von Zentralbankratsmitgliedern in Einklang bringen kann.

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1 Introduction

In a recent paper, Gersbach and Hahn (2000) have shown that the publication of central bank councils' voting records is socially harmful if central bankers differ with respect to competence concerning future developments in the economy and if central bankers derive large private benefits from holding office.[1] The transparency of voting records invites attempts by less competent central bankers to imitate technically proficient central bankers; this lowers the efficiency of the central bank's decision under majority rule.

In this paper we explore how the transparency of voting records affects monetary policy and social losses when central bankers differ with respect to preferences. For instance, central bankers may value the relative importance of inflation stabilization and output stabilization differently. We analyze this question by considering a simple aggregate-demand/aggregate-supply framework in which central bankers set nominal interest rates.

In this case we show that the transparency of voting records is socially desirable if there are no strong private motives for holding office.[2] Central bankers with preferences differing from those of the public have an incentive to vote strategically in order to get reelected and to influence future monetary policy. However, we show that this incentive is too low to compensate for the utility loss they incur today when misrepresenting their preferences. Consequently, under transparency, the government can dismiss central bankers who have preferences differing from those of the public since those central bankers vote differently from the central bankers sharing the public's preferences. Over

* We would like to thank Hans-Jörg Beilharz, Charles Goodhart, Hans Haller, seminar participants in Heidelberg, and participants of the Bundesbank conference on "Transparency in Monetary Policy" in Frankfurt, 2000, for many valuable comments and suggestions.

1 For sufficiently low private benefits from holding office, opacity and transparency are equivalent with respect to losses.

2 As will be argued in section 7, when private incentives for holding office are sufficiently strong, transparency and opacity yield identical results and there is no strict social preference for transparency.

time, the preferences of the central bank council are aligned with those of the public. Social losses are therefore lower than under opacity.

Our model also implies that central bankers with the same preferences as the public prefer transparency over opacity. In contrast, central bankers with preferences differing from those of the public prefer opacity over transparency. An intriguing but more speculative implication would be that central bankers opposing transparency might simply have different preferences than the public.

Our paper is part of a rapidly growing literature about the types of transparency that monetary policy and monetary institutions should incorporate. Many of the issues have been raised in the early discussion by Goodfriend (1986). The first level of debate concerns the appropriate notions of transparency since transparency has different meanings to different people (see e.g. Winkler (2000), Remsperger and Worms (1999) and the debate between Buiter (1999) and Issing (1999)). At this stage, three clearly different notions can be distinguished: transparency about objectives (goal transparency), transparency about forecasting methods and information concerning the state of the economy (knowledge transparency), and transparency about the actual decisions and the way how they are reached (operational transparency).[3]

We will now review the discussion in the literature about the three types of transparency. First, there exists a reasonably robust conviction that goal transparency is socially preferable. Greater transparency about a central bank's objectives improves credibility and thereby policy outcomes (see e.g. King (1997)). In their seminal paper, Cukierman and Meltzer (1986) show that transparency about the intentions of central banks is socially desirable. Recent theoretical examinations by Faust and Svensson (2000), extending the Cukierman and Meltzer model, confirm that increased transparency about central bank objectives is generally socially beneficial since it has a disciplining and moderating influence on the bank's policy. An exception to the above conclusion is Jensen (2000) who points out that for a central bank that initially enjoys high credibility, transparency can be harmful since the requirement to hit the inflation target can create excessive output variability.[4]

3 A slightly different cut on the various dimensions of transparency can be found in Geraats (1999). At a higher level of communication theory, transparency might also refer to the degree of common knowledge and understanding between central bankers and the public (cf. Winkler (2000)), which in turn can depend on the shared language and other potential conventions. There is an a-priori argument that such types of transparency are desirable.

4 A different strand of literature has examined whether and how central banks can use non-verifiable private information to improve communication with the public. Building on the methodology of Crawford and Sobel (1982), Stein (1989) studies how noisy announcements can enable a central bank to reveal its private information truthfully despite its incentive to lie. Garfinkel and Oh (1995)

Second, conflicting views exist about knowledge transparency. A simple argument against knowledge transparency has been provided by Gersbach (1998). If there is a chance that the central bank has superior information about supply shocks, the disclosure of the central bank's private information eliminates the possibility of insuring the public against those shocks. In the case of discretion, the variability of inflation increases as well as under transparency. Similarly, Cukierman (1999) shows that knowledge transparency impedes effective output stabilization and raises interest rate volatility. In contrast, Geraats (1999) emphasizes that knowledge transparency helps a strong central bank that is averse to inflation to build reputation, putting downward pressure on inflation. On balance, one could argue that knowledge transparency, such as publishing the inflation forecast, is socially desirable if reputation building is the central bank's main problem. This conclusion would be in line with Gersbach and Hahn (1999), who show that signaling competence of central banks induces lower losses under inflation targeting and publishing forecasts than under monetary targeting.

Third, very little research has been done on operational transparency. Sibert (1999) presents an interesting model of reputation building in monetary policy committees based on the framework of Kydland and Prescott (1977) and Barro and Gordon (1983). She examines whether individuals have more or less incentives to gain a reputation for being tough when they are part of a group. Transparency might increase collective reputation building. Our paper tries to shed light on one hotly debated aspect of operational transparency, i.e. on voting transparency, and might be relevant for the ongoing debate about voting transparency for the ECB.

The paper is organized as follows: In the next section, we will describe the model. The reappointment scheme will be derived in section 3. Then, the results under transparency and opacity are derived in the following two sections. We will attempt an overall comparison between transparency and opacity in section 6. Our conclusions are presented in section 7.

extend the analysis by incorporating a private forecast by the central bank about money demand disturbances. They show that noisy announcements can make the trade-off between credibility and flexibility more favorable. In addition, Walsh (1996) shows that requiring the central bank to announce a target inflation rate increases average social welfare. These models support the view that communication from the central bank to the public is socially desirable, but limited by incentive considerations.

2 Model

We will examine a two-period model in which the government can reelect or dismiss members of the central bank council after the first period.

Social losses per period are denoted by $l_A(i)$.[5] The interest rate i is chosen by the central bank council. Overall losses are:

$$L_A = l_A(i^1) + \delta l_A(i^2)$$

i^1 is the interest rate chosen in the first period and i^2 is the interest chosen in the second period. We use δ to denote the discount factor, $0 < \delta < 1$.

It is obvious that the publication of voting records can only have a differential impact if there is some heterogeneity among central bankers.[6] There are two possibilities for differences among central bankers to emerge:

- Central bankers may have different preferences, e.g. different weights on output stabilization.
- Central bankers may have different knowledge about the economy.

In this paper, we will follow the first approach. Since there are dissenting views in the central bank council with respect to what a good monetary policy is, central bankers may be inclined to choose different interest rates.

To focus on the simplest case, we consider two types of central bankers. The first type of central banker, type A, is characterized by the same loss function as the public whereas the second type, type B, has a different loss function:

$$l_B = l_B(i^1) + \delta l_B(i^2)$$

The optimal interest rate for central bankers of type A is denoted by i_A and the optimal interest rate for type B by i_B.[7] We assume that $i_A \neq i_B$.

5 For concreteness, losses could be given by $(i - i_A)^2$ where i_A, the optimal interest rate, depends on shocks to the economy. In Gersbach and Hahn (2000) we show that one can obtain such a functional form of losses when considering standard demand and supply equations without time lags, social losses that are quadratic in inflation and output, and supply shocks that are normally distributed.

6 The heterogeneity could also be caused by identical central bankers belonging to different generations. A model of overlapping generations of central bankers is examined in Sibert (1999).

7 Note that, in general, the optimal interest rates i_A and i_B are not constant over time. For instance, they may depend on shocks affecting the supply side of the economy.

By definition of i_A and i_B, and if the optimal interest rates are unique, the following two equations hold:

$$\begin{aligned} l_A(i_A) &< l_A(i_B) \\ l_B(i_B) &< l_B(i_A) \end{aligned}$$

Monetary policy will be conducted by the council of the central bank, which decides on the magnitude of the short-term interest rate by majority rule.

The sequence of events is given as follows:

- **1st Period:**
  - In the beginning of the first period, the original council with N central bankers is formed ($N \geq 1$, N odd). Each member is either of type A with probability p or of type B with probability $1-p$. Each member's preferences are private information.
  - Members simultaneously vote for their preferred interest rate i.
  - The interest rate preferred by the median central banker is set by the central bank.
  - Voting records are published under the transparency requirement or remain secret for all outsiders under intransparency or opacity.
- **2nd Period:**
  - At the beginning of the second period, the reelection of the members of the central bank council takes place. The government can dismiss any central banker and replace him by another central banker from a pool of candidates. Newly elected central bankers will be of type A with probability p and of type B with probability $1-p$.
  - Members simultaneously vote for their preferred interest rate i.
  - The interest rate of the median voter is set by the central bank.

3 Reelection Schemes

In this section, we discuss the government's reelection procedure. The optimal reelection procedure and the monetary policy proposed by the two types of central bankers interact and must be formulated as equilibrium strategies in the overall game. However, we simplify the analysis at this stage by assuming a certain pattern of monetary policy for different types of central bankers. Later we will justify these assumptions as equilibrium strategies. We assume that one out of only two different possible interest rates will be chosen in the first period of the game. Central bankers will either vote for i_A or for i_B.

Under transparency, it is optimal for the government to reelect any central banker who has chosen i_A which is the interest rate preferred by type A central bankers and the public. This strategy will minimize expected social losses in the second period. The reelection scheme is:

$$\begin{array}{lcl} i_{chosen\,by\,j} = i_A & \Rightarrow & \text{member } j \text{ is reelected} \\ i_{chosen\,by\,j} \neq i_A & \Rightarrow & \text{member } j \text{ is dismissed} \end{array}$$

Without transparency, the government will either fire the whole council or leave them in office since the government does not know how each central banker has voted. If the central bank sets an interest rate i_A, then the public will expect a majority of central bankers to be of type A and will reelect the whole council. For any other interest rate including i_B, the council will be dismissed.

$$\begin{array}{lcl} i_{chosen\,by\,median\,CBer} = i_A & \Rightarrow & \text{the whole council is reelected} \\ i_{chosen\,by\,median\,CBer} \neq i_A & \Rightarrow & \text{the whole council is dismissed} \end{array}$$

A subgame perfect Bayesian equilibrium consists of monetary policy votes in the first and second period, and of the reelection scheme.

4 Transparency

In the second period, every central banker will choose his preferred interest rate. A central banker of type A will always choose i_A and a central banker of type B will always vote for i_B. A type A central banker also chooses i_A in the first period. Type B central bankers, however, have an incentive to imitate type A central bankers in the first period in order to get reelected. The potential to influence future monetary policy is the motive for getting reelected by imitating a central banker of type A.

In the appendix we show, however, that misrepresenting their preferences is not beneficial for type B central bankers:

Proposition 1
Given the proposed reelection scheme, a central banker of type B will always choose i_B in the first period.

By virtue of proposition 1, the following equilibrium exists:

Proposition 2
Under transparency, a subgame perfect equilibrium exists in which central bankers of type A choose i_A and type B central bankers vote for i_B in both periods. According to the proposed reelection scheme every type A central banker is reelected after period 1 whereas every type B central banker is dismissed.

We will now justify the proposed reelection scheme (cf. section 3). The reelection scheme is optimal since it minimizes expected social losses in the second period. The government knows that each central banker will choose the interest rate that he would set if he were alone. Therefore it is optimal to reelect only central bankers voting for i_A. A larger number of type A central bankers will always improve the outcome of monetary policy in the second period. Therefore, the reelection scheme and the central bankers' interest rate votes constitute a subgame-perfect equilibrium of the overall game.

5 Opacity

We now discuss opacity, implying that voting records are not published. In the second period, each central banker will again vote for his preferred interest rate i_A or i_B, respectively. We show that under opacity, each central banker behaves in the same manner in the first period. While it seems trivial that no type A central banker has an incentive to deviate from i_A, we show that the respective behavior is also optimal for type B.

In the appendix we prove:

Proposition 3
Given the proposed reelection scheme, a central banker of type B will always choose i_B in the first period.

It follows that the following equilibrium exists:

Proposition 4
Under opacity, a subgame-perfect equilibrium exists in which central bankers of type A choose i_A and type B central bankers vote for i_B in both periods. According to the proposed reelection scheme, the central bank council is dismissed if it adopts i_B in the first period. Otherwise, it is reelected.

Due to reasons similar to those detailed in section 4, this reelection scheme is optimal.

6 Comparison

As we have demonstrated in the last two sections, the central bankers' voting behavior does not depend on the transparency regime under consideration. Each central banker always votes for the interest rate he would choose if he alone could determine monetary policy.[8] The reasoning runs as follows. Central bankers with preferences differing from those of the public have an incentive to vote strategically by pretending to share the public's preferences. This behavior would enable them to get reelected and thereby enable them to influence future monetary policy. But these incentives are

8 Note, however, that for this result to hold it is crucial that no large private benefits arise from being a central banker as is assumed in Gersbach and Hahn (2000). If private benefits accrue to central bankers from their jobs, central bankers preferring a monetary policy different from the policy preferred by the public are less willing to reveal their preferences in the first period. A strong desire to get reelected would yield equivalent results both under transparency and opacity.

not sufficiently strong. The benefits from sincere voting stemming from the expected improvement of today's monetary policy are always larger than the benefits gained from voting strategically.

The only difference between transparency and opacity arises in our model due to the government's improved ability to reelect single favorable central bankers under transparency. Under opacity, only the whole council can be dismissed whereas the government can pick individual central bankers with the same preferences as the public and can reelect them under transparency. This makes a monetary policy reflecting the preferences of the public more likely in the second period. Therefore, second period social losses are lower under transparency. First period social losses are identical under both regimes since the central bankers' behavior does not depend on the degree of transparency. Hence, from a social perspective, the transparency of voting records is more desirable than opacity. This result is summarized by the following proposition:

Proposition 5
Expected social losses are lower under transparency.

7 Discussion and Conclusion

In this paper we have highlighted that there are considerable benefits resulting from voting transparency since the government can distinguish between single central bank council members and can make central bankers individually accountable. This conclusion is not restricted to central bank councils, but could be applied to other committees consisting of members with different preferences. However, our analysis is still only a first step towards a firm conclusion about the social desirability of voting transparency.

When sufficiently strong private incentives exist for holding office, transparency and opacity yield identical results with respect to both voting behavior and social welfare. This is the case since strong private incentives for getting reelected will induce central bankers whose preferences do not equal those of the public to imitate central bankers whose preferences are identical to those of the public. Hence, the public is not able to identify the central bankers' preferences in the first period. It follows that first-period losses are identical under both scenarios. Second-period losses do not differ either since the average distributions of central bankers' preferences are identical and, under both scenarios, no central banker wants to misrepresent his preferences in the second period.

It is an interesting question whether central bankers would prefer transparency over

opacity. Our model provides a simple answer. Central bankers with the same preferences as the public prefer transparency over opacity, which immediately follows from our main result that social losses are lower under transparency. In contrast, central bankers with preferences differing from those of the public have a higher probability of getting reelected under opacity and therefore have a higher chance of achieving an outcome favorable to them in the second period. Therefore those central bankers prefer opacity over transparency. An intriguing but more speculative implication would be that central bankers opposing transparency might simply have different preferences than the public.

The positive value of transparency in our set-up has to be contrasted with the negative net effect of transparency derived in Gersbach and Hahn (2000) where we have considered different degrees of technical proficiency among central bankers and central bankers with a strong desire to stay in office. Whether transparency is socially desirable from an overall perspective depends on the kind of heterogeneity in central bank councils.

While differences with respect to preferences are prevalent in central bank councils as e.g. the minutes of the Monetary Policy Committee in the UK document, much less information is available on other types of heterogeneity. From such a perspective one might arrive at the preliminary conclusion that voting transparency is socially beneficial.

Appendix

Proof of Proposition 1

We show that expected losses for a type B central banker increase if he chooses i_A. We use q to denote the type B central banker's probability assessment of the council choosing interest rate i_A if all central bankers choose the proposed equilibrium strategy. The respective probability for the second period is denoted by r. If the central banker under consideration deviates, i.e. he votes for i_A, probabilities are denoted by q' and r', accordingly. A type B central banker does not want to choose i_A if:

$$\begin{aligned} q l_B(i_A) + (1-q) l_B(i_B) &< \delta\big(r l_B(i_A) + (1-r) l_B(i_B)\big) \\ 0 &< \big(l_B(i_A) - l_B(i_B)\big)\big(q' - q + \delta(r' - r)\big) \end{aligned}$$

Since $l_B(i_A) > l_B(i_B)$ and $\delta < 1$, the above condition is fulfilled if

$$q' - q \geq r - r'.$$

The interpretation is straightforward. If a type B central banker votes for i_A in the first period, two effects occur. From the central banker's perspective, it is more likely that bad monetary policy will be conducted in the first period since it is possible that he casts the decisive vote. On the other hand, voting for i_A enables him to get reelected. This makes expected second period monetary policy more favorable for him. The above inequality guarantees that the negative effect on first period losses is always stronger than the beneficial effect on second period losses. If the deviation to i_A will decrease the probability of a preferred result in period 1 by more than the increase in the likelihood of a good result in period 2, then the deviation is not profitable for the central banker.

We will now show that the equilibrium condition $q' - q \geq r - r'$ holds. The probability q for i_A being implemented in equilibrium in the first period amounts to:

$$q = \sum_{n=\frac{N-1}{2}+1}^{N-1} \binom{N-1}{n} p^n (1-p)^{N-1-n}$$

The probability q' for i_A being adopted in the first period if the central bankers deviates is given by:

$$q' = \sum_{n=\frac{N-1}{2}}^{N-1} \binom{N-1}{n} p^n (1-p)^{N-1-n}$$

We obtain:

$$q' - q = \binom{N-1}{\frac{N-1}{2}} p^{\frac{N-1}{2}} (1-p)^{\frac{N-1}{2}}$$

This is exactly the likelihood that the central banker under consideration casts the decisive vote in the first period.

We use p^* to denote the probability that a single central banker in period 2 is of type A in equilibrium. Then p^* is:

$$p^* = p + p(1-p) = p(2-p)$$

The explanation for this expression is straightforward. A central banker is of type A in period 1 with probability p. In equilibrium, he will be reelected. If a central banker is not of type A in period 1, which happens with probability $1-p$, he will be dismissed. His successor in the second period will be of type A with probability p. Therefore a central banker is of type A in period 2 with probability $p^* = p + p(1-p)$.

The probability r for i_A being implemented in the equilibrium in the second period amounts to:

$$r = p\binom{N-1}{\frac{N-1}{2}} (p^*)^{\frac{N-1}{2}} (1-p^*)^{\frac{N-1}{2}} + \sum_{n=\frac{N+1}{2}}^{N-1} \binom{N-1}{n} (p^*)^n (1-p^*)^{N-n-1}$$

If the central banker deviates, the probability that the interest rate i_A is adopted in period 2 changes to:

$$r' = \sum_{n=\frac{N+1}{2}}^{N-1} \binom{N-1}{n} (p^*)^n (1-p^*)^{N-1-n}$$

We obtain:

$$r - r' = p\binom{N-1}{\frac{N-1}{2}} (p^*)^{\frac{N-1}{2}} (1-p^*)^{\frac{N-1}{2}}$$

The condition $q' - q \geq r - r'$ is fulfilled if

$$\begin{aligned} p^{\frac{N-1}{2}} (1-p)^{\frac{N-1}{2}} &\geq p \cdot (p^*)^{\frac{N-1}{2}} (1-p^*)^{\frac{N-1}{2}} \\ 1 &\geq p^{\frac{2}{N-1}} (2-p)(1-p) \end{aligned}$$

One can easily verify that the latter inequality holds for any value of p and $N > 1$.

□

Proof of Proposition 3

Equivalently to the proof of proposition 1, no profitable deviation exists for type B central bankers if

$$q' - q \geq \rho - \rho'.$$

Analogously to the proof of proposition 1, q is the probability assessment of the type B central banker that outcome i_A is realized in period 1 in equilibrium while q' is the respective probability if the central banker under consideration deviates. The probabilities ρ and ρ' correspond to r and r'. For instance, ρ is the probability that i_A is adopted in period 2 when the central banker does not deviate.

The expressions for ρ and ρ' are slightly more complicated than those for r and r' since a single central banker's reelection cannot be considered independently from the behavior of the other council members under opacity.

$$\begin{aligned}\rho &= \sum_{n=\frac{N+1}{2}}^{N-1} \binom{N-1}{n} p^n (1-p)^{N-n-1} \\ &\quad + \left[1 - \sum_{n=\frac{N+1}{2}}^{N-1} \binom{N-1}{n} p^n (1-p)^{N-n-1}\right] \times \left(\sum_{n=\frac{N+1}{2}}^{N} \binom{N}{n} p^n (1-p)^{N-n}\right)\end{aligned}$$

$$\begin{aligned}\rho' &= \sum_{n=\frac{N+1}{2}}^{N-1} \binom{N-1}{n} p^n (1-p)^{N-n-1} \\ &\quad + \left[1 - \sum_{n=\frac{N-1}{2}}^{N-1} \binom{N-1}{n} p^n (1-p)^{N-n-1}\right] \times \left(\sum_{n=\frac{N+1}{2}}^{N} \binom{N}{n} p^n (1-p)^{N-n}\right)\end{aligned}$$

The first terms of the expressions for ρ and ρ' represent the case in which type A central bankers have the initial majority in the first period. Then the whole council will be reelected and i_A will be chosen. The second terms represent the case in which i_B is adopted in the first period, the council is dismissed and the new council consists of a majority of type A central bankers.

The difference of the likelihoods ρ and ρ' is:

$$\rho - \rho' = \left(\binom{N-1}{\frac{N-1}{2}} p^{\frac{N-1}{2}} (1-p)^{\frac{N-1}{2}}\right) \times \left(\sum_{n=\frac{N+1}{2}}^{N} \binom{N}{n} p^n (1-p)^{N-n}\right)$$

The above expression describes the constellation when there is a majority by exactly one vote for central bankers of type B in the initial council.

Since $\sum_{n=\frac{N+1}{2}}^{N} \binom{N}{n} p^n (1-p)^{N-n} < 1$, we obtain that $q' - q \geq \rho - \rho'$, which implies that no deviation is profitable for a central banker of type B.

□

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