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Persistent inefficient redistribution

by

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# Persistent inefficient redistribution <sup>\*</sup>

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## ***Abstract***

*Why do governments redistribute through indirect and inefficient means? An intuitive hypothesis is that it masks the real aim and cost of policy. In this paper we construct a dynamic model with an infinite horizon, political competition, rational individuals and asymmetric information regarding the efficiency of policy and politicians' preferences to test this hypothesis. While the previous (formal) literature explains one-time projects like the building of a dam, bridge or an airport, we are able to explain the persistent use of inefficient means like regulation and subsidies for redistributive purposes.*

Keywords: Political economy, Inefficient redistribution, Reform, Special interests.

JEL codes: D72, C73.

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## 1. Introduction

Governments redistribute. Much of this is rather direct and explicit, but large parts are indirect, implicit, and has large deadweight losses (see e.g. Tullock (1983)). Often more efficient redistributive means exist. Why not use the most efficient means? This question is the focus of the current paper.

An intuitively appealing answer is that indirect means are used to mask the real aim and cost of policies. Aims are masked by transfer mechanisms justifiable on grounds other than redistribution, so-called *disguised* transfer mechanisms (Tullock 1983).<sup>1</sup> The costs are masked by the mechanisms with *concealed costs* (Coate and Morris 1995). Import quotas and different kinds of regulations are examples of policies with concealed costs. Answers based on these arguments are often associated with the Virginia school of political economy, and are sometimes denoted “the Virginia View” (see e.g. Coate and Morris (1995)).

Coate and Morris (1995) provide a principal formal test of the Virginia view. They find that the Virginia view holds if there is asymmetric information regarding both the efficiency of policy and the preferences of the politicians. They pursue their test on a common agency two-period model of political competition where the voters are rational but imperfectly informed. The disguised transfer mechanism is a one-time project like the building of an airport or a bridge etc., where the cost of the project is common knowledge. The project is undertaken in the first period, and the outcome is observed in the second period before the voters decide whether to re-elect the incumbent. If the incumbent in the first period explicitly redistributes, she signals that she is “bad”, and is replaced by a challenger. If she uses the disguised mechanism, the voters cannot say whether she is “good” or “bad” since the state of the world is unknown to them. In equilibrium the project is undertaken in the first period even if the state of the world is such that the project is inefficient in expected terms.

Although one-time projects are important redistributive tools, the widespread use of apparently inefficient subsidies, regulations, tariffs etc. suggests that permanent policies are more important. In this paper we test formally whether the Virginia view holds for more permanent inefficient policy measures. For this purpose, we construct a model where policies can persist and produce inefficient results for an infinite number of periods. We assume that

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<sup>1</sup> The idea is that a policy is efficient only in some states of the world, but the state of the world is not known to the voters (Rodrik 1995).

the voters cannot observe the outcome of the policy perfectly, but the policy is inefficient in expected terms. The model has an infinite horizon, political competition and rational voters. The main characteristics of the Coate and Morris model are maintained: some politicians prefer to redistribute and others not, redistribution can take place directly or through a public policy, there are elections where the incumbents can be replaced by a political challenger, and there is some “initial” asymmetric information both regarding the efficiency of policy and the preferences of the politicians.

Our finding is that the Virginia view holds and that it explains permanent inefficient redistribution. As in the Coate and Morris model, asymmetric information both regarding the efficiency of policy and the preferences of the politicians is assumed to obtain the result. In equilibrium the incumbent never uses the most efficient means for redistribution because that would reveal that she is redistributive and that the policy is pursued for redistributive reasons, not for efficiency reasons. The voters do not change the incumbent for a challenger even though the “initial“ expected gain from doing this is positive. The reason is that after observing the incumbent’s policy, their measure of the likelihood that it is efficient has increased. In addition to the asymmetric information regarding the efficiency of the policies and the preferences of the politicians, but differently from the Coate and Morris framework, we need "ideologist" politicians that always reform. If there is no “ideologist”, the citizen can costlessly try out the different challengers since the challengers will either pursue the same or a better policy.

The current paper comes under at least two branches of the modern literature on political economy. One is the literature on the form of transfers to special interests. Coate and Morris (1995) and Acemoglu and Robinson (2001) provide an overview of some of this discussion. Another branch is the literature on the political economy of economic reform. Drazen (2000), Rodrik (1996) and Tommasi and Velasco (1996) survey this literature.

Several authors have elaborated on the Coate and Morris two-period model (see e.g. Bordignon and Minelli (2001) and Brett and Keen (2000)). We are not aware of any attempts to test the Virginia view in a multiperiod setting with rational individuals and political competition.

The paper is organized as follows: We present the model in section 2, and find equilibrium in section 3. In section 4 we briefly discuss some of our assumptions and conclude.

## 2. Model

We look at an economy populated with  $N$  identical individuals who consume and vote. Out of these  $N$  individuals,  $n < \frac{1}{2}N$  have successfully managed to overcome free-rider problems and formed a special interest group. We denote this sub-group  $S$ .

The only political issues concern whether there should be redistribution from the general public to the special interest, and which of two forms this redistribution should take. The incumbent politician has three policy options available:

- (i) No intervention in the economy (no redistribution).
- (ii) A direct redistributive policy where each individual in the economy pays a tax  $\tau$  to finance a transfer of size  $\gamma(\tau N/n)$ ,  $0 < \gamma < 1$  to each member of the special interest where  $(1-\gamma)(\tau N/n)$  is the efficiency loss from taxation.
- (iii) A disguised policy measure that gives a utility  $B$  to each member of the special interest. The cost of this policy for each individual in the economy is  $\tau$ .

We define *reform* as a policy shift from (iii) to (i) or (ii), and assume that:

**A1.** Reform is irreversible.

### *Consumers' preferences*

Except for group membership, the individuals are equal. We call an individual who is not a member of the special interest group “the citizen”, and denote his per period utility  $u^c$ . An individual who is a member of the special interest group we call “the special interest”.

In every period each individual receives an income  $y$ . The net income of the two types of individuals ( $I^c$  and  $I^s$ ) under the different types of policies is summarized in table 1:

Table 1. Net income of citizen and special interest under policy (i), (ii) and (iii).

	Citizen ( $I^c$ )	Special interest ( $I^s$ )
Policy (i)	$y$	$y$
Policy (ii)	$y-\tau$	$y-\tau+ \gamma(\tau N/n)$
Policy (iii)	$y-\tau$	$y-\tau+B$

We assume that the citizen is partially altruistic. He prefers some redistribution to the special interest if it increases overall welfare. The per period utility of the citizen is

$$(1) \quad u^c = \frac{N-n}{n} I^c + I^s .$$

This formulation implies that the citizens always prefer (i) to (ii) since  $\gamma < 1$ , and policy (iii) to policy (i) if and only if  $B > \tau N/n$ . The formulation captures the essence of a disguised transfer mechanism: in some states of the world where  $B$  is large enough, policy (iii) is preferred by the majority of the voters. Consumers are risk-neutral and discount future utility by  $\delta$ ,  $0 < \delta < 1$ .

### Politicians

Politicians are risk-neutral and have the same discount factor as the citizens. They can be of three different types:

- Benevolent politicians maximize the expected utility of the citizen.

$$(2) \quad V_t^B = \sum_t \delta^k E u_k^c .$$

- Redistributive politicians always prefer redistribution to  $S$  to no redistribution. They behave as if they maximize the following<sup>2</sup>

$$(3) \quad V_t^R = \sum_t \delta^k E (\alpha I_k^c + I_k^s) .$$

<sup>2</sup> The utility function of the redistributive politician (3) can be given at least two interpretations. Based on the work by Grossman and Helpman (1994), Persson and Tabellini (2000, pp. 171-175) show how (3) can be derived from a utility function for a government that maximizes a weighted sum of contributions from the

Here  $0 \leq \alpha < (N - n)/n$  measures the degree of benevolence of the redistributive politicians. The benevolence parameter is the same for all redistributive politicians, but the closer  $\alpha$  is to  $(N-n)/n$ , the more benevolent the redistributive politicians are.

- Ideologist politicians always prefer policy (i).

$$(4) \quad V_t^I = I^c$$

We assume that the politicians derive utility from the policies pursued whether in office or not. This means that they have no additional utility from being in power.

**A2.** Politicians' utility both in and out of office is given by (2), (3) or (4).

#### *Timing of events*

At the beginning of every period the incumbent politician sets policy and all players observe the policy and its outcome. By the end of the period there is an election where the majority (the citizen) either re-elect the incumbent or elect the challenger.

In period  $t=0$  nature chooses the realisation of  $B$  (that stays the same for all future periods) and an incumbent. In the following periods the incumbent at the beginning of the period is the one that was elected at the end of the preceding period. The number of periods is infinite.

#### *Information structure*

There are two types of information asymmetries in the model. The first relates to the politicians' types and the other regards the efficiency of reform, i.e. the realization of  $B$ .

It is common knowledge that nature draws the incumbent and the challengers according to a probability distribution  $\lambda = (\lambda_R, \lambda_B, \lambda_I)$ , where the first term is the probability that the politician is redistributive, the second is the probability that the politician is benevolent and the last term is the probability that the politician is an ideologist. However,

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special interest and the welfare of the general public. In other more direct interpretations the weight on the special interest is the result of some special preferences of the politicians for his home district, farmers, etc.

**A3.** only the politicians themselves know their own type.

Similarly, it is common knowledge that the variable  $B$  can take one of two values,  $B_L$  or  $B_H$ , but,

**A4.** the politicians know the realization of  $B$ , whereas the citizens only know that the probability that  $B=B_H$  is  $\pi$ .

The parameters of the model, the functional forms and the timing of events are common knowledge.

*Restricting the model*

To tailor the model to a situation we want to describe, we have to place some more restrictions on the model. The first restriction states that for the citizen, policy (ii) is preferred to (iii) in expected terms

**R1.** 
$$\pi B_H + (1 - \pi) B_L < \gamma \tau \frac{N}{n}.$$

This means that the prior perceptions of the voters (the citizen) are such that they would actually vote for (ii) to (iii) if there was direct voting on the issue.

The second restriction ensures that there exists an equilibrium in which it is optimal to keep the incumbent politician if she plays (iii).

**R2.** 
$$\frac{\lambda_I(1 - \lambda_I)\pi B_H + \lambda_R(1 - \lambda_R)(1 - \pi) B_L}{\lambda_I(1 - \lambda_I)\pi + \lambda_R(1 - \lambda_R)(1 - \pi)} \geq \frac{N}{n} \tau.$$

The two restrictions imply  $\lambda_I(1 - \lambda_I) > \lambda_R(1 - \lambda_R)$  and

(5) 
$$B_H > \tau N/n > \gamma(\tau N/n) > B_L$$

Which in turn implies that policy (iii) is optimal if and only if  $B=B_H$ .

The third restriction ensures that the redistributive politician prefers policy (iii) to (i) even if  $B=B_L$ ,

**R3.**  $B_L > (1 + \alpha)\tau$ .

Together with (5), R3 also implies that a redistributive incumbent prefers (ii) to (i).

*The game and equilibrium concept*

The model defines a multistage game with an infinite horizon between the incumbent politician, the challengers and the citizen. There is imperfect information and the players move sequentially within each stage.

Before the first stage of the game nature chooses the realization of  $B$  for the whole game, and the incumbent's type for stage 1. In each stage of the game the incumbent first chooses actions from (i)-(iii) if there has been no reform and (i) and (ii) if there has been a reform. Then the challengers make claims regarding the efficiency of reform ( $\pi$ ) and their type. Then the citizen either re-elects the incumbent or picks a challenger. In the latter case, nature chooses the type of the new incumbent for the next stage.

The information structure of the game is such that the incumbent knows her own type and the realization of  $B$ . The citizen knows that the probability that  $B=B_H$  is  $\pi$ , and the probability that the incumbent is of the different types is given by the vector  $\lambda$ . Both the incumbent and the citizen know that the probability that the challengers are of the different types is given by the vector  $\lambda$ .

Each stage seen in isolation is a Bayesian extensive game with observable actions. There are links between each stage. Extracted information regarding the efficiency of the reform and the incumbent's type is carried over from one stage to the next.

Perfect Bayesian equilibrium is the natural equilibrium concept for the game. This equilibrium consists of a strategy and beliefs for each player that satisfy two properties. First, each player's beliefs are consistent with all players' strategies in the sense that they are

generated by Bayesian updating where possible. Second, each player's strategy is optimal given these beliefs and the strategies of the other players.

### **3. Solving the model**

In the game described in section 2, claims made by the challenger have no direct impact on the players' payoffs. Thus, challengers' campaign statements regarding type or program (or anything else) are "cheap talk". In games with cheap talk there are always "babbling" equilibria where the receiver ignores the sender's signals. In our setting this implies that there are equilibria where the citizen ignores the political challengers' claims. These are equilibria where the challengers play no active role in the game, and where the game can be considered a game between the citizen and the incumbent only. We will concentrate on such equilibria. Here the citizen and the incumbent always believe the probability that each of the challengers is of the different types is given by  $\lambda$ .

If there has been a reform, the only political issue is whether there should be redistribution or not. On this issue, both benevolent and ideologist incumbents have interests coincident with the citizen and such incumbents will play (i). Thus, the citizen has no incentives to change such incumbents for a challenger. Furthermore, since politicians always have utility from the policies pursued (and not only if in office (c.f. A2)), there is a net gain for the redistributive incumbents from playing (ii) even if that means that they are not re-elected. Lemma 1 gives the equilibrium strategies for the players if there has been a reform. This equilibrium is supported by off equilibrium path beliefs that are such that if the citizen observes the incumbent playing (ii) after having played (i) at an earlier stage, then he believes the incumbent is redistributive. The proof is straightforward.

#### **Lemma 1**

If A1 - A3, R1 - R3, and there has been a reform, then the equilibrium strategies are:

Citizen: Elect a challenger if and only if incumbent played (ii).

Incumbent: If ideologist or benevolent, always play (i). Play (ii) if redistributive.

It follows directly from lemma 1 that ideologist incumbents will find it optimal to play (i) also if there has been no reform. The same is the case if the incumbent is benevolent and reform is

efficient. But we want to prove the existence of an equilibrium where the citizen re-elects incumbents playing (iii), and where an incumbent plays (iii) even if reform is efficient. A combination of strategies where this is the case is the following: the citizen elects a challenger if and only if the incumbent plays (ii). The incumbent always plays (i) if she is ideologist, always plays (iii) ((ii)) if she is redistributive and there has been no reform (been reform), and plays (iii) ((i)) if benevolent and  $B=B_H$  ( $B=B_L$ ).

But why should the citizen keep an incumbent playing (iii) when the expected benefit from reform is positive (c.f. R1)? One possibility is that it is not very likely that an incumbent is redistributive, so that observing the incumbent playing (iii) makes it more likely that reform is inefficient. Using Bayes rule we obtain the following expression for the citizen's belief regarding the likelihood of  $B_H$  after observing the incumbent playing (iii):

$$(6) \quad \pi^* \equiv P(B_H | (iii)) = \pi \frac{\lambda_B + \lambda_R}{\lambda_B \pi + \lambda_R}$$

Thus, after observing the incumbent playing (iii), the citizen believes that the probability that policy (iii) is efficient is higher than before he observed policy (iii) being played. This is the mechanism that makes the “re-elect incumbents playing (iii)”-strategy and equilibrium strategy despite the inefficiency of policy (iii) in expected terms (R1). Lemma 2 summarizes the equilibrium strategies and necessary conditions for this equilibrium. This equilibrium is supported by off equilibrium path beliefs that are such that if the citizen observes the incumbent playing (ii) after having played (i) at an earlier stage, or playing (ii) after playing (iii) then he believes the incumbent is redistributive.

### **Lemma 2**

Under A1 -A4, R1 - R3 there exists a  $\delta < 1$  such that the following strategies are equilibrium strategies in a perfect Bayesian equilibrium to the game described in section 2:

- |            |  |
|------------|--|
| Citizen:   | Elect challenger if and only if incumbent plays (ii).  |
| Incumbent: | If (iii) is available: play (iii) if redistributive or if benevolent and $B=B_H$ . Play (i) otherwise. |
|            | If (iii) is not available: play (ii) if redistributive. Play (i) otherwise.                            |

*Proof*

Optimality of incumbent strategies:

Incumbent is benevolent.

Given the citizen's strategy, the optimality of benevolent incumbents' strategies follows directly. By playing these strategies such an incumbent is guaranteed maximum utility.

Incumbent is ideologist.

Given the citizen's strategy in lemma 1, the ideologist incumbent is guaranteed her maximum utility by always playing (i).

Incumbent is redistributive.

Given the citizen's strategy, a redistributive incumbent has three choices. She can play (i) or (iii) and stay in office forever or she can play (ii) knowing that then she will be voted out of office. If  $B=B_H$  she is guaranteed her maximum utility by playing (iii). If  $B=B_L$  it follows from R3 that she prefers playing (iii) to (i). Thus the choice is between (ii) for one period or (iii) forever. She prefers playing (iii) forever if

$$(7) \quad \frac{1}{1-\delta} [B_L - (1+\alpha)\tau] \geq \frac{1}{1-\lambda_R\delta} \left[ \gamma\tau \frac{N}{n} - (1+\alpha)\tau \right]$$

Because of (5), this condition will hold as long as  $\delta$  is close enough to 1. If (7) holds, there is no gain from playing (i) or (ii) in one period.

Optimality of citizen's strategy

With these strategies for the incumbent, the citizen can update his beliefs regarding the efficiency of policy (iii) according to (6). He can also update his beliefs regarding the incumbent's type, but as long as he is not certain about the incumbent's type this belief is irrelevant for his decision. For any belief  $\pi^*$  the criteria for re-election of the incumbent is (use the One-Shot-Deviation Principle (Hendon, Jacobsen and Sloth, 1996) and rearrange terms)

$$\frac{\lambda_I \pi^* B_H + (1-\lambda_R)(1-\pi^*)B_L}{\lambda_I \pi^* + (1-\lambda_R)(1-\pi^*)} \geq \frac{N}{n} \tau.$$

Plugging in for  $\pi^*$  from (6) we get exactly the same expression as R2. The expression on the right-hand side of the inequality represents what there is to gain (gross) if electing a challenger leads to a change in policy: the saved tax. The left-hand side gives the gross loss if electing a challenger leads to a change.

If the incumbent plays (iii) or (i) in the first period in office, and (ii) in the following, this will be off the equilibrium path. Since the incumbent played (ii), the situation is as in lemma 1 where the beliefs regarding  $B$  are irrelevant. When there has been a reform, the incumbents' actions on the equilibrium path are separating with only redistributive incumbents playing (ii). We have assumed (before lemma 2) that the citizen only looks at the action taken in the current period when forming his beliefs. QED

From the restrictions on the parameters we can draw the following conclusions:

- For such equilibrium to exist the time between elections must not be too long. This follows from equation (7), where we see that the discount factor  $\delta$  must be close to 1. If there is a long time span between elections, the gain for the redistributive incumbents from pursuing efficient redistribution in one period increases relative to the gain from pursuing inefficient redistribution forever.
- It follows from R1 and R2 that  $\lambda_I(1 - \lambda_I) > \lambda_R(1 - \lambda_R)$  is a requirement for an equilibrium with inefficient redistribution to exist. Thus, the share of benevolent politicians does not matter, and if the share of ideologists and redistributive politicians are each less than  $\frac{1}{2}$  of all politicians, we need the share of ideologists to be sufficiently larger than the share of benevolent politicians.

The appendix includes a numerical example where restriction R1 - R3 and condition (7) hold simultaneously. We can now state our proposition.

**Proposition**

Under A1 - A4 and R1-R3, and if elections are sufficiently frequent, there exist perfect Bayesian equilibrium outcome to the game described in section 2 where policy (iii) is persistently pursued when  $B=B_L$ .

*Proof:* If  $B=B_L$  and the incumbent in period  $t=0$  is redistributive, then it follows from lemma 2 that the perfect Bayesian equilibrium outcome to the game described in section 2 is that policy

(iii) is pursued forever. The appendix gives a configuration of parameter values for which all the restrictions and conditions for lemma 1 hold simultaneously. QED

Proposition 1 states that the Virginia View holds in our model; i.e. there exist equilibria where the government prefers to pursue (iii), and where the voters prefer to keep a redistributive incumbent playing (iii) even though

- policy (iii) is not efficient in expected terms (reform is efficient in expected terms),
- policy (iii) is in fact inefficient ( $B < B_L$ ), and
- there are more efficient means for redistribution available.

The reason why the incumbent does not use the more efficient means for redistribution is as the Virginia view prescribes: by using the most efficient means for redistribution the incumbent will reveal that she is redistributive and that policy (iii) is pursued for redistributive reasons, not for efficiency reasons. The reason why the citizen does not elect a challenger even if the expected gain from reform is positive is twofold. First, since he observes that the incumbent does not reform, he becomes more confident that reform is inefficient. Second, there is a risk that the challenger will reform even though that is not efficient. If this risk did not exist, the citizen could simply try out challengers to see if anyone reforms. This would be risk-free since the challengers will either pursue the same or a better policy.

#### **4. Discussion and concluding remarks**

The aim of this paper has been to explain the persistent use of apparently inefficient means for redistribution. Concretely, we test the Virginia view that suggests that inefficient means are used to conceal the real redistributive aim and the real cost of policy.

As in the previous formal literature, we construct a model with initial asymmetric information regarding both the efficiency of policy and the preferences of the politicians. In contrast to previous literature, we introduce an infinite horizon and allow for opposition politicians to play an active role since they can provide the voters with information regarding the efficiency of policy and their own preferences.

We show that also under these circumstances the Virginia view holds. Additionally, our model explains the persistent use of inefficient means, and not only one-time projects like the building of an airport, a bridge etc.

There are two simple mechanisms that prevent voters from throwing the incumbent out of office even though the expected efficiency of the policy pursued is negative initially: the first is that there is a risk of electing a politician who is worse than the current one. This (worse) politician is an ideologist who reforms even if that is not efficient. Without this ideologist, the Virginia view does not hold in our setting with an infinite horizon. The second reason why the government is not thrown out of office is that if the voters observe the incumbent politician pursuing a policy that is inefficient in expected terms, the policy is likely to be more efficient than the voters thought at first. For this last effect to work the time between elections must not be too long, and there must be relatively few redistributive politicians relative to the other types.

Our model has an assumption of irreversibility of reform. In reality very few reforms are technically irreversible and our results may rest on a heroic assumption. However, although reversible, there might be large costs associated with reversal. The reversal costs arise because of the restructuring costs. In our model, introducing a reversal cost that is equal to or higher than the difference between the net efficiency gains achieved by policy reversal would suffice to make our conclusions hold. However, it needs to be investigated whether an extension of the model where full reversibility is allowed would still support the Virginia view. This version of the game is more complicated since with full reversibility the voters can learn from electing challengers. We leave the analysis of this version for future work.

There is a broad notion of political competition in our model since the political challengers can make campaign claims. However, since we have only looked at equilibrium where the challengers' claims are cheap talk, some interesting equilibria might be left out and it might be interesting to look at equilibria where the challengers are playing a more active role.

## Appendix

*Parameter values for which R1 - R3 and (7) hold simultaneously.*

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Special interest relative size ( $n/N$ )	$\frac{1}{2}$
$B_H$	3.0
$B_L$	1.0
Tax ( $\tau$ )	0.80
Efficiency loss from taxation ( $1-\gamma$ )	0.01
Probability of $B_H$ ( $\pi$ )	0.25
Discount factor ( $\delta$ )	0.96
Degree of benevolence ( $\alpha$ )	0.20
$\lambda_I$	0,3
$\lambda_R$	0,2
$\lambda_B$	0,5

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