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Policy Persistence

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Abstract

Policy persistence refers to the tendency of the political process to maintain policies once they have been introduced. This paper develops a theory of policy persistence based on the idea that policies create incentives for bene¯ciaries to take actions which increase their willingness to pay for these policies in the future. The theory is used to show that policy persistence may lead to \political failure", in the sense that policy sequences arising in political equilibrium can be Pareto dominated. In addition, the theory is used to provide an explanation as to why \policy conditionality" may have permanent e®ects.

1. Introduction

Conventional wisdom in political economy warns that once an economic policy is introduced, it is likely to persist. Even when its original rationale is no longer applicable or has been proven invalid, a policy will prove hard to remove.[1] Empirical support for this position abounds. In both developed and developing countries, many policies appear remarkably resilient. In the U.S., farm programs designed to provide support for impoverished farmers remain long after their bene¯ciaries have become far wealthier than the taxpayers who support them (Rausser

[1] A textbook argument in favor of free trade, for example, is that while \infant industry" rationales may provide an economically legitimate justi¯cation for temporary protection, once instituted, it cannot be removed.

(1992)). In developing countries, tari® programs to help import substituting industries remain in place long after such a development strategy has been discredited (Krueger (1993)). Worldwide, preferential policies designed to provide \temporary" assistance to ethnic groups persist well beyond their intended time limit (Sowell (1990)).

Why do policies tend to persist in this way? The standard explanation is that interest groups representing net bene¯ciaries form to defend policies, so that even when their public interest justi¯cation disappears, there is political pressure to maintain them. In this way, the introduction of a policy sets up a system of interest group politics which then dominates political decision taking. Support for this position is garnered from the obvious historical importance of interest groups in the maintenance of many resilient policies.

Unfortunately, this \explanation" is seriously incomplete. In any political system, interest groups will form in response to economic and political incentives. If, say, the agricultural sector has the capacity and incentives to organize an interest group to successfully lobby to maintain farm subsidies, then it would presumably have the capacity and incentives to introduce such subsidies were they not already in place. This being the case, the subsidies would be operative irrespective of whether they were introduced in the past. The prior introduction of the subsidies cannot then be held responsible for their current presence. The standard explanation simply fails to answer the key question: what is the mechanism by which the introduction of the policy alters incentives in the political process in favor of the status quo?

In this paper, we consider one such mechanism. When an economic policy is introduced, agents will often respond by undertaking actions in order to bene¯t from it. These actions increase their willingness to pay for the policy in the future. This extra willingness to pay will be translated into political pressure to retain the policy and this means the policy is more likely to be operative in the future.[2] To provide a concrete illustration, consider the example of tari®s in support of import substituting industry. If a tari® policy is introduced, ¯rms in the manufacturing sector will respond by switching production from the export sector to the import

[2]This mechanism is also discussed in Rodrik (1991). He argues that the probability that a policy reform is kept in place in the future will depend positively on the responsiveness of private investment to the reform when it is initially introduced. \The greater the investment response, the more likely entrenched interests will be created in favor of the continuation of the reform" (p. 237).

substitution sector. This switching of production is an investment which is sunk. As a result of undertaking this investment, the value to the manufacturing sector of import tari®s is enhanced. In particular, they may have an incentive to successfully engage in costly lobbying to maintain the tari® even though the bene¯ts of the tari® would not have been worth the cost of successful lobbying before the investment.

We present a simple dynamic model of this phenomenon. In this model, a single ¯rm must decide in which of two sectors to operate. The ¯rm can switch sectors at any time, but switching is costly. There is a public policy which favors one sector. This policy will be chosen in the future by a policy-maker, susceptible to lobbying by the ¯rm. Treating the current policy choice as an exogenous variable, we show that it completely determines whether the policy is enacted in the future. The introduction of the policy therefore causes the policy to be in place in the future.

We then use our theory to identify some interesting implications of policy persistence. Using a political agency model, we endogenize the current policy choice and characterize the policy sequences which emerge in political equilibrium. We point out two features of the equilibrium. First, policy persistence may give rise to political failure, in the sense that the equilibrium policy sequence can be Pareto dominated. Political failure arises because current policy makers are deterred from introducing policies which can produce short run gains for all because of the (correct) fear that, once introduced, they will persist in the future. Our second point concerns policy conditionality, which is the practice of making loans or transfers to developing and former socialist countries conditional on policy reform. While a premise of this strategy is often that such conditionality will have more than temporary e®ects, there is no compelling explanation of why this should be case. Our model suggests why policy conditionality, if e®ective in the short run, may have permanent e®ects.

Our theory of policy persistence should be contrasted with other explanations propounded in the literature. In a model in which decisions are made by majority rule, Fernandez and Rodrik (1991) show that uncertainty about the distribution of gains and losses from a policy reform can lead to the reform not being undertaken, even if it would be supported once introduced. In such circumstances, the reform would be in place in the future if and only if it were introduced in the present. In their argument, uncertainty (which is not present in our model) alters voters' preferences over policies in ways which, under majority rule, favor the status quo

policy.[3]

Alesina and Drazen (1991) consider a different form of incomplete information. If conflicting interest groups must agree both whether to implement policy reform and how to distribute its uncertain benefits, then implementation of a Pareto-improving policy may be delayed as the groups engage in a war of attrition concerning the distribution of the net benefits. This explanation relies on the existence of an inherent institutional bias in favor of the status quo: agreement is required to change a policy, but no agreement is required to sustain it.

Others have cited non-economic reasons for policy persistence. Even in the absence of any sunk cost, interest groups may perceive the removal of a policy to be a "loss" of an entitlement and fight harder against its removal than they would have been prepared to fight for its original implementation. This assumes asymmetric attitudes to gains and losses relative to the interest group's perception of the status quo.[4] While plausible in some instances, it is hard to identify in general what determines the perceived status quo and thus what predictions such a view has for policy persistence. By contrast, we propose an economic mechanism by which past costs translate into a higher willingness to pay, and thus policy persistence. Our model has the implication that more policy persistence should be associated with greater sunk investment.[5]

At a more general level, our paper can also be related to the recent literature on the political economy of growth.[6] A key feature of our theory is that current and future policies are linked through private investment decisions. This linkage also arises in growth models with endogenous policy. In the over-lapping genera-

[3] As they note, the point generalizes to decision rules other than majority rule. For example, Olson (1965), Becker (1983) and others argue that a more concentrated distribution of benefits may produce more political pressure than a diffuse distribution. Under this view, eliminating uncertainty will produce more political pressure if the ex-ante distribution of benefits is more diffuse than the ex post distribution.

[4] The psychology literature has documented asymmetric attitudes to "gains" and "losses" that cannot be explained by standard economic theory (Kahneman et al. (1991)). Tullock (1975) and Baldwin (1989) discuss this phenomenon in the context of taxi licensing and trade policy respectively.

[5] Another popular but unformalized argument in favor of policy persistence relies on transaction costs. If there are organizational costs associated with forming a lobby group, introducing the policy may reveal to beneficiaries exactly who else benefits and thereby reduce the transactions costs of collective action. This would be the case, for example, if the policy benefited a particular geographical region and induced a large number of agents to relocate.

[6] Krusell, Quadrini and Rios-Rull (1994) provide a useful overview of this literature.

tion model of Glomm and Ravikumar (1992), for example, current expenditures on public education a®ect the young's human capital investments. These investments determine the distribution (and level) of income when they are in they are old, which a®ects the public education level they choose for their o®spring. In Krusell and Rios-Rull (1994), current technology policy determines the type of skills workers choose to invest in. These investments in°uence the distributional implications of policies towards future technologies and hence future political outcomes. In contrast to the lobbying model of this paper, this literature assumes that policies are chosen via majority rule. Thus, it is the e®ect of citizens' private investment decisions on the distributional implications of the policy rather than the willingness to pay for the policy which is key.

The organization of the remainder of the paper is as follows. The basic model is presented in section 2 and the policy persistence result is derived in section 3. In section 4, the basic model is embedded in a political agency model of political competition and equilibrium policy sequences are characterized. The implications for political failure and policy conditionality are then discussed. Some concluding remarks are o®ered in section 5. An appendix explains how our argument must be modi¯ed when some of the simplifying assumptions of our model are relaxed.

2. The Model

We aim here to provide the simplest model in which to illustrate our argument. There are two time periods indexed by $¿ \in \{1;2\}$. In each period, a ¯rm must decide in which of two sectors, A or B, to operate. The sectors may be thought of as geographical areas, but broader interpretations are possible. They may, for example, represent alternative product groups such as the export sector and the import substituting sector.

At the beginning of period 1, the ¯rm is located in one of the two sectors. It may switch sectors in both periods. Thus, it may start out located in sector A; switch its operations to B during period 1 and move back to A in period 2. There is, however, a switching cost s incurred each time the ¯rm moves. When the two sectors are geographical regions, s will consist of the costs of relocation. In the alternative product group interpretation, s will include, for example, the costs of retooling to produce the other good.

If the ¯rm operates in sector A in either period, it will earn pro¯ts $¼_A$. Its pro¯ts from sector B operation depend upon government policy, since in each

period, the government may enact a policy which favors sector B. This policy may be thought of as a subsidy to firms in sector B or as a profit-enhancing regulation such as a price control. The policy decision in period t is denoted by $p_t \in \{0,1\}$, with $p_t = 1$ meaning the policy is enacted. The firm's profits from sector B operation in period t are $\pi_B(p_t)$, where $\pi_B(1) > \pi_B(0)$: We make the following assumption about the relative profitability of the two sectors.

Assumption 1. $\pi_B(1) - s > \pi_A$ and $\pi_A - s > \pi_B(0)$.

Thus, if the policy is in place, operating in sector B is more profitable even if it means moving. Conversely, if the policy is not in place, operating in A is always more profitable.

The government policy has implications for the citizens at large. Specifically, if the firm operates in sector B in period t and the policy is enacted ($p_t = 1$), it costs the citizens an amount C. The policy is assumed to introduce distortions so that this cost exceeds the direct transfer benefits to the firm when in sector B; thus we make

Assumption 2. $C > \pi_B(1) - \pi_B(0)$.

If the policy is a regulation, like a price floor, the difference between C and $\pi_B(1) - \pi_B(0)$ will reflect the loss of both consumer and producer surplus due to the distortion. If the policy is a tax-financed subsidy, the difference will also include the distortionary effects of the taxes levied to finance it. We note here that the difference between C and $\pi_B(1) - \pi_B(0)$ is not a complete measure of the deadweight costs of the policy, since it does not include the deadweight costs which might be generated by the firm changing sectors to benefit from the policy.

We will allow for the possibility that, in period 1; there is some external benefit to the citizens of having the firm operating in sector B. Specifically, we assume that if the firm operates in sector B in period 1, the citizens receive external benefits $E \geq 0$: This allows us to capture the idea, which will be important for some of the later discussion, that there may be some temporary public interest rationale for the policy.

For now, the first period policy decision (p_1) will be treated as exogenous. The second period policy (p_2) will be selected at the beginning of period 2 by a policy-maker who is susceptible to lobbying by the firm. The policy-maker cares about the aggregate wealth in the economy (defined as the sum of the firm's profits and

citizens' net bene¯ts) and his own consumption. Speci¯cally, if W_2 is the aggregate wealth in the economy in period 2 and x_2 is the policy-maker's consumption, his utility is $x_2 + W_2/°$. This formulation implies that the policy-maker is prepared to sacri¯ce ° units of societal wealth to increase his own consumption by one unit.

We follow Grossman and Helpman (1994)'s formulation of the lobbying process and assume that the ¯rm o®ers the politician \political contributions" to in°uence his choice.[7] Speci¯cally, the ¯rm commits to pay a contribution $b \geq 0$ to the policy-maker if he enacts the policy.[8] The policy-maker then takes this o®er into account when he selects the policy. In general, there will exist a minimum contribution b^{α} which will be just su±cient to compensate the policy-maker for enacting the policy (i.e. setting $p_2 = 1$). Equilibrium of the lobbying game will involve the ¯rm either setting $b = 0$ or $b = b^{\alpha}$, depending on whether the ¯rm's gains from the policy exceed the minimum contribution. The policy will be enacted if (and only if) $b = b^{\alpha}$.

This completes the description of the basic model. In the next section, taking the ¯rst period policy choice as exogenously given, we will solve for the second period policy outcome. This will allow us to investigate the dependence of future policy outcomes on current policy choices, which is the main subject of interest. In section 4, we will close the model and endogenize the ¯rst period policy choice.

3. A Theory of Policy Persistence

In this section, we will show that, for a range of parameter values, the model exhibits policy persistence in the sense that the second period policy will be enacted if and only if the ¯rst period policy is enacted. Our demonstration of

[7] Crucially, we assume that only the ¯rm can lobby. Following Olson (1965), the idea is that the per-capita cost of the policy is too small to make it worthwhile for the citizens to get organized and o®er the policy-maker contributions. While such an assumption is quite standard in the public choice literature (see, for example, Shleifer and Vishny (1994) and Stigler (1971)), it should be noted that our theory critically depends upon it. If they were organized, the lobbying game would involve the citizens and the ¯rm competing for the policy-maker's favors. While the ¯rm would o®er a contribution to the policy-maker for enacting the policy, the citizens would o®er a contribution for not enacting it. In our model, this would prevent non-wealth maximizing policies being implemented.

[8] More generally, we can think of the ¯rm o®ering the politician a contribution schedule $(b_0; b_1) \in \mathbb{R}^2_+$, where b_i $(i \in \{0; 1\})$ is the contribution promised to the politician if he sets $p_2 = i$. It is clear, however, that the ¯rm will optimally set $b_0 = 0$.

this will proceed in two steps, by backwards induction. First, we show that the ¯rm's decision as to where to operate in period 1 determines the period 2 policy outcome. Then we show that the period 1 policy determines the ¯rm's operation decision in period 1.

3.1. Current Decisions Determine Future Policy

At the beginning of period 2, the ¯rm will be located in either sector A or B, depending on where it decides to operate in period 1. Suppose ¯rst that the ¯rm chose to operate in sector A in period 1. If the ¯rm stays in sector A it will earn a pro¯t of $¼_A$, while if it moves to sector B it will earn a pro¯t of $¼_B(p_2) ¡ s$. Assumption 1 implies that the ¯rm's pro¯ts will be higher if it moves to sector B if and only if the policy is enacted. The ¯rm's willingness to pay for the policy, de¯ned as the extra pro¯t it could make if the policy were enacted, is therefore $¼_B(1) ¡ s ¡ ¼_A$.

The policy outcome depends on whether the ¯rm's willingness to pay for the policy exceeds the amount it must pay the policy-maker to get it enacted. The policy-maker knows that if he does not enact the policy, the ¯rm will stay in sector A and, since the citizens incur no costs or bene¯ts, aggregate wealth will be $¼_A$. If the policy is enacted, citizens will incur a cost C and aggregate wealth will be $¼_B(1) ¡ s ¡ C$.[9] The reduction in wealth (or deadweight loss) caused by the policy is therefore the di®erence between $¼_A$ and $¼_B(1) ¡ s ¡ C$. It is convenient to write this di®erence as $¢ + s$, where $¢ = C ¡ (¼_B(1) ¡ ¼_A)$ is a measure of the distortion induced by the policy, ignoring switching costs. The policy-maker must be compensated for this reduction in social wealth if he is to be persuaded to enact the policy. The minimum contribution is therefore

$$b_2^¤(°; A) = \frac{¢ + s}{°}: \tag{3.1}$$

We conclude that, if the ¯rm is located in sector A at the beginning of period 2, the policy will be enacted if and only if

$$¼_B(1) ¡ s ¡ ¼_A > b_2^¤(°; A): \tag{3.2}$$

Now suppose that the ¯rm had chosen to operate in sector B in period 1. If the ¯rm stays in sector B in period 2 it will earn a pro¯t of $¼_B(p_2)$, while if it

[9] Recall that the external bene¯t E associated with the ¯rm operating in sector B occurs only in period 1.

moves to sector A it will earn a profit of $\pi_A - s$. Assumption 1 again implies that the firm's profits will be higher if it stays in sector B if and only if the policy is enacted. The firm's willingness to pay for the policy is thus $\pi_B(1) + s - \pi_A$. Aggregate wealth will be $\pi_A - s$ if the policy is not enacted and $\pi_B(1) - C$ if it is. The deadweight cost of the policy can therefore be written as $\phi - s$, and the minimum contribution necessary to persuade the policy-maker to enact the policy is

$$b_2^{\alpha}(\omega; B) = \frac{\phi - s}{\omega}. \tag{3.3}$$

It follows that if the firm is located in sector B at the beginning of period 2, the policy will be enacted if and only if

$$\pi_B(1) + s - \pi_A > b_2^{\alpha}(\omega; B). \tag{3.4}$$

Observe that the firm's willingness to pay for the policy is greater by an amount $2s$ if it begins the period in sector B. This difference reflects two considerations. First, if the firm is in sector A it must incur a switching cost to receive the benefits of the policy. If it is in sector B, it has already incurred this cost in the past and thus it is sunk. Second, if the firm is in sector B and the policy is not enacted, it will have to switch sectors and thereby incur the cost s.

The bribe necessary to induce the policy-maker to enact the policy is also smaller when the firm is located in sector B. This reflects the fact that the deadweight cost of the policy is greater if the firm starts out in sector A. The costs of having the firm operate in the less productive sector are greater if it has to switch into this sector.

This discussion implies that there will exist a range of parameter values under which the firm's decision as to where to operate in period 1 determines the policy outcome in period 2. Specifically, if the firm's willingness to pay is not sufficient to get the policy enacted if it starts out in sector A, but is sufficient if it starts out in B, the policy is implemented if and only if the firm operates in sector B in period 1. Using (3.1) and (3.3), it is easy to show that (3.2) does not hold and (3.4) holds if and only if the following assumption is satisfied.

Assumption 3.

$$\frac{\phi - s}{\pi_B(1) + s - \pi_A} < \omega \cdot \frac{\phi + s}{\pi_B(1) - s - \pi_A}.$$

We may then summarize the results of this sub-section as follows:

Claim 1. Under Assumptions 1, 2 and 3, the policy will be enacted in period 2 if and only if the firm chooses to operate in sector B in period 1.

The Claim is illustrated in Figure 1. The vertical axis measures money and the horizontal axis measures θ, the policy-maker's taste parameter. Larger values of θ mean that the policy-maker is more self-interested. The two horizontal lines represent the firm's willingness to pay for the policy when it starts out in sectors A and B. The sector B line is higher than the sector A curve for the reasons discussed above. The two downward sloping curves graph the minimum contribution necessary to induce the policy-maker to enact the policy when the firm starts out in sectors A and B. The sector A curve is higher because the deadweight cost of the policy is higher when the firm starts out in sector A. When the firm starts out in sector J ($J \in \{A, B\}$), the policy will be enacted if and only if θ exceeds the point at which the sector J willingness to pay curve intersects the sector J contribution curve. Given the positions of the curves, the sector B intersection is to the left of the sector A intersection. This creates a range of values of θ for which the Claim holds. It is clear from the Figure that as s becomes small, the interval of values of θ for which the Claim holds becomes smaller and smaller. In particular, when s is equal to zero, there can be no linkage between past actions and current policy, irrespective of the value of θ.

3.2. Current Policy Determines Current Decisions

We now turn our attention to the firm's decision as to where to operate in period 1. This decision will have consequences for profits in both periods and is, in this sense, an investment decision. The firm will be assumed to correctly anticipate the effects of its current decision on current and future profits and to choose that location which maximizes its lifetime profits.

Suppose that the firm begins period 1 located in sector A. If it stays there it will earn profits of $2\pi_A$ over the two periods. Period 2 profits will be π_A because, by Claim 1, if the firm begins the second period in sector A it will remain there.

If the firm switches to sector B and $p_1 = 0$, its lifetime profits will be $\pi_B(0) - s + \pi_B(1) - b_2^{\alpha}(\theta, B)$. This reflects the fact that if the firm begins the second period in sector B it will remain there and the policy will be implemented. To get the policy implemented, however, the firm will have to pay the politician the

contribution $b_2^{\alpha}(\circ; B)$. If the ¯rm switches to B and $p_1 = 1$, its lifetime pro¯ts are increased to $2¼_B(1) ¡ s ¡ b_2^{\alpha}(\circ; B)$, re°ecting the greater pro¯tability of sector B operation in period 1. It follows that, if $p_1 = 0$, the ¯rm will switch to sector B if and only if

$$¼_B(0) + ¼_B(1) ¡ s ¡ b_2^{\alpha}(\circ; B) > 2¼_A; \tag{3.5}$$

while if $p_1 = 1$, the ¯rm will switch to sector B if and only if

$$2¼_B(1) ¡ s ¡ b_2^{\alpha}(\circ; B) > 2¼_A: \tag{3.6}$$

If the ¯rm begins period 1 located in sector B and moves to sector A, its lifetime pro¯ts will be $2¼_A ¡ s$. If it stays in B and $p_1 = 0$, its lifetime pro¯ts will be $¼_B(0) + ¼_B(1) ¡ b_2^{\alpha}(\circ; B)$. If $p_1 = 1$, the return from staying in sector B is increased to $2¼_B(1) ¡ b_2^{\alpha}(\circ; B)$. Thus, if $p_1 = 0$ the ¯rm will stay in sector B if and only if

$$¼_B(0) + ¼_B(1) ¡ b_2^{\alpha}(\circ; B) ¸ 2¼_A ¡ s; \tag{3.7}$$

while if $p_1 = 1$; the ¯rm will stay in sector B if and only if

$$2¼_B(1) ¡ b_2^{\alpha}(\circ; B) ¸ 2¼_A ¡ s: \tag{3.8}$$

The presence of switching costs means that if the ¯rm, starting out in sector A, would move to sector B if the policy were enacted, it would certainly stay in sector B if the policy were in place. Similarly, if the ¯rm would move to sector A were the policy not enacted, it would remain in sector A under these circumstances. Thus if (3.6) holds, then so must (3.8) and, if (3.7) does not hold, then (3.5) cannot hold.

Suppose it were the case that the ¯rm, starting out in sector A, would move to sector B if the policy were enacted but, starting out in B, would move to A if the policy were not enacted. Then, by the above argument, the ¯rst period policy would determine the sector in which the ¯rm chooses to operate in period 1. Formally, this amounts to saying that if the parameter values are such that (3.6) holds and (3.7) does not hold, the ¯rm would operate in sector B in period 1 if and only if the policy were enacted. Using (3.1) and (3.3), it can be veri¯ed that the following assumption is necessary and su±cient for these two inequalities to hold.

Assumption 4.

$$\frac{¢ ¡ s}{2¼_B(1) ¡ s ¡ 2¼_A} < \circ < \frac{¢ ¡ s}{¼_B(0) + ¼_B(1) + s ¡ 2¼_A}:$$

We may therefore conclude that:

Claim 2. Under Assumptions 1 through 4, the ¯rm will choose to operate in sector B in period 1 if and only if the policy is enacted in period 1.

We note that, under assumptions 1 and 2, there exists a range of values of ° satisfying Assumptions 3 and 4.[10]

This Claim is illustrated in Figure 2. The two horizontal lines represent the ¯rm's lifetime pro¯ts from operating in sector A in period 1 when it starts out in sectors A and B. The higher line represents the case in which the ¯rm starts out in sector A and hence avoids the switching cost. The upward sloping curves represent the ¯rms' lifetime pro¯ts from operating in sector B in period 1. These curves slope upward because the more corrupt the policy-maker is the smaller is the period two contribution. The higher curve represents the case in which the ¯rm starts out in sector A, but the policy is enacted in period 1. The lower curve depicts the case in which the ¯rm starts out in sector B, but the policy is not enacted in period 1. The di®erence between the two curves exceeds s by Assumption 1. When the ¯rm starts out in sector A and the policy is enacted in period 1; it will move to sector B if and only if ° exceeds the point where the higher curve intersects the higher line. Similarly, when the ¯rm starts out in sector B and the policy is not enacted in period 1; it will stay in sector B if and only if ° exceeds the point where the lower curve intersects the lower line. Since the latter intersection is to the left of the former, this results in an interval of values of ° for which the Claim holds.

3.3. The Main Result

Combining our two earlier claims, yields our main result.

Proposition 1. (Policy Persistence). Under Assumptions 1 through 4, the policy will be enacted in period 2 if and only if it is enacted in period 1.

[10] Assumption 3 can be written as $\frac{¢ ¡ s}{(¼_B(1) ¡ ¼_A + s)} < ° \cdot \frac{¢ + s}{(¼_B(1) ¡ ¼_A + s) ¡ 2s}$ and Assumption 4 can be written as $\frac{¢ ¡ s}{(¼_B(1) ¡ ¼_A + s) + (¼_B(1) ¡ ¼_A ¡ 2s)} < ° < \frac{¢ ¡ s}{(¼_B(1) ¡ ¼_A + s) + (¼_B(0) ¡ ¼_A)}$. Since each of the lower bounds are strictly less than each of the upper bounds, there exists an open interval of ° satisfying Assumptions 3 and 4.

Proof. By Claim 1, the policy will be enacted in period 2 if and only if the firm chooses to operate in sector B in period 1. By Claim 2, the firm will choose to operate in sector B in period 1 if and only if the policy is enacted in period 1. Hence the result. ■

The result demonstrates the existence of conditions under which policies persist. In so doing, it provides a theoretical underpinning for the conventional view about policy persistence. It thus establishes a formal justification for the warnings often offered to policy-makers about the long-term consequences of their current decisions. From a normative viewpoint, it may be desirable for the policy not to be introduced even if the first period external benefits, E, exceed the citizens' costs, C.[11]

The result takes first period policy as given. The analysis of the next section verifies that either of the first period policies could be chosen endogenously in political equilibrium. On the other hand, there might be some exogenous factor determining first period policy. Consider the case of technological innovation discussed in the introduction. In this case, an "anti new technology" may exogenously be in place in period 1 (because the new technology has not yet been invented), while after the invention of the technology, the decision to adopt an "anti new technology" policy becomes endogenous.

While the model is quite specific, the logic underlying the result is quite general. As a result of the policy being introduced, the firm undertakes certain actions in order to benefit from it. (Specifically, it either moves into the subsidized sector B or, if it is already in it, avoids moving out.) These decisions increase the firm's willingness to pay for the policy in the future. This extra willingness to pay for the policy means that it is more likely to be in place if it was introduced in the past. In this particular model, not only do the firm's actions increase its willingness to pay for the policy, but they also make the politician willing to supply the policy at a lower price. This is because the policy-maker cares about the welfare consequences of the policy. The fact that the firm's willingness to pay for the policy has increased, ceteris paribus, must lower the welfare cost of the policy and therefore the policy-maker's opposition to it. This serves to reinforce the persistence effect which we have focussed on (but is not necessary for it).

[11] Our result implies that a welfare economic analysis which ignored the fact that future policy choices would be determined through a political process might produce misleading prescriptions. It is therefore consonant with the critique of welfare economics offered by James Buchanan and the Virginia School (see, for example, Buchanan (1962)).

Most of the specific assumptions of the model can be relaxed without affecting the argument. In the appendix, we show how the analysis can be extended to the case of more than one firm and to the situation where the policy-maker has more than one transfer instrument available. The critical assumptions would seem to concern the policy-maker's tastes. First, it is key that the policy-maker cares about social wealth and his own consumption. If he just cared about social wealth (i.e. α was close to 0), then the policy would never be implemented in period 2. The firm's willingness to pay for the policy would be irrelevant as long as it was less than the costs the policy imposed on the citizens. Conversely, if he just cared about his own consumption (i.e. α was very large), the policy would always be implemented in period 2. Provided that the firm would be willing to pay something to get it enacted, equilibrium would involve the policy being introduced.

Second, it is key that the policy-maker's tastes are independent of the outcomes in period 1. This rules out the possibility that citizens, having observed the policy introduced in period 1, might elect a politician less willing to sacrifice social wealth for private consumption.[12] Clearly, such behavior might invalidate the policy persistence result.

Both of these assumptions are admittedly special. A more complete model would endogenize the characteristics of the policy-maker by analyzing individual citizens' decisions as to whether or not to participate in the political process.[13] Nonetheless, the assumptions we have made do not seem too unreasonable. The first assumption may be justified by arguing that the democratic process will not sort in individuals who are purely venal (Besley and Coate (1995a)), but there may be a limit to how altruistic people may be. The second assumption may be justified by noting that, while it is true that introducing the policy in period 1 raises the return to having a policy-maker less willing to sacrifice social wealth for private consumption, one would expect the citizens to always want to elect individuals for whom this willingness was minimized in any case.

[12] The political agency model in section 4 skirts this problem by assuming that all available policy makers have identical tastes.

[13] Osborne and Slivinski (1995) and Besley and Coate (1995a) present models of this form in which citizens first decide whether or not to run for public office and then vote over the self-declared candidates.

4. Some Implications of the Theory

The analysis of the previous section took the first period policy decision as exogenous. It was simply an attempt to illuminate the linkage between current and future policies. As such, it offered no predictions about what the actual policy sequence might be. In this section, assuming that policy-makers understand the future consequences of their decisions, we model the first period policy decision. This allows us to understand the implications of policy persistence for political equilibrium.

4.1. Equilibrium Policy Sequences

To endogenize the first period policy decision, we embed the model of section 2 in an agency style model of political competition of the sort pioneered by Barro (1973) and Ferejohn (1986).[14] At the beginning of period 1, there are two politicians: an incumbent and a challenger. The incumbent selects the first period policy and then, at the end of period 1, faces an election against the challenger. The outcome of this election is determined by the citizens at large. The winning politician then chooses the second period policy.

Both politicians (incumbent and challenger) have identical preferences over aggregate wealth and their own consumption. Specifically, if W_t is the aggregate wealth in the economy in period t and x_t is a politician's consumption, his utility in period t is $x_t + W_t/\gamma$. A politician's lifetime utility is the undiscounted sum of his utility in each period. In both periods, the firm can lobby the politician in office to influence his policy choice in the manner described in section 2.[15]

[14] This type of model has proven very useful for researchers seeking a tractable framework in which to analyze political decision taking. Three recent applications which use this approach are Besley and Case (1995), Coate and Morris (1995) and Harrington (1993).

[15] Formally, the model developed here defines a dynamic game of complete information. The game involves four actors: the firm; the two politicians and a representative citizen. The game begins in period 1 with the firm offering the incumbent a contribution schedule. The incumbent then chooses whether or not to implement the policy. The firm moves next, deciding where to operate in period 1. The citizen then decides whether to re-elect the incumbent. Period 2 begins with the firm offering the winning politician a contribution schedule. The winning politician then chooses whether or not to implement the policy. The firm has the final move, deciding where to operate in period 2. The (subgame perfect) equilibrium of this game can be solved for straightforwardly by backward induction. Since both politicians have the same preferences, the second period outcome is independent of which one wins and is as outlined in section 3.1. The

The assumptions concerning politicians' preferences imply that the second period policy outcome is exactly as described in the previous section. In particular, the outcome is independent of which politician wins the election. This means that, at the time of the election, the citizens will be indifferent as to which politician wins. Thus, any specification of voting behavior is consistent with optimizing behavior on the part of the citizens. Nonetheless, since the citizens' voting behavior can influence the incumbent's first period choices, it does affect their lifetime payoffs. Following standard procedure, we will focus on the equilibrium in which the citizens employ a voting rule which maximizes their lifetime payoffs. The task is therefore to understand optimal voting behavior and characterize the policy choice it induces the incumbent to make.

The voting rule employed by the citizens will determine the probability that the incumbent will be re-elected conditional on his policy decision. Suppose that the incumbent anticipates being re-elected with probability π_0 if he does not introduce the policy and π_1 if he does. How will he behave? As in the previous section, determining the incumbent's policy decision amounts to establishing whether the firm's willingness to pay for the first period policy exceeds the minimum contribution necessary to get it enacted. Since the incumbent's lifetime utility depends upon period 2 wealth, the minimum contribution will reflect the consequences of the policy for social wealth in both periods. It will also reflect the implications of selecting the policy for the incumbent's re-election.

Claim 3. Suppose that Assumptions 1 through 4 are satisfied and that the incumbent faces the re-election probabilities $(\pi_0; \pi_1)$. Then, if the firm is located in sector A, the incumbent will enact the policy if and only if

$$\sigma > \frac{3\phi - E - \pi_1(\phi - s)}{2[\mu_B(1) - \mu_A] - s}; \tag{4.1}$$

while if the firm is located in sector B, he will enact the policy if and only if

$$\sigma > \frac{3\phi - E - \pi_1(\phi - s) - 2s}{2[\mu_B(1) - \mu_A] + s}. \tag{4.2}$$

similarity of preferences also implies that the firm can ignore voters' decisions when choosing where to operate in period 1, and thus its decision as is described in section 3.2. It only remains to solve for the citizens' voting decision and the incumbent's first period policy choice, which is the subject of this section.

Proof. Suppose ¯rst that the ¯rm is located in sector A. By the results of the previous section, if the policy is enacted the ¯rm will switch its operations to sector B and earn lifetime pro¯ts of $2¼_B(1) ¡ s ¡ b_2^¤(°; B)$. If the policy is not enacted, the ¯rm will remain in sector A and earn lifetime pro¯ts of $2¼_A$. The ¯rm's willingness to pay for the policy is therefore $2(¼_B(1) ¡ ¼_A) ¡ s ¡ b_2^¤(°; B)$.

To calculate the minimum contribution necessary to enact the policy, we need to calculate the loss in lifetime utility the incumbent would su®er as a result of introducing the policy. If he did not introduce the policy, the incumbent's ¯rst period utility would be $¼_A=°$. Proposition 1 tells us that the policy would not be introduced in the second period, which means that the incumbent's second period utility would be $¼_A=°$ irrespective of whether he is re-elected. Thus, not introducing the policy yields a lifetime payo® of $2¼_A=°$.

If he introduces the policy, the incumbent's ¯rst period utility (net of any political contributions) would be $\frac{E ¡ C + ¼_B(1) ¡ s}{°}$. His second period utility would be $b_2^¤(°; B) + \frac{¼_B(1) ¡ C}{°}$ if he were re-elected and $\frac{¼_B(1) ¡ C}{°}$ if the challenger were elected. (The ¯rst period policy maker views the contribution to the period 2 policy maker as a transfer rather than as pure waste.) Thus, his lifetime expected utility is $¹_1 b_2^¤(°; B) + \frac{2¼_B(1) ¡ s + E ¡ 2C}{°}$:

Di®erencing the two expressions for lifetime utility, we ¯nd that the minimum contribution necessary to persuade the policy maker to enact the policy is

$$b_1^¤(°; ¹_1; A) = \frac{2C + s ¡ E ¡ 2(¼_B(1) ¡ ¼_A)}{°} ¡ ¹_1 b_2^¤(°; B) = \frac{2¢ ¡ E + s}{°} ¡ ¹_1 b_2^¤(°; B):$$

We conclude that if the ¯rm is located in sector A, the policy will be enacted if and only if $2(¼_B(1) ¡ ¼_A) ¡ s ¡ b_2^¤(°; B) > b_1^¤(°; ¹_1; A)$. Using (3.3) this inequality can readily be shown to be equivalent to (4.1).

If the ¯rm is located in sector B and the policy is enacted, it will stay in sector B and earn lifetime pro¯ts of $2¼_B(1) ¡ b_2^¤(°; B)$. If the policy is not enacted, it will switch to sector A and earn lifetime pro¯ts of $2¼_A ¡ s$. The ¯rm's willingness to pay for the policy is therefore $2(¼_B(1) ¡ ¼_A) + s ¡ b_2^¤(°; B)$.

If the incumbent enacts the policy, his expected lifetime payo® is given by $¹_1 b_2^¤(°; B) + \frac{2¼_B(1) + E ¡ 2C}{°}$; while if it is not enacted it is $\frac{2¼_A ¡ s}{°}$. The minimum contribution necessary to persuade the policy maker to enact the policy is therefore

$$b_1^¤(°; ¹_1; B) = \frac{2C ¡ s ¡ E ¡ 2(¼_B(1) ¡ ¼_A)}{°} ¡ ¹_1 b_2^¤(°; B) = \frac{2¢ ¡ E ¡ s}{°} ¡ ¹_1 b_2^¤(°; B):$$

If the ¯rm is located in sector B, therefore, the policy will be enacted if and only if $2(¼_B(1) ¡ ¼_A) + s ¡ b_2^¤(°; B) > b_1^¤(°; ¹_1; B)$. Using (3.3) this inequality can be shown to be equivalent to (4.2). ■

This claim describes the incumbent's behavior for any given pair of re-election probabilities. Two points should be noted. First, (4.1) implies (4.2), so that if the incumbent would enact the policy if the ¯rm were located in sector A, then, holding re-election probabilities constant, he would enact it if the ¯rm were located in sector B. Conversely, if the incumbent does not enact the policy when the ¯rm is located in sector B, he will not do so when the ¯rm is located in sector A: This re°ects the ¯rm's higher willingness to pay for the policy and its smaller deadweight cost when the ¯rm starts out in sector B.

Second, holding ° constant, the incumbent is more likely to enact the policy the higher is $¹_1$. By Proposition 1, if the incumbent enacts the policy it will also be enacted in the second period. If (and only if) the incumbent is re-elected, he will receive the second period political contribution to compensate him for the loss in social wealth caused by the policy. In contrast, the re-election probability $¹_0$ does not a®ect the incumbent's policy choice. This re°ects the fact that, if the policy is not introduced, the incumbent is indi®erent between being re-elected or not. Proposition 1 implies that the policy will not be introduced in the second period and hence the winner of the election will receive no bribes.

We now turn to consider optimal behavior on the part of the citizens. By Proposition 1, the citizens' lifetime payo®s will be $E ¡ 2C$ if the incumbent introduces the policy and 0 otherwise. Thus, the citizens will desire the incumbent to introduce the policy if and only if $E > 2C$. In general, there does not exist one uniquely optimal voting rule which will allow the citizens to induce the incumbent to behave in the desired manner. Depending on the parameter values, the citizens may be unable to in°uence the incumbent's decision or maybe able to induce the desired behavior with many di®erent voting rules. It can be shown, however, that whenever the citizens can in°uence the incumbent's behavior, they will wish to induce him not to enact the policy.[16]

Claim 4. Suppose that Assumptions 1 through 4 are satis¯ed. Then, if the citizens can in°uence the incumbent's behavior with their choice of voting rule, they will employ a voting rule which induces him not to enact the policy.

[16] A corollary of this result and the observation that $¹_0$ does not a®ect the incumbent's decisions, is that always voting for the challenger is an optimal voting rule for the citizens.

Proof. As noted above, the citizens will desire the incumbent to introduce the policy if and only if $E > 2C$. Thus it suffices to show that the citizens cannot influence the incumbent's behavior with their choice of voting rule when $E > 2C$. To show this, it is enough to demonstrate that

$$\delta > \frac{3c - E}{2[\pi_B(1) - \pi_A] - s}.$$

If this inequality is satisfied, then Claim 3 implies that the incumbent will enact the policy irrespective of the initial location of the firm and the value of θ_1.

Assumption 4 implies that

$$\delta > \frac{c - s}{2[\pi_B(1) - \pi_A] - s}.$$

Thus, it suffices to show that $c - s > 3c - E$ or, equivalently, that $2c + s < E$. By Assumption 1, $2c + s < 2C$. Since, by hypothesis, $E > 2C$, the result follows. ■

Combining the two previous claims and Proposition 1, we obtain the following characterization of the equilibrium policy sequence.

Proposition 2. Suppose that Assumptions 1 through 4 are satisfied. Then, if

$$\delta > \frac{3c - E}{2[\pi_B(1) - \pi_A] - s}; \tag{4.3}$$

the policy will be enacted in both periods. If

$$\delta < \frac{3c - E - 2s}{2[\pi_B(1) - \pi_A] + s}; \tag{4.4}$$

it will be enacted in neither period. If neither (4.3) nor (4.4) are satisfied, then the policy will be enacted only if the firm is located in sector B at the beginning of period 1.

Proof. First, suppose that (4.3) is satisfied. Then inequalities (4.1) and (4.2) are satisfied for all $\theta_1 \in [0,1]$. By Claim 3, therefore, the incumbent will enact the policy whichever sector the firm happens to be located in. Proposition 1 then implies that the policy will be enacted in period 2.

Next, suppose that (4.4) is satis¯ed. Then inequalities (4.1) and (4.2) are not satis¯ed for $\lambda_1 = 0$: Claim 3 therefore implies that, whichever sector the ¯rm is located in, the incumbent would not enact the policy if $\lambda_1 = 0$. There are two possibilities: either, the incumbent could be induced to enact the policy with a higher value of λ_1 or he could not. In the latter case, the policy will not be enacted. In the former case, Claim 4 implies that the citizens will employ a voting rule which induces the incumbent not to enact the policy. The result then follows from Proposition 1.

Finally, suppose that neither (4.3) nor (4.4) are satis¯ed. Suppose that the ¯rm is located in sector A. Since (4.3) is not satis¯ed, (4.1) is not satis¯ed for $\lambda_1 = 0$: Claim 3 therefore implies that the incumbent would not enact the policy if $\lambda_1 = 0$. There are again two possibilities: either, the incumbent could be induced to enact the policy with a higher value of λ_1 or he could not. In the latter case, the policy will not be enacted. In the former case, Claim 4 implies that the citizens will employ a voting rule which induces the incumbent not to enact the policy. The result then follows from Proposition 1. Now suppose that the ¯rm is located in sector B. Since (4.4) is not satis¯ed, inequality (4.2) is not satis¯ed for all $\lambda_1 \in [0;1]$. By Claim 3, therefore, the incumbent will enact the policy. Proposition 1 then implies that the policy will be enacted in period 2. ■

Proposition 2 provides a complete characterization of the equilibrium policy sequence in terms of the inequalities (4.3) and (4.4). Taken as a prediction of what policy sequences might actually look like in the world, it suggests (obviously) that when a policy is introduced it will persist. It also suggests that policies which have some initial economic rationale (high E) are most likely to be introduced and that countries with more corrupt leaders (high °) are likely to introduce more policies.

4.2. Political Failure

By analogy with market failure, a political failure can be said to arise when there exist feasible policy choices which Pareto dominate the policy choices produced in political equilibrium (Besley and Coate (1995b)). One important consequence of policy persistence is that it may give rise to such a failure.[17]

[17] For further examples of political failures see Besley and Coate (1995b) and Coate and Morris (1995).

To illustrate, suppose that the firm starts out in sector A at the beginning of period 1 but that (4.3) is not satisfied. Suppose further that the temporary external benefit, E, exceeds the one period cost of the policy to the citizens, C, and that the profit differential from being in sector B for one period is more than twice the switching costs; i.e., $\pi_B(1) - \pi_A > 2s$: Proposition 2 tells us that the equilibrium policy sequence will be $p_1 = p_2 = 0$. The firm's equilibrium payoff is therefore $2\pi_A$, while citizens receive 0 and the two politicians obtain lifetime payoffs of $2\pi_A/\delta$. Now observe that the policy sequence $p_1 = 1$ and $p_2 = 0$ is feasible for the economy and that if it were imposed, all agents would be better off. The firm's payoff would rise to $\pi_B(1) + \pi_A - 2s$; the citizens would get a positive payoff of $E - C$ and the two politicians would get lifetime payoffs $\frac{E - C + \pi_B(1) + \pi_A - 2s}{\delta}$: Hence, the equilibrium in this case exhibits a political failure.

A similar argument applies when the firm starts out in sector B, (4.4) is satisfied, and E exceeds C. The equilibrium policy sequence under these conditions will again be $p_1 = p_2 = 0$. However, all agents would be better off under the policy sequence $p_1 = 1$ and $p_2 = 0$:[18]

In these examples, the incumbent is deterred from enacting the policy, even though it benefits all in the short run, because he realizes that introducing it would guarantee that it would remain in place in the future when it would have harmful effects. The term political failure is warranted because the fact that policy decisions are being made through the political process is constraining society to a Pareto inferior allocation.

The type of political failure exhibited here is similar to a number of other examples in the literature. There are three key features underlying the argument. First, the incumbent cares about both current and future policy outcomes. Sec-

[18] Let us verify that these claims are not empty, i.e. all the assumptions hold in some circumstances. Note first that (4.4) implies that (4.3) does not hold. We will verify that there is an open set of parameters such that (i) Assumptions 1 through 4; (ii) $E > C$; (iii) $\pi_B(1) - \pi_A > 2s$; and (iv) equation (4.4) hold simultaneously. There is an open set of s satisfying Assumption 1 and (iii). Fix any such s and fix any $\varepsilon > E - C > 0$, i.e. fix the net benefit of the policy in the first period. Setting $\varepsilon > 0$, (ii) is automatically satisfied. Now equation (4.4) can re-written as $\delta \cdot \frac{\varepsilon - s - \frac{1}{2}(\pi_B(1) - \pi_A) - \frac{1}{2}\varepsilon}{(\pi_B(1) - \pi_A) + s - \frac{s}{2}}$. For sufficiently large values of C (and so ε), we will have $\frac{\varepsilon - s - \frac{1}{2}(\pi_B(1) - \pi_A) - \frac{1}{2}\varepsilon}{(\pi_B(1) - \pi_A + s) - \frac{s}{2}} > \frac{\varepsilon - s}{(\pi_B(1) - \pi_A + s)}$. The latter expression is the lower bound on δ supplied by Assumption 3 and (iii) implies that it is higher than the lower bound on δ supplied by Assumption 4. Since we already showed (in footnote 10) that an open interval of values of δ satisfy Assumptions 3 and 4, we have verified the consistency of (i) through (iv).

ond, the incumbent is not certain that he will control future policy outcomes.[19] Third, the incumbent's current policy decisions in°uence those of the future policy maker and therefore can be used to manipulate future policy outcomes. Alesina and Tabellini (1990) and Persson and Svensson (1989) develop an explanation of budget de¯cits along these lines, while Besley and Coate (1995b) show that such considerations can explain ine±cient public investment decisions. At the heart of this type of political failure lies the problem of commitment. If the challenger could commit not to enact the policy when he won the election, the incumbent would happily introduce the policy (even without political contributions). However, there are good reasons for believing that this type of Coasian solution is unlikely to emerge in political environments (see Besley and Coate (1995b)).

It is important to note that if equilibrium involves the policy being enacted this is not an example of political failure, as we have de¯ned it, even when there is no external bene¯t to the ¯rm being in sector B. When the policy is enacted in both periods, it is not possible to make all agents better o® with the available policy instruments. The politicians are making transfers to the ¯rm, but are doing so in an e±cient manner. The policy sequence may not be fair or maximize societal wealth, but it cannot be Pareto dominated.[20]

4.3. Policy Conditionality

The lending of international ¯nancial institutions - for example, the I.M.F. and World Bank - to developing and former socialist countries includes large components of policy conditionality. Thus these institutions o®er funds to governments on condition that they pursue economic policies which support the institutions' objectives. It is clear that policy conditionality can induce temporary changes in

[19] In both of the examples described above, the equilibrium must involve the citizens' electing the challenger with positive probability if the incumbent enacts the policy. Under the conditions of the two examples, if the incumbent knew he were to be re-elected with probability one, he would enact the policy. Intuitively, this is because the political contribution he would receive in the second period would compensate him for the negative e®ects of the policy on second period societal wealth. To check this assertion formally, observe that under the conditions of the ¯rst example, Assumption 4 implies that (4.1) holds when $\theta_1 = 1$. It follows from Claim 3 that the incumbent would enact the policy when $\theta_1 = 1$: Similarly, under the conditions of the second example, Assumption 4 implies that (4.2) holds when $\theta_1 = 1$:

[20] The reduction in wealth caused by the policy will be $2¢ + s$, when the ¯rm starts out in sector A and $2¢ ¡ s$ when the ¯rm starts out in sector B.

policy. However, a premise of existing policy conditionality is often that temporary conditionality will have permanent e®ects.

How can temporary policy conditionality be used to permanently reform the economic policies of developing countries? After all, if policy conditionality is required in the ¯rst place, then economic reform does not have political support. Once temporary policy conditionality is removed, policy makers will presumably revert to whatever pre-reform policies they found politically expedient before. Bates (1985) notes that African governments have changed policies in order secure external ¯nancial assistance, but observes that \...should prosperity return to Africa, then powerful groups will ¯nd politicians still willing and once again able to employ government to alter markets in ways which accommodate their interests".

In order for temporary policy conditionality to have permanent e®ects, it must be that the temporary implementation of the policy has created some permanent change. Our model suggests one mechanism by which temporary conditionality might have permanent e®ects. To illustrate, suppose that the ¯rm starts out located in sector B and that there is no external bene¯t associated with the ¯rm being in sector B (i.e., $E = 0$). Suppose further that (4.3) is satis¯ed so that the equilibrium policy sequence is $p_1 = p_2 = 1$. In this environment, the policy has no public interest motivation and is purely a transfer to the ¯rm at the expense of the citizens. Moreover, it is a costly transfer since it reduces aggregate wealth.

Imagine that an external agency, like the World Bank, is concerned with improving the wealth of the economy. Assume, further, that it is considering granting a loan to the country, which will bene¯t the citizens by an amount L in period 1. Suppose that at the beginning of period 1, the agency commits to grant the loan to the country if and only if the incumbent does not enact the policy. The consequence of this is that lifetime social wealth if the policy is not enacted rises by the amount L. The minimum contribution necessary to persuade the incumbent to enact the policy therefore rises by an amount $L=°$: If the loan is su±ciently bene¯cial to the citizens, the minimum contribution will exceed the ¯rm's willingness

to pay and the policy will not be enacted in period 1.[21] Proposition 1 then implies that it will also not be enacted in period 2. Temporary policy conditionality thus has permanent effects.

5. Conclusion

This paper has developed a fully articulated model of why policies might persist; that is, why implementation of a policy in one period might increase the likelihood of that policy being implemented in the next period. It formalizes a conventional explanation that implementation of policies increases the political effectiveness of beneficiaries in lobbying; in particular, it explains how it might be economic decisions which bring about the political change.

This theory has (at least) two interesting implications. First, it implies that politicians may not introduce protectionist policies even if they are Pareto-improving in the short run, because their introduction will cause their persistence (something which is not in the interests of the current policy-maker). This gives rise to political failure, in the sense that equilibrium policy sequences can be Pareto dominated. Second, it provides support for the belief that short run policy conditionality can induce permanent changes in policy because of the policy persistence mechanism.

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[21] Assuming that the citizens will vote for the challenger, the minimum contribution necessary to persuade the incumbent to enact the policy is

$$b_B^{\alpha}(1;L) = \frac{2\phi + L - E}{\circ}.$$

The firm's willingness to pay for the policy remains at $\pi_B(1) + s - b_B^{\alpha}(2) - \pi_A$ (see proof of Claim 3). If $b_B^{\alpha}(1;L)$ exceeds $\pi_B(1) + s - b_B^{\alpha}(2) - \pi_A$; the policy will not be enacted in period 1.

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6. Appendix: Extensions of the Theory

Our simple model in section 3 assumed that there was only one firm and that the government had only one transfer instrument. In this appendix, we demonstrate that our analysis of policy persistence is robust to relaxing these assumptions.

6.1. Many Firms

Suppose there is more than one firm which benefits from and may lobby for the policy. The only modification in the analysis occurs at the lobbying stage. There are two approaches that can be taken here. Following Grossman and Helpman (1994) and others, the first is to assume that the firms act cooperatively and collectively offer the policy-maker a contribution b. The contribution is shared equally by all the firms and is chosen so as to maximize the total profits of the group. It should be obvious that nothing much changes in this case. The firms are, essentially, acting as a single entity.

The alternative approach is to assume that the firms behave non-cooperatively, each firm choosing its own personal contribution. This raises the possibility of free riding in the lobbying of the policy-maker. From the viewpoint of the firms, the policy is a public good, which once provided for one firm, is provided to all. Each firm obviously prefers that its fellows pay the policy-maker to introduce the policy and therefore will be tempted to free ride. This free riding might undercut the group's ability to lobby for the policy and hence could diminish the likelihood of policy persistence.

The effect of non-cooperative behavior may be investigated by modelling the lobbying process is as a two-stage game. In stage 1, each firm i independently and simultaneously chooses a contribution b_i. In stage 2, the policy-maker decides on the policy, receiving a total contribution $\sum_i b_i$ if he enacts it. At the second stage, there will exist a minimum contribution b^* just sufficient to compensate the policy-maker for enacting the policy. The policy will therefore be enacted if and only if $\sum_i b_i \geq b^*$. This feature makes the first stage of the game equivalent to the standard model of private provision of a discrete (or "threshold") public good (see, inter alia, Palfrey and Rosenthal (1984), Bagnoli and Lipman (1989) and Gradstein (1992)). There are many Nash equilibria of this game (see Bagnoli and Lipman (1989)). If the sum of the firms' willingnesses to pay for the policy is less than b^*, then all these equilibria involve the policy not being provided. Because of free riding, there are also equilibria in which the policy is not provided when the sum of willingnesses to pay exceed b^*. If w_i denotes firm i's willingness to pay, then any vector of contributions $(b_1, \ldots, b_n)$ such that $\sum_i b_i < b^*$ and $\sum_{j \neq i} b_j + w_i \leq b^*$ for all i is an equilibrium. Interestingly, however, there also exist equilibria in which the policy is provided. Any vector of contributions $(b_1, \ldots, b_n)$ such that $b_i \in [0, w_i]$ for all i and $\sum_i b_i = b^*$ is an equilibrium.[22]

If the firms behave non-cooperatively, therefore, free riding may prevent them from successfully lobbying for a policy which would, in the aggregate, benefit them. In this case, the policy persistence result breaks down. Whether or not they are located in sector B at the beginning of period 2, the firms will be unable to successfully lobby the policy-maker to enact the policy. Thus, enacting the policy in period 1 will not result in it being introduced in period 2. However, this is not the only possibility; the firms may be able to successfully lobby. In the latter case, the policy persistence result goes through as before, since it is only when the firms are located in sector B at the beginning of period 2, that the sum of willingnesses to pay exceeds b^*:

6.2. Alternative Policy Instruments

Suppose there exists an alternative policy which allows the policy-maker to transfer any amount $T \geq 0$ to the firm at cost $\phi(T)$ to the citizens. These costs to

[22] Indeed, Bagnoli and Lipman (1989) present a refinement that eliminates the inefficient equilibria. They show that, when $\sum_i w_i > b^*$, the only undominated perfect equilibria are those which involve the policy being provided.

the citizens are independent of the sector in which the ¯rm operates. Suppose that the transfer mechanism involves some deadweight loss and that this \slippage" increases at an increasing rate with the size of the transfer; i.e., $\pm(0) = 0$, $\pm'(T) > 1$, and $\pm''(T) > 0$.

Consider what will happen in period 2. The policy-maker must select the levels of the two policies: p_2 and T_2. The ¯rm will o®er a contribution schedule $b(p_2; T_2)$ specifying a payment for each possible policy choice. This schedule may depend upon where the ¯rm is located. The policy-maker will then choose $(p_2; T_2)$, taking account of the implications of his choice for his contribution and social wealth.

Interestingly, the availability of the alternative transfer instrument need have no e®ect on whether or not the discrete policy is implemented. Assuming that $\pm'(T) > 1 + °$ for su±ciently large T, equilibrium involves the policy-maker choosing a level of transfers $T_2^¤$, where $\pm'(T_2^¤) = 1 + °$, and (under Assumptions 1 through 4) enacting the discrete policy if and only if the ¯rm is located in sector B.[23] In return for this, he receives a contribution $[\pm(T_2^¤) ¡ T_2^¤]=°$ if the ¯rm is located in sector A and a contribution $[\pm(T_2^¤) ¡ T_2^¤]=° + b_B^¤(2)$ if the ¯rm is located in sector B. Since the ¯rm receives $T_2^¤$ in period 2 irrespective of where it is located at the beginning of period 2, the transfer cannot a®ect its period 1 decisions. It follows that the policy persistence result is unchanged.

The intuition underlying this result is straightforward. A unit increase in T_2 reduces social wealth by an amount $\pm'(T_2) ¡ 1$. Thus, to compensate the policy-maker, the ¯rm must increase its contribution by an amount $[\pm'(T_2) ¡ 1]=°$. Such a trade will be worthwhile for the ¯rm for as long as $\pm'(T_2) < 1 + °$. The equilibrium level of transfers is therefore $T_2^¤$. Negotiations concerning the discrete policy are completely separable and remain exactly as described in section 3.

This argument does, however, rest critically on the assumption that the policy-maker cares only about the aggregate level of social wealth and not on its distribution.[24] To introduce distributional considerations as simply as possible, suppose that the politician is unwilling to impose costs on the citizens in excess of an amount $³$ per period, where $³ < \pm(T_2^¤)$. In this case, under Assumptions 1 through 4, Claim 1

[23] If $\pm'(0) > 1 + °$, then equilibrium will involve $T_2^¤ = 0$:

[24] It also rests on the assumption that $\pm'(T) > 1 + °$ for su±ciently large T. If this condition is not satis¯ed, then there is no upper limit on the amount the policy-maker is prepared to transfer to the ¯rm. This conclusion again re°ects the simplifying assumption that the policy-maker cares only about the aggregate level of social wealth and not on its distribution. Obtaining interesting results when $\pm'(T) < 1 + °$ for all T, therefore requires the introduction of distributional considerations.

holds only if the discrete policy is a more efficient way of transferring resources to the firm than the alternative mechanism when the firm is located in sector B.

Recall from section 3 that the firm gains an amount $\pi_B(1) + s - \pi_A$ from the policy, at a cost C to the taxpayers. Imposing the cost C on the taxpayers would, however, necessitate a reduction in the level of the other transfer from $\phi^{-1}(\sigma)$ to $\phi^{-1}(\sigma - C)$. Thus, for the discrete policy to be employed when the firm is located in sector B, we need that

$$\phi^{-1}(\sigma) - \phi^{-1}(\sigma - C) < \pi_B(1) + s - \pi_A: \tag{6.1}$$

If this condition is not met, then the discrete policy will not be employed in period 2 and policy persistence, as we have defined it, can no longer hold.[25] Even if the policy is in place in period 1, the second period policy-maker will simply switch to the more efficient transfer mechanism. If the condition is met, then, if the policy being enacted in period 1 is necessary and sufficient for the firm to choose to operate in sector B, policy persistence continues to hold.

[25] This will certainly be the case if the alternative transfer mechanism involves no deadweight loss. If $\phi(T) = T$, then $\phi^{-1}(x) = x$ and Assumptions 1 and 2 imply that $C > \pi_B(1) + s - \pi_A$: