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A POLITICAL ECONOMY THEORY OF THE SOFT BUDGET CONSTRAINT

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A Political Economy Theory of the Soft Budget Constraint

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Abstract

Why do soft budget constraints exist and persist? In this paper we argue that the prevalence of soft budget constraints can be best explained by the political desirability of softness. We develop a political economy model where politicians cannot commit to policies that are not ex post optimal. We show that because of the dynamic commitment problem inherent in the soft budget constraint, politicians can in essence commit to make transfers to entrepreneurs which otherwise they would not be able to do. This encourages such entrepreneurs to vote for them. Though the soft budget constraint may induce economic inefficiency, it may be politically rational because it influences the outcomes of elections. In consequence, even when information is complete, politicians may fund bad projects which they anticipate they will have to bail out in the future.

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1   Introduction

Traditional policy analysis in the tradition of Pigou (1920) and Samuelson (1954) saw policymakers as designing policies to solve market failures, or satisfy normative criteria, subject only to the availability of resources and the nature of preferences and technology. In the 1970's economists began to realize that even well intentioned planners were subject to other types of constraints. Diamond and Mirrlees (1971) examined the nature of optimal policies without lump-sum taxation, and Gibbard (1973) and Green and Laffont (1979) argued that the incentive compatibility constraints generated by private information had to be respected. Kydland and Prescott (1977) also showed that optimal inter-temporal policies might be time inconsistent, making it difficult for a planner to commit to even a second-best policy. In the 1980's and 1990's economists began to merge such ideas with models where policymakers were self-interested and studied how the interaction between such interests and social welfare led to further deviations from first or second-best outcomes.

These models have brought us much closer to an understanding of the relationship between market failures and political failures. We have begun to develop intuitions for the circumstances in which policy outcomes will deviate from welfare optima and the types of phenomena that are typically associated with political failure. For example, we now have well developed political mechanisms which can account for why government's redistribute income using inefficient instruments.[1] We also have carefully articulated ideas about how political institutions help determine equilibrium policies.[2]

Yet many puzzles remain. A central, and fascinating one, is that of the "soft budget constraint." Originally introduced by Kornai (1979) in the context of centrally planned economies, the basic notion is that governments and policymakers are unable to impose a 'hard' budget constraint on government owned enterprises or government agencies. In consequence such enterprises or agencies have incentives to act in inefficient or profligate ways knowing that they will be bailed out if things go wrong.

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[1]See Coate and Morris (1995), Dixit, Grossman and Helpman (1997), and Acemoglu and Robinson (2001).

[2]See Persson, Roland and Tabellini (1997, 2000), Persson and Tabellini (2000, 2004).

Since its development, the problem of the soft budget constraint has been recognized to be endemic to all polities, though clearly being worse in developing economies. This recognition emerges from the fact that all scholars note that soft budget constraints in Eastern Europe and the former Soviet Republic proved more long lived that central planning. Maskin and Xu (2001, p. 10) report that "considerable empirical work indicates that the soft budget constraint syndrome continues to play an important role in virtually every transition economy, even those that have already undergone many years of reform". Similarly, Kornai, Maskin and Roland (2003, p. 1114) note that "Ironically, the transition experience suggests that soft budget constraints have persisted amongst the economies of Eastern Europe in the initial phases of transition, despite vigorous declarations on the need for hardening."

Why do soft budget constraints exist and persist? The central argument in the literature is that soft budget constraints arise because politicians cannot commit not to refinance bad projects ex post and cannot distinguish bad from good ex ante. Given that a project is launched, it will be refinanced as long as benefits cover costs. Previous costs are sunk. Entrepreneurs know this, and submit bad projects for financing in the first place. This is the key argument in Dewatripont and Maskin (1995), which has become the canonical model of soft budget constraints. This approach follows the literature which built on Kydland and Prescott (1977) where policymakers were though of as well intentioned and thus downplays any political reason for the existence of soft-budget constraints.

Such an approach to understanding the soft budget constraint is odd, because the overwhelming amount of evidence strongly suggests the role of political motivations. For instance, political scientists who have studied this topic, argue that the main reason for soft budget constraints to persist is that soft budget constraints serve the interests of politicians - this is precisely the reason they are not dismantled.

In this paper we develop a fully political economy model of the soft budget constraint. Our starting point, following Alesina (1988), Osborne and Slivinski (1996), and Besley and Coate (1997), is that politicians cannot commit to policies that are not ex post optimal for them to adopt. This inability to commit to arbitrary policies hampers the ability of politicians to exchange

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policies for support, since voters do not necessarily believe election promises (unlike in the basic Downsian model where perfect commitment is assumed). Such a political setting is the natural one if one accepts that the problem of the soft-budget constraint is a problem of commitment. Instruments which solve this credibility problem are therefore potentially attractive politically. We argue that the key thing about the soft budget constraint is that, in effect, it is a credible way of transferring income to potential supporters. The central observation is that because a policymaker *cannot commit to enforce a hard budget* constraint, *he can commit to make transfers* to citizens.

Nevertheless, this in itself does not make a soft-budget constraint politically rational. Instruments which allow all politicians to make credible commitments to policy are not necessarily attractive unless they improve the position of one politician relative to another. For example, politicians would like to be able to offer income redistribution to groups to win their support. In order for this offer to change the expected outcome of an election, such redistribution has to satisfy two conditions (1) it must be optimal ex post for politicians to enact, and (2) it must be something that all politicians cannot offer.[3]

Such asymmetries arise in many natural ways. Politicians differ in their valuation of welfare of different groups, in their ability to undertake different policies, in their regional attachment, and in their interaction with different groups. We model such differences in the same way as Dixit and Londregan (1996) who argue that (p. 1134) "Such differences can arise when each party has its core support groups of constituents whom it understands well. This greater understanding translates into greater efficiency in the allocation of benefits: patronage dollars are spend more effectively".

In this paper we argue that it is the combination of these two things that leads to the prevalence of the soft-budget constraint. Politicians are happy to finance projects which are known to be bad in the sense that revenues do not cover costs and which they anticipate that they will find it optimal ex

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[3]Consider the standard probabilistic voting model of political competition where two political parties design credible policy platforms to maximize either the probability of winning an election or expected utility. The usual outcome is that both parties win with probability $\frac{1}{2}$. Because both parties have access to the same instruments, in equilibrium these completely offset themselves and do not influence the expected election outcome.

post to 'bail out' in the future. This is because such 'bail outs' redistribute resources to people or groups to whom they would otherwise find it difficult to redistribute to credibly and to whom other politicians cannot credibly redistribute resources. We refer to such groups as the core supporters of a politician. We show that the key difference between such bad projects and good projects is that all politicians can commit to refinance good projects ex post and thus although they may redistribute resources to voters, they do so symmetrically and therefore do not give any politician a strategic advantage.

The ability of incumbent politicians to launch projects that only they can credibly refinance in the future creates an incumbency bias. Moreover, it introduces an interesting inter-temporal structure to the model. If an incumbent politician launches a project today which only he can refinance tomorrow, this encourages his core supporters to vote for him because they anticipate that he will bail them out tomorrow, thus increasing their utility. In addition, if such a politician gets re-elected then he can launch further projects in the next period which payoff in the period after that. This further increases the benefit to core supporters from re-electing the politician. To capture these inter-temporal effects we develop an infinite horizon election model.

While in Dewatripont and Maskin (1995) the soft budget constraint is something politicians would want to escape if they credibly could, in our model the soft budget constraint may arise as something politicians desire even when information is complete. Many case studies point out that soft budget constraints may serve political purposes. For instance, Gimpelson and Treisman (2002) find that in Russia (p. 172) "regional governments boost public employment by hiring partisans and clients and extract greater federal aid" and that (p. 178) "Central politicians responded with bailouts because they knew, too, that regional voters would, quite rationally, have punished them if they did not". Kitschelt et al. (1999) discuss the widespread use of clientelistic policies in post-communist countries. One example is Bulgaria where politicians build clientelistic networks (p. 203) "especially in the sectors of state-run enterprises and collectivized agriculture" and where "quasi-private business groups in the BSP's sphere of supporters successfully extracted cheap credits from a compliant government-controlled central bank

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... and sold foreign commodities at high world market prices to unavailable, debt-accumulating state-owned companies". These scholars see the soft budget constraint as arising out of a clientelistic exchange of redistribution for political support.

The politics of soft budget constraints and patronage is not, however, unique to eastern European transition economies. A large number of studies emphasize such political strategies are prevalent in African countries. The first European colony in Africa that became independent was Ghana in 1957. The Nkrumah government launched a policy of active involvement in the economy where according to Rimmer (1969, p. 195) "New enterprises were distributed among party functionaries as private fiefs, enabling them to give patronage to relatives, friends and supporters". Killick (1978, p. 194) notes that for the state farms created "managers were often political appointees knowing little of agriculture". The economic effects of the policy of patronage was disastrous; the public budget deficit skyrocketed and the massive public investments did not yield any payoff in terms of increased growth. Killick (1978, p. 248) argues that to understand the poor economic development in Ghana one need to ask

> "why the creation of new state enterprises was allowed to outstrip the resources devoted to project planning, why incompetent managers were tolerated and why interfering politicians were not disciplined".

He goes on to argue that

> "'Political interference' emerges as a logical result of the use of state enterprises to reward party activists and to extend the area of political control. And inattention to economic efficiency in the planning and operation of enterprises becomes explicable if the creation of such enterprises is accepted as an end in itself and as an ostentatious display to impress the electorate".

Nkurunziza and Ngaruko (2002) argue that a politically driven soft budget constraint has played a central role the catastrophic economic performance of Burundi since independence. In the period 1977-82 about 100 state owned

companies were created whose main role was to transfer rents to political supporters. Although (p. 24) "most of the corporations experienced cash flow problems accommodated with massive injections of subsidies" they continued to receive financing and by 1990 "state firms accounted for 31 percent of formal sector employment, 25 percent of outstanding domestic credit, and benefited from 3.4 percent of GDP in financial flows from the government". The public financing continued even longer and "By 1995, equity capital for thirty-six such firms with majority state participation represented 20 percent of the country's GDP, but overall, these corporations posted a net loss equivalent to 6 percent of GDP or 14 percent of government revenue".[4]

Political motivations for the soft budget constraint have previously been proposed by Shleifer and Vishny (1994), Boycko, Shleifer and Vishny (1996), and Desai and Olofsgård (2005), who assume political benefits of excess labor in public firms that result in soft budget constraints. In our model political benefits are not assumed to exist but emerge as a result.[5] Inefficient spending in our model does not result from a common pool problem as in e.g. Weingast, Shepsle and Johnsen (1981) or Persson and Tabellini (1994), since in our model the decision maker faces the full costs of his own spending. Our model is related to models where the incumbent chooses policy to bind his own hands in order to influence the outcome of an election (e.g., Milesi-Ferretti, 1995). As in such papers we study a dynamic model of voting and commitment. Finally, our model is related to Dixit and Londregan (1995) where agents do not undertake efficient investments because politicians cannot commit not to tax away the future profits by these investments. In our model politicians choose policy today to be able to commit to policy in the future.

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[4]For other African examples see Barkan and Chege (1989) on Kenya, Tangri (1999) on Zambia, and Hayward (1987).

[5]Shleifer and Vishny (1994), and Boycko, Shleifer and Vishny (1996) have no political competition or voting in their models. Desai and Olofsgård (2005) assume that some voters cannot observe which policies are being implemented to increase employment, making it attractive for incompetent politicians to increase employment through subsidies. In a similar vein Coate and Morris (1995) explain how inefficient redistribution may emerge in a political equilibrium when voters do not know for sure if the implemented policies are efficient or inefficient. In contrast our model has complete information.

2 A model of politically efficient soft budget constraints

We consider an infinite horizon economy with two politicians A and B and a unit mass of entrepreneurs that are also the voters. The starting point of our model is the two period model of the soft budget constraint in Dewatripont and Maskin (1995). Entrepreneurs have no capital themselves and submit projects for financing to the politician in power. Projects generate observable returns that the politician can completely extract. short-term projects yield payoff R_s in the same period they are undertaken while long-term projects yield payoff R_l one period after being launched. Whether short-term or long-term, projects require one unit of capital per period they are financed.

By holding power politicians receive some exogenous rents X, get the eventual returns on projects net of investment costs, and have the right to decide policy. We model the transfers from politicians to voters required to finance a project in the same way as Dixit and Londregan (1996), where transfers occur via a leaky bucket and where this leakage depends on the group and the party. Parties have their different core support groups that they understand better and can deliver benefits to with greater efficiency. To transfer one unit of capital to a core support group a politician requires $1 + \varphi$ units of resources, while to transfer a unit of capital to other groups a politician requires $1 + \theta$ units of resources; $\varphi < \theta < 1$. Without loss of generality for our model we simplify the Dixit-Londregan formulation by setting $\varphi = 0$. Each politician has a fraction $p \leq \frac{1}{2}$ of the voters in his core support group, while a fraction $1 - 2p$ of the voters do not belong in any core support group.[6] All voters freely decide who to support and thus even members of the core group of a politician have to be persuaded to vote for him, they do not automatically do so.[7]

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[6] An alternative interpretation of partisan politics is that politicians care differently about the wellbeing of different voters, so that the net cost of transferring resources to own core supporters is lower than for transferring resources to other voters. This produces an asymmetry between politicians which has similar implications (see Robinson and Torvik, 2005).

[7] We abstract from any other type of policy instrument in the analysis. Note however that if politicians had access to transfers, since we shall analyze only Markov perfect equilibria, they would not be able to credibly promise to use them to gain support. Once in power, since politicians only care about their own welfare, they would not redistribute

E_s is an entrepreneurs' per period private benefit (income) of a short-term project if financed, and E_l is the final period private benefit of a long-term project if refinanced. If projects are not initiated or terminated the benefit is zero. Thus $E_s, E_l > 0$. Politicians and voters (entrepreneurs) have a discount factor $\beta \in (0,1)$ and all agents aim to maximize the expected present discounted value of utility. As in Lindbeck and Weibull (1987) and Dixit and Londregan (1996) voters also have preferences over ideology. Each voter j has an ideological (per period) bias δ^j toward politician A. We assume that δ^j is uniformly distributed on the interval $[-\frac{1}{2s}, \frac{1}{2s}]$ with density $s > 0$, and that ideological preferences remain constant over time. Each individual is also subject to an aggregate shock in favor of politician A, denoted ψ, which is a random variable uniformly distributed on the interval $[-\frac{1}{2h}, \frac{1}{2h}]$ with density $h > 0$ (and measured in next period utility units). Each period a new drawing from the popularity distribution is undertaken independently of the popularity shock of the previous period. Letting E denote the per period private economic benefit of voter j, the full expected next period (per period) utility of voter j is given by

$$E + \delta^j D \tag{1}$$

where D is a dummy variable that takes the value of unity if politician A is in power and zero otherwise (and the expected value of ψ is zero). Thus we employ a standard probabilistic voting model based on Lindbeck and Weibull (1987) and Dixit and Londregan (1996). A difference is that we extend the probabilistic model to consider an infinite horizon economy, and show that, at least in our setting, this generates a relatively tractable model.

2.1 Policies

We characterize the pure strategy Markov perfect equilibria of the model. In a Markov equilibrium actions at a given play of the stage game can only be conditioned on the state of the game at that point and not the entire history of play. Here the state of the game is captured by the identity of the incumbent politician and the identity of the politician in power in the previous period. The restriction to Markov perfect equilibria implies that

any income to citizens.

strategies played within a period must be subgame perfect which means that all actions must be credible. This introduces the problem of commitment in a natural way. Therefore, voters realize that for policies to be implemented they have to be ex post optimal for the chosen politician. Politicians cannot credibly commit to policies which are not in their own interest. The timing of the stage game in period t as follows.

1. At the start of the period whichever politician won the last election takes power.

2. He must decide whether or not to re-finance any long-run projects launched in period $t - 1$.

3. He must decide what new short-run or long-run projects to finance in period t.

4. Agents receive their period t payoffs.

5. At the end of the period an election takes place and voters vote.

We consider both poor and good projects (entrepreneurs). Poor projects are projects that do not yield a positive return. Thus for poor short-term projects $R_s < 1$ for a core supporter and $R_s < 1 + \theta$ for a non-core supporter, while for poor long-term projects $\beta R_l < 1 + \beta$ for a core supporter and $\beta R_l < (1 + \beta)(1 + \theta)$ for others. Here $1 + \beta$ is the present discounted cost of a project operated by a member of the core group of a politician and βR_l is the present discounted revenues. Projects that do not fulfill these inequalities are termed good projects.[8]

We start out with poor projects. It is immediately clear that poor short-term projects will not be financed in any period. Such projects are loss making and with forward looking voters they do not affect the reelection probability. Thus there is no reason to undertake them. Voters realize this, and promises to fund future short-term loss making projects are not credible.

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[8]Note that these conditions are not the same as those for social efficiency. These would also include the benefits to the entrepreneurs, the E_s, E_l. Nevertheless, the interesting feature of the soft-budget constraint seems to be to understand how policymakers fund loss making enterprises and the private benefits are not relevant to whether or not a project make losses for the government since they cannot be expropriated.

We now turn to poor long-term projects. The politician who wins an election must decide if such projects should be launched, as well as if existing projects should be terminated or refinanced. We start out by considering the following equilibrium strategies: when in power a politician launches long-term poor projects with $1 < R_l < 1 + \theta$ for his core supporters only and he refinances core supporters only. We term this policy l. Note that policy l is symmetric in the sense that both politicians act in the same way towards their core supporters, and against the core supporters of the other politician. We study the appropriate Bellman equations, and later we show that policy l is the only possible equilibrium path where poor long-term projects are financed.

Whether or not launching poor long-term projects is an equilibrium depends on the availability of good short and long-term projects, since these influence the benefits from being in power. However, since the effects of payoffs from such good projects are identical to the effects of X in the Bellman equations below we do not explicitly introduce the payoffs from good projects. We return to the ramifications of good projects later.

In general, define $V_k^i(m, l)$ as the return to politician $i = A, B$ when politician $k = A, B$ was the incumbent in the previous period, politician $m = A, B$ wins the election, and politicians follow policy l. Let $\pi(l)$ denote the reelection probability of an incumbent following policy l. This reelection probability will be endogenously determined below and shown to be independent of who was the incumbent in the previous period. $1 - \pi(l)$ is the probability for an opposition politician to win the election under under policy l.

Consider first the case where politician A wins the election. If politician B was the previous incumbent, the static payoff to politician A as a consequence of winning the election is the rents of power X net of the unit financing cost for the p entrepreneurs in his core support group that he launches long-term poor projects for. If reelected for the next period the politician gets $V_A^A(A, l)$, while otherwise he gets $V_A^A(B, l)$. Hence his payoff is

$$V_B^A(A, l) = X - p + \beta \left(\pi(l) V_A^A(A, l) + (1 - \pi(l)) V_A^A(B, l) \right). \qquad (2)$$

When politician A was the incumbent and wins the election his core supporters will be refinanced. Thus in this case the first period static payoff to

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the incumbent also includes the return R_l net of the refinancing cost for his p core supporters.

$$V_A^A(A,l) = p(R_l - 1) + X - p + \beta \left(\pi(l) V_A^A(A,l) + (1 - \pi(l)) V_A^A(B,l) \right)$$
$$= V_B^A(A,l) + p(R_l - 1), \tag{3}$$

where the second line follows immediately from (2).

Should politician B win the election the next period the static payoff for politician A is zero regardless of whether he was the incumbent or not, as he receives neither rents nor payoffs from projects. Furthermore, when politician B wins the election the next election probability of politician A becomes that of an opponent; $1 - \pi(l)$. Hence we have(2)

$$V_A^A(B,l) = V_B^A(B,l) = \beta \left((1 - \pi(l)) V_B^A(A,l) + \pi(l) V_B^A(B,l) \right). \tag{4}$$

From (2), (3) and (4) we then find

$$V_B^A(A,l) = \frac{(1 - \beta\pi(l))\left(X - p + \beta\pi(l)p(R_l - 1) \right)}{1 - \beta\left(\beta + 2\pi(l)(1-\beta) \right)}. \tag{5}$$

Symmetric equations hold for politician B.

Note that poor long-term projects are always economically loss making to initiate; the expected payoff of a project is $-1 + \beta\pi(l)(R_l - 1)$ which must always be negative when $\beta R_l < 1 + \beta$. However, they can still be politically efficient and to show this we proceed to determine $\pi(l)$.

There are three groups of voters - the two groups of core supporters each of size p and the group of voters of size $1 - 2p$ that are not core supporters of either politician. For simplicity we assume that all members of the core group of either politician have access to bad long-term projects. Intuitively, it is only these projects which will influence the election outcome since they will only be re-financed by one of the politicians. Good short-term or good long-term projects will be financed (and re-financed) by both types of politician and will therefore not influence the election outcome. This being the case for the moment we do not include the possible payoffs from good projects in the Bellman equations below.

Consistent with the notation above, let $U_A^A(B,l)$ denote the return to a core supporter of politician A (superscript) when politician A (subscript) was

the previous incumbent and politician B wins the election. The expected future value of the aggregate shock ψ is zero. Consider a voter with ideological bias δ^j in the core support group of politician A. If politician A is the incumbent his next period the expected static payoff is $E_l + \delta^j$ if the incumbent is reelected. Furthermore the present incumbent will also be the next period incumbent with the reelection probability $\pi(l)$, while the probability of losing the election will be $1 - \pi(l)$. Thus

$$U_A^A(A, l) = E_l + \delta^j + \beta \left(\pi(l) U_A^A(A, l) + (1 - \pi(l)) U_A^A(B, l) \right). \qquad (6)$$

In case the incumbent loses, a core supporter of politician A is not refinanced and since we measure the ideological bias in favor of politician A, his next period expected static return is zero. Furthermore, the probability that politician A wins the next election is the probability that an opposition politician wins, namely $1 - \pi(l)$. Thus

$$U_A^A(B, l) = \beta \left((1 - \pi(l)) U_B^A(A, l) + \pi(l) U_B^A(B, l) \right). \qquad (7)$$

In case politician B is the current incumbent the expected payoffs are

$$U_B^A(A, l) = U_A^A(A, l) - E_l \qquad (8)$$

and

$$U_B^A(B, l) = U_A^A(B, l). \qquad (9)$$

Consider first the case where politician A is the incumbent. The expected future net gain in utility of a core supporter of politician A if A is reelected is

$$U_A^A(A, l) - U_A^A(B, l) = \frac{(1 + \beta(1 - \pi(l))) E_l + \delta^j}{1 - \beta(2\pi(l) - 1)}. \qquad (10)$$

Consider next the case where politician B is the incumbent. In this case the net gain for a group A core supporter should politician A rather than politician B win the election is given by

$$U_B^A(A, l) - U_B^A(B, l) = \frac{\beta\pi(l)E_l + \delta^j}{1 - \beta(2\pi(l) - 1)} \qquad (11)$$

Note that the right hand side of (10) is higher then the right hand side of (11). This is intuitive. The difference between them stems from the fact

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that if A is the incumbent then he chooses to implement long-run projects in the current period. This implies that if he wins the election then a member of his core group will get E_l next period. In addition if A wins today he will initiate further long-run projects in the next period, which are again refinanced should he also win the next election, and so on. However, if B is in power in the previous period, then even if A wins today, since no long-run projects benefitting members of A's core group will have been started in the previous period, there cannot be any payoff E_l in the next period. However, if A wins today he will initiate long-run projects in the next period, generating future benefits. This argument explains why the right hand side of (10) is higher than the right side of (11). This immediately implies that the reelection probability $\pi(l)$ will be different from the election probability of an opposition politician, $1 - \pi(l)$.

The symmetric equations for core supporters of politician B can easily be found (remembering that δ^j is defined as the ideological bias toward politician A). Also, by inserting $E_l = 0$, the corresponding equations for non-core supporters can be found.

We then reach the following proposition:

Proposition 1 *A strategy where the politician in power launches poor long-term projects with $1 < R_l < 1 + \theta$ for core supporters only, and refinances core supporters only, increases his reelection probability.*

Proof. Assume that politician A is the incumbent. Denote by N_A^A the number of core supporters of the incumbent that also vote for him. From (10) we know that those politician A core supporters that vote for politician A are those with a higher ideological bias than the δ^j defined by $\psi = \frac{[1+\beta(1-\pi(l))]E_l+\delta^j}{1-\beta(2\pi(l)-1)}$. N_A^A is then given by

$$p \int_{-(1+\beta(1-\pi(l)))E_l-(1-\beta(2\pi(l)-1))\psi}^{\frac{1}{2s}} s di$$
$$= p \left(\frac{1}{2} + s \left(1 + \beta(1 - \pi(l)) \right) E_l + s \left(1 - \beta(2\pi(l) - 1) \right) \psi \right) \qquad (12)$$

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The number of core supporters of politician B that vote for the incumbent A is given by

$$N_A^B = p \int_{\beta\pi(l)E_l-(1-\beta(2\pi(l)-1))\psi}^{\frac{1}{2s}} sdi$$
$$= p\left(\frac{1}{2} - s\beta\pi(l)E_l + s\left(1 - \beta(2\pi(l) - 1)\right)\psi\right) \tag{13}$$

The number of non-core supporters that vote for the incumbent, N_A, is given by

$$N_A = (1 - 2p) \int_{-[1-\beta(2\pi(l)-1)]\psi}^{\frac{1}{2s}} sdi$$
$$= (1 - 2p)\left(\frac{1}{2} + s\left(1 - \beta(2\pi(l) - 1)\right)\psi\right) \tag{14}$$

The reelection probability, $\pi(l)$, is given by

$$\pi(l) = \Pr\left\{N_A^A + N_A^B + N_A \geq \frac{1}{2}\right\}$$

which can be simplified to

$$\pi(l) = \Pr\left\{\psi \geq -pE_l\right\} = \frac{1}{2} + phE_l > \frac{1}{2} \tag{15}$$

Consider next the case where politicians do not finance any projects. In this case the post election income of all entrepreneurs is independent of the election outcome. The reelection probability can then easily be shown to be $\frac{1}{2}$, and the proposition follows. ∎

The reelection probability is affected in three ways by financing long-term poor projects for core supporters. First, the reelection probability of the incumbent politician A increases as the next period income for core supporters of A is higher if he rather than the opposition politician B wins the election. In the first case they are refinanced, in the second they are not.

Second, core supporters see that an increased reelection probability has value also for future periods. In addition to a higher next period static payoff the election of politician A has the effect of an increased probability of future financing. This effect is stronger the more core supporters that are financed,

as this makes the reelection probability higher. For the core supporters of politician A it is thus good news if many poor projects are launched. This dynamic effect adds to the increased next period static payoff, and thus increases the reelection probability further.

Third, core supporters of the opposition politician realize that a higher probability of reelection of the incumbent decreases the chance that they will receive financing of poor long-term projects in later periods. For the core supporters of politician B it is thus bad news if many poor projects are launched by an incumbent politician A. This dynamic effect decreases the reelection probability of the incumbent.

Note, however, that as the group of politician A and politician B core supporters is of the same size p, these two latter dynamic effects are of exactly the same size, and the net effect on the reelection probability constitutes the first static effect of increased next period income for core supporters.

It is worth noting how the formula for (15) is influenced by our simplifying assumption that all members of both core groups have poor long-term projects to be financed. Imagine that only a fraction q of them did, with a fraction z having good long-term projects and a fraction $1-q-z$ having short-term projects (good or bad). In this case (15) would be $\pi(l) = \frac{1}{2} + qphE_l$ emphasizing that the presence of good projects does not influence the reelection probability.

We now proceed to show that policy l is the only long run equilibrium path where long-term poor projects can affect the reelection probability. First, note that so far we have only assumed that politicians play the strategies associated with policy l and drawn the implications for the reelection probability. We now need to justify that i) it is credible for an incumbent to promise refinancing of the long-term loss making projects he initiates, ii) it is not credible for the opposition to promise to refinance these projects, and iii) no other long-term poor projects can affect the reelection probability.

i) A promise by the incumbent to refinance projects should he win the election is credible. Given that he launches a project a politician will refinance should he win the election if $R_l > 1$ given that previous costs are sunk.

ii) A promise by the opposition to refinance is not credible. Given that $R_l < 1+\theta$ refinancing non-core supporters is loss making. Voters realize that a promise of refinancing should the opposition win the election is not ex post optimal for the opposition, and hence such promises are not credible.

iii) Consider first a poor long-term project where $R_l < 1$. It is not credible for any politician to promise to refinance such a project. Consider next a poor long-term project with $R_l > 1+\theta$. If launched in a period such a project will be refinanced by any politician winning power, as the investment cost from the previous period is sunk. Hence when long-term poor projects have $R_l < 1$ or $R_l > 1 + \theta$ the decision to refinance is independent of the election outcome. It is then straightforward to show that the reelection probability is $\frac{1}{2}$.

The following proposition is now evident:

Proposition 2 *The only way for an incumbent to increase the reelection probability by poor projects is to launch long-term projects with $1 < R_l < 1+\theta$.*

Thus, launching poor projects for core supporters may be an efficient political strategy to increase the probability of reelection. Such projects allow the incumbent to credibly promise some voters that their income will be higher if the incumbent rather than the opposition wins the election. In this way the incumbent is able to tie the continuation utility of some voters to his own political success. The gain in votes from own core supporters is higher than the loss in votes from the core supporters of the opposition politician - the incumbent is able to utilize the advantage of deciding policy to produce an incumbency bias.

Note, however, that for poor projects to produce an incumbency bias they have to be sufficiently poor. Marginally poor projects in the sense that $1 + \theta < R_l < \frac{1+\beta}{\beta}$ do not suffice to increase the reelection probability as they will be refinanced by both politicians should they win the election.

The incumbency bias rests on the fact that policy will be reversed if there is a change in power. Much case study evidence supports this result. The regressions in Gimpelson and Treisman (2002) shows that (p. 149) "Public employment tended to fall after the election of a new governor, who presumably trimmed the patronage appointments of his predecessor." With the

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change of political power in Ghana in 1966 Killick (1978, p. 238) notes that the new government decided "to lay off nearly 40,000 redundant workers in various state agencies".[9] Barkan and Chege (1989) divide the provinces of Kenya into the Kenyatta political base and the Moi political base, each containing 33 per cent of the population. While expenditures on road construction under Kenyatta grossly favored the Kenyatta provinces, when Moi came to power expenditures shifted toward Moi provinces. Within one year the share going to the Kenyatta base decreased from 44 percent to 28 percent of the total, while the share going to the Moi base increased from 32 to 38 percent of the total. In 1986, six years after the change in power, the Kenyatta base received 16 percent of the total, while the Moi base received 67 percent. Keefer (2002, p. 27) reports that "one high official in the ruling government of President Hipolito Mejía of the Dominican Republic claimed that hundreds of projects that were begun by the government of Joaquin Balaguer, two governments before, were then paralyzed under the Leonel Fernández government. Other observers noted that incomplete projects from the Fernández government were similarly halted under Mejía." There is also direct evidence that the policy of patronage indeed raises the reelection probability. According to the analysis in Treisman (1999, p. 81) "Where regional government spending increased relatively more, the vote was subsequently higher for Yeltsin and his reformist allies, controlling for the previous level of regional support for them."

Whether or not he wins or loses the election, the incumbent incurs an economic loss on poor long-term projects. However, they may still be rational to undertake because the probability of winning the election increases and when in power the politician receives rents. Consider the incumbents' alternative strategy of not financing projects. We term this policy 0. In this case the per period return from winning power is independent of history and

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[9]What first seemed to be a shift in policy away from state enterprises towards laissez faire, however, turned out not to be. Soon after the ratio of public to private sector employees was back to the levels seen during the Nkrumah administration, and when the NRC came to power in 1972 Killick (1978, p. 317) reports that "The government announced its intention to reactivate various state enterprises left uncompleted or abandoned after the overthrow of Nkrumah, but of far greater significance for the role of the state was the compulsory acquisition of a 55 percent shareholding in the timber, mining and oil industries ... It seemed, then, that economic policy had become full circle. The expansion of state control and participation begun under Nkrumah was resumed".

given by X. $V^A(A,0)$ is the payoff to politician A from winning an election, $V^A(B,0)$ the payoff to politician A from losing an election, and $\pi(0)$ the reelection probability with policy 0. Then

$$V^A(A,0) = X + \beta \left(\pi(0)V^A(A,0) + (1 - \pi(0)) V^A(B,0) \right) \qquad (16)$$

and

$$V^A(B,0) = \beta \left((1 - \pi(0)) V^A(A,0) + \pi(0)V^A(B,0) \right). \qquad (17)$$

Consequently

$$V^A(A,0) = \frac{(1 - \beta\pi(0)) X}{1 - \beta \left(\beta + 2\pi(0)(1 - \beta) \right)}. \qquad (18)$$

Note that from (5) and (18) it follows that if $\pi(l) = \pi(0)$ poor long-term projects will never be launched (as $X - p + \beta\pi(l)p(R_l - 1)$ is always less than X). However, we already know that $\pi(0) = \frac{1}{2}$, since when no projects are launched after the election, the income of all voters is independent of the election outcome. This leads to the following proposition:

Proposition 3 *Poor long-term projects with $1 < R_l < 1 + \theta$ are launched for core supporters of the incumbent if $X \geq \frac{\left(1 - \beta(\frac{1}{2} + phE_l)\right)\left(1 - \beta(\frac{1}{2} + phE_l)(R_l - 1)\right)}{(1 - \beta)\beta h E_l}$.*

Proof. Consider $V^A_B(A,l)$ from (5) and $V^A(A,0)$ from (18). These both include the rents from being in power today, the eventual costs of financing projects today, and the future expected utility by following policy l or 0 respectively. Since the rents from power are already secured an incumbent will follow policy l instead of policy 0 when the net gain of doing so is positive, i.e. $V^A_B(A,l) - X > V^A(A,0) - X$. Substitute $\pi(l) = \frac{1}{2} + phE_l$ in (5) and $\pi(0) = \frac{1}{2}$ in (18). Then the condition in the proposition is derived from the inequality $V^A_B(A,l) \geq V^A(A,0)$ after some calculation. ∎

In the existing economics literature the soft budget constraint is viewed as the outcome of a commitment problem; if bad projects are financed initially politicians cannot credibly commit not to refinance them as long as returns cover next period costs. Thus, since bad entrepreneurs know that they will be refinanced, they submit poor projects in the first place. If politicians knew that the projects were poor, they would never have been financed. By contrast, in our theory politicians finance poor projects exactly because they

are known to be poor. This is also the result of commitment, but in our case this is viewed as an opportunity rather than as a problem by the politicians; by financing bad projects for core supporters politicians can credibly commit to refinance the projects in case they win the election while the opposition cannot.

As seen from Proposition 3 poor projects are more likely to be chosen, and the soft budget constraint more prevalent, when the rents of being in power X are high. Then there is more to gain by influencing the election outcome. This may explain why the soft budget constraint is typically a problem in countries with bad institutional quality. In such countries the rents from being in power may be high as politicians tend to view the state finances as their own resources. Also, it may explain the serious problem of soft budget constraints in natural resource abundant countries. According to Gelb (1988) most of the windfall gains received by oil exporters after the OPEC shocks in the 70s were invested domestically, but in inefficient projects that had little economic payoff. Despite the massive investment, output for OPEC as a whole has fallen by an average of 1.3 percent each year from 1965 to 1998 (Gylfason, 2001). Gavin (1993, p. 216) echoes the consensus explanation when he notes "the tendency for governments to invest in projects with high prestige or political payoff, but with little economic rationale." For instance, for Nigeria Gelb (1988, p. 241) finds that "public capital spending accelerated rapidly from only 3.6 percent of non-mining GDP in 1970 to 29.5 percent by 1976. This acceleration was so strong that it alone absorbed *more* than the entire increase in oil income between 1970 and 1976." (italics in original).

Also, as seen from Proposition 3, the higher is p, the more likely it is that poor projects are financed. The reason for this is that with many bad projects to finance the incumbent is able to tie the continuation utility of more voters to his own political success, making the strategy of launching bad projects more tempting. One possible interpretation of a high p is that there is a high degree of clientelism so that each politician has many voters that depend on him. Thus clientelism and the soft budget constraint should be expected to be closely interlinked. Another interpretation of a high p is simply that it represents a situation with many low quality entrepreneurs. Thus, as in other theories of the soft budget constraint, poor entrepreneurial capacity

makes the problem worse. In our theory this effect may be reinforced as in such countries it is also more politically tempting to choose poor projects to affect the political equilibrium. Thus countries with little entrepreneurial experience may be especially prone to soft budget constraints emerging as a political strategy.

It is interesting to note that the higher is h, the more likely it is that poor projects are financed. Thus, the more voters care about the economy relative to other factors, the worse economic outcomes may be. The reason for this is that when voters care much about economic outcome, they are easier to buy with inefficient redistribution. This result contrasts with most other theories of the efficiency of electoral competition, where politicians are more strongly inclined to adopt to efficient economic policies the more the voters care about the economy relative to other factors, see e.g. Persson and Tabellini (2000).

Finally, note that, as we discussed earlier, the presence of good short-term and long-term projects makes it more valuable to be in power and has the same effect as an increase in X. Thus the presence of rents from good projects makes it more attractive for incumbents to launch bad projects.

From the above another contrast with most other political economy theories follow:

Proposition 4 *For poor projects policy is too long-sighted.*

Proof. This follows immediately from the fact that poor short-term projects are never financed while poor long-term projects may be financed even if they have a lower return that poor short-term projects. ∎

In most political economy theories policy is too short-sighted as politicians discount the future return on projects by the probability that they remain in power, which is irrelevant from the point of view of society. In our model it is also the case that politicians discount the future by the probability they remain in power, but despite this, policy is too long-sighted for poor projects. The difference is that in our setting long-term poor projects increase the reelection probability while short-term poor projects do not.

Although for a different reason, the result that policy may favor long-term projects has also been pointed out by Glazer (1989). In his model two

effects make voters choose long-term rather than short-term projects. First, the voter that is decisive in period one may not be in period two. Thus the decisive voter may have an incentive to choose a long-term project in period one to make sure services are delivered also in period two. The decisive voter in period one can thus tie the hands of voters in period two. Second, if a long-term project is sufficiently efficient compared to a short-term project, the decisive voter in period one can vote for a long-term project even if his own net utility of the project is negative. The reason is that this may be better than risking that a short-term project will be build in period two. In contrast to the model of Glazer we have an endogenous reelection probability, which explains why long-term projects are chosen our model. While the decisive voter today ties the hands of future voters in Glazers model, in our model the decisive politician in the first period chooses policy to tie his own hands. And to credibly tie only his own hands and not the hands of the opposition, long-term projects must be sufficiently poor. Only then can the incumbent credibly commit to future redistribution that the opposition cannot.

The longsightedness of poor projects is interesting when compared with the experience of Ghana that is a key motivation of our paper. A startling example is the construction of a fruit canning factory "for the production of mango products, for which there was recognized to be no local market, [and] which was said to exceed by some multiple the total world trade in such items" (Killick, 1978, p.229). The governments own report on this factory is worth quoting at some length (Killick, 1978, p. 233)

> "*Project* A factory is to be erected at Wenchi, Brong Ahafo, to produce 7,000 tons of mangoes and 5,300 tons of tomatoes per annum. If average yields of crops in that area will be 5 tons per acre per annum for mangoes and 5 tons per acre for tomatoes, there should be 1,400 acres of mangoes and 1,060 acres of tomatoes in the field to supply the factory.
>
> *The Problem* The present supply of mangoes in the area is from a few trees scattered in the bush and tomatoes are not grown on commercial scale, and so the production of these crops will have to start from scratch. Mangoes take 5-7 years from planting to start fruiting. How to obtain sufficient planting materials and to

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organize production of raw materials quickly become the major problems of this project."

Killick's comment is that "it is difficult to imagine a more damning commentary on the efficiency of project planning" stated a whole year before the factory was constructed. Not only was it clear before the factory was constructed that the project was poor - it would also take a long time before the factory could be operational.[10]

We now turn attention from poor to good projects. We then have the following:

Proposition 5 *Long-term good projects cannot affect the re-election probability.*

Proof. If a long-term good project is launched in a period it will be refinanced by any politician holding power in the next period since $R_l > \frac{1+\beta}{\beta} \Rightarrow R_l > 1 + \theta$. Thus for good long-term projects the decision to refinance is independent of the election outcome.

The decision to launch projects may differ between politicians. Politician A faces a lower cost of projects to his core supporters, and vice versa for politician B. Thus for a sufficiently low payoff of good long-term projects, there exists an equilibrium path where politicians only launch projects for core supporters, but projects are always refinanced independent of the election outcome.

Consider first the case where long-term projects are sufficiently profitable that they will be launched by all politicians. In this case the income of all voters in all periods is independent of the election outcome, and the reelection probability is $\frac{1}{2}$. Consider next the case where politicians only launch long-term projects toward core supporters. The decision to refinance is still the same for both politicians. Thus in any period next period income is independent of the election outcome. Future income, however, is not.

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[10]Other examples from Killick (1978) include the politically determined location of a footwear factory where (p. 231) "The six years it took to complete the footwear factory, for example, was partly responsible for the obsolescence of much of its plant by the time it was ready to go into production" or the decision to let sugar factories be supplied by own plantations where (p. 232) "The plantations were not ready when the factories were completed, despite delays in the latter".

Politician A core supporters will be better off if politician A wins as then they have additional projects launched in the future, and vice versa for politician B core supporters. Politician A core supporters are thus more likely to vote for politician A, while politician B core supporters are more likely to vote for politician B. The point to note, however, is that these option values are symmetric; what politician A wins among his core supporters he looses among the politician B core supporters, and vice versa. It can be verified that this intuition is correct by using the same techniques as those used to prove Proposition 1 to find that also in this case the reelection probability is $\frac{1}{2}$, which is the same as if no good long run projects had been financed. The proposition then follows. ∎

Thus it is exactly the bad quality of poor long-term projects that makes them politically appealing. By adopting poor projects, an incumbent ensures that he can credibly offer to refinance them, while the opposition cannot. Good long-term projects do not have this asymmetric feature since all politicians can credibly commit to refinance them and they thus have a symmetric effect on political outcomes.

Consider now the strategy where politicians launch good long-term projects toward their core supporters. We then have:

Proposition 6 *Long-term good projects are financed for core supporters by the incumbent if $R_l > \frac{2+\beta}{\beta}$.*

Proof. By replacing $\pi(l)$ in (5) with $\frac{1}{2}$ and using (18) taking into account that $\pi(0) = \frac{1}{2}$ the condition in the proposition follows. (Alternatively consider the cost of p today against the expected benefit of $\frac{1}{2} p(R_l - 1)$ tomorrow, valued at $\beta \frac{1}{2} p(R_l - 1)$ today. The inequality $p < \beta \frac{1}{2} p(R_l - 1)$ gives the condition in the proposition.) ∎

Thus the decision to launch long-term good projects is based on economic parameters alone. This does not, however, mean that the decision is efficient. As the incumbent only has a probability of $\frac{1}{2}$ of receiving the future payoff he underinvests in long-term good projects compared to the case where he is certain to receive the future benefit of the project. In this case the investment criterion is $R_l > \frac{1+\beta}{\beta}$.

Short run projects can only be financed if $R_s > 1$. In contrast to poor projects, for good projects the following applies:

Proposition 7 *For good projects policy is too short-sighted.*

Proof. This follows immediately as good short-term projects can always be financed while good long-term projects may not be financed even if they have a higher expected return than good short-term projects. ∎

This result is the standard one that follows from the fact that politicians discount the future return on projects by the probability they remain in power.

Finally, consider two groups of long-term projects for core supporters that for simplicity only differ in their second period return; poor projects with $R_l = R^p$ and good projects with $R_l = R^g$. Assume that the two groups of projects compete for financing. We then have:

Proposition 8 *long-term poor projects crowd out long-term good projects* when $X > p + \frac{(1-\frac{1}{2}\beta)(\frac{1}{2}-\beta phE_l)(R^g-1)-(1-\beta(\frac{1}{2}+phE_l))(\frac{1}{2}+phE_l)(R^p-1)}{(1-\beta)hE_l}$.

Proof. By replacing R_l with R^p in (5) and substituting for $\pi(l)$, the payoff from launching long-term poor projects follow. By replacing R_l with R^g in (5) and substituting $\pi(l)$ with $\frac{1}{2}$, the payoff from launching long-term good projects follow. After some calculation the condition in the proposition then follows. ∎

Thus when the rents of being in office X are high and voters care a lot about the economy relative to other factors (h is high), politicians end up picking losers rather than winners. The standard result in models of electoral competition is the opposite (see for instance the overview in Persson and Tabellini, 2000, Chapters 3 and 4); when ego rents are high or voters care a lot about economic efficiency relative to other factors, electoral competition is stiffer and economic inefficiency reduced. In our model, by contrast, stiffer competition increases the political incentives to undertake inefficient redistribution which manifests itself in the soft budget constraint. Launching poor rather than good projects is more tempting the more that is at stake and the more responsive voters are.

3 Concluding remarks

The conventional wisdom in the economics literature, following the seminal paper by Dewatripont and Maskin (1995), is that the soft-budget constraint arises because well meaning politicians face a dynamic commitment problem - they cannot commit not to bail out bad projects ex post. Interestingly however, the preponderance of case study evidence on the soft budget constraint links it to political incentives - firms or groups are bailed out for political reasons. In this paper we have developed a political economy model to try to link these insights and show how the soft budget constraint may arise as an efficient political strategy. We believe this is critical to understanding why soft budgets are so hard to eradicate.

In an environment where politicians cannot commit to arbitrary forms of redistribution the presence of the sort of commitment problem isolated by Dewatripont and Maskin may be politically advantageous because it allows politicians to deliver benefits to potential supporters. While in standard theories of the soft budget constraint politicians would never finance a project known to be poor, in our theory this is exactly the reason it is financed in the first place because it is the only way to deliver redistribution which can influence electoral outcomes. This follows because of linkages between politicians and certain groups, who we call their core constituencies. Such linkages create asymmetries in what politicians can promise to different groups. In particular politicians will only bail out poor projects operated by their own core groups and this heightens the desire of the core group to see them elected.

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