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# A Theory of Political Entrenchment

Gilles Saint-Paul, *Toulouse School of Economics*

Davide Ticchi, *IMT Institute for Advanced Studies Lucca*

Andrea Vindigni, *IMT Institute for Advanced Studies Lucca*



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# A Theory of Political Entrenchment\*

Gilles Saint-Paul  
PSE

Davide Ticchi  
IMT Lucca

Andrea Vindigni  
IMT Lucca

## Abstract

We develop a theory of endogenous political entrenchment in a simple two-party dynamic model of income redistribution with probabilistic voting. A partially self-interested left-wing party may implement (entrenchment) policies reducing the income of its own constituency, the lower class, in order to consolidate its future political power. Such policies increase the net gain that low-skill agents obtain from income redistribution, which only the Left (but not the Right) can credibly commit to provide, and therefore may help offsetting a potential future aggregate ideological shock averse to the left-wing party. We demonstrate that political entrenchment by the Left occurs only if incumbency rents are sufficiently high and that low-skill citizens may vote for this party even though they rationally expect the adoption of these policies. We also discuss the case where the left-wing party may have the incentive to ex-ante commit to not pursue entrenchment policies once in power. Finally, we show that, in a more general framework, the entrenchment policies can be implemented also by the right-wing party. The comparative statics analyzes the effects of state capacity, a positive bias of voters for one party and income inequality on the incentives of the incumbent party to pursue entrenchment policies. The importance of our theory for constitutionally legislated term limits is also discussed. The theory sheds light on why left-wing parties or politicians often support liberal immigration policies of unskilled workers, are sometime in favor of free trade with less developed economies and of globalization more generally, or fail to reform plainly “dysfunctional” public educational systems damaging the lower classes.

**Keywords:** Political entrenchment; constituencies; inequality; inefficient redistribution; checks and balances; political rents; state fiscal capacity.

**JEL Classification:** D72, P16.

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\*Gilles Saint-Paul: Paris School of Economics. E-mail: gilles.saint-paul@psemail.eu. Davide Ticchi: IMT Lucca (Italy). E-mail: davide.ticchi@imtlucca.it. Andrea Vindigni: IMT Lucca. E-mail: andrea.vindigni@imtlucca.it. Part of this article was written while Andrea Vindigni was at Princeton University. We thank two anonymous referees, the editor Frederic Vermeulen, the seminar participants at the University of Bologna, the Politics, Information and the Macroeconomy Workshop 2011 at CREI–University Pompeu Fabra, the University of Minho, Hamburg University, Sebastian Edwards, Nicola Gennaioli, Torsten Persson, Susan Stokes, Paolo Vanin and, especially, Giacomo Ponzetto for useful comments and suggestions. Ticchi acknowledges financial support from the Ministero dell’Istruzione, dell’Università e della Ricerca (PRIN 2009) and Vindigni from CRISIS LAB and Collegio Carlo Alberto. The usual disclaimer applies.

# 1 Introduction

There is now a large literature explaining why governments may pursue policies that reduce the welfare of society.<sup>1</sup> A common feature of some of these models is that socially efficient policies involve a potential reallocation of political power from one social group, in power in the *status quo*, to another. Therefore, in absence of compensatory transfers to the incumbent, partisan politicians may prefer to implement policies harmful to society in order to prevent an adversary group from gaining power. This type of explanation for socially harmful policies is quite compelling and has a wide scope. Nevertheless, it does not explain (the more intriguing puzzle of) why incumbent politicians occasionally appear to pursue policies that are harmful not only in the aggregate, but also—and especially—for their own constituency. Examples of such paradoxical policies (discussed in greater detail in the following Section) include the liberal immigration policies supported by left-wing parties in Europe and in the US, and the dysfunctional educational policies implemented by some Latin American “populist” governments. The support for NAFTA by the Clinton Administration in the early 1990’s or the reluctance of many left-wing Latin American governments in the late 1990’s and in the 2000’s to abandon the pro-globalization policies implemented by their right-wing predecessors are also potentially puzzling. These policies are not necessarily inefficient but still damage the economic interests of a relatively significant part of the constituency of the governments implementing them.

In this paper, we address the question of why, and under what conditions, incumbent politicians implement policies that damage the very people who brought them in power.

We propose a framework with two income classes, rich and poor, and two political parties which compete in majoritarian elections. Individuals have preferences both over an economic issue, which is affected by a redistributive fiscal policy, and over an exogenous noneconomic or ideological issue. As in probabilistic voting models, citizens have a specific taste for which party is in power and the distribution of this taste is subject to aggregate shocks, which generates uncertainty on the outcome of the election. Each party cares about the welfare of one of the two social groups as in partisan models of political economy, but also derives rents from being in power, as in the classic Downsian case. We call the *Left* and the *Right* the party that cares

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<sup>1</sup>Examples of such policies include the blocking of technological progress (e.g., Krusell and Rios-Rull, 1996) and failing to make cost-effective investments in human capital (e.g., Besley and Coate, 1998), subsidizing declining industries (e.g., Brainard and Verdier, 1997; Coate and Morris, 1999; Acemoglu and Robinson, 2001). Other examples include investing in inefficient state institutions with limited capacity to tax or coerce citizens (Acemoglu et al., 2010, 2011; Besley and Persson, 2009), protecting unproductive jobs with high firing costs (Saint-Paul, 1993, 2002), creating inefficient social infrastructures (Coate and Morris, 1995; Robinson and Torvik, 2005).

about the welfare of the poor and the rich respectively and assume that parties cannot commit to implement a policy different from their preferred one once in office.

There are two periods and, in each period, the party in office chooses fiscal policy. We also assume that the government in office in the first period can choose some structural policies that determines the second period pre-tax income of the poor. In particular, it can elect inefficient structural policies that leave the poor with a lower income than potential, thus reducing total output and raising inequality.

We show that, under some conditions, the left-wing party may find it optimal implementing such a policy that damages the members of its own natural constituency. This is because by reducing the income of the poor, their economic incentive to vote for the Left increases as income redistribution becomes more valuable and only this party, given its partisan preferences and the absence of commitment, implements redistributive policies. We define the behavior leading to the adoption of such inefficient policies *political entrenchment* as the party is trying to tie its own natural constituency more to itself.<sup>2</sup>

The comparative static analysis shows that political entrenchment is more likely to occur when the rents from office are larger, which suggests that we should expect more entrenchment in political systems with relatively limited checks and balances.<sup>3</sup> The effect of a positive bias in favor of the Left, of higher levels of inequality and of state fiscal capacity on entrenchment is instead generally ambiguous. However, we show that an increase in state capacity makes entrenchment policies more likely when the initial level of state capacity is relatively low. As the latter is characteristic of developing economies, this result suggests that an autonomous increase in state capacity is particularly likely to have harmful consequences in such countries.

While entrenchment policies may benefit the Left by increasing its reelection probability, they may also lower the welfare of the citizens from having this party in power in the first place, which reduces its probability of winning current elections. When this latter effect is strong enough, the adoption of entrenchment policies in the future may be *ex-ante* harmful for the party. We therefore analyze under what conditions it would be convenient for the Left to

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<sup>2</sup>This notion has some similarity with that of managerial entrenchment in corporate finance (Shleifer and Vishny, 1989) where managers may entrench themselves by making manager-specific investments which reduce the probability of being replaced by raising the cost of such action. Two things are worth noting. First, while in our model entrenchment is associated with pro-active policies that reduce the relative position of the Left's constituency, it may also result in failure to implement policies that improve this relative position. Second, the existence of an equilibrium with potential entrenchment does not rely on any form of myopia or irrationality. Indeed, it may be rational for the poor to vote for the Left in the first period even though they anticipate the implementation of entrenchment policies because the future income losses may be more than compensated by the redistributive policies pursued by this party.

<sup>3</sup>This could be the case in many Latin American countries characterized by presidential governments with limited separation of powers with the legislature and the judiciary (e.g., Mainwaring and Shugart, 1997).

give up the possibility to pursue entrenchment policies in the future and find that high rents from office and low state capacity make this event more likely.

Our theory also provides a rationale for constitutionally prescribed term limits as these may reduce the adoption of entrenchment policies by lowering the value of capturing power in the future. This result is important also because it helps explaining why many real world constitutions prescribe some form of term limits in spite of the fact that a key prediction of the standard model of political replacement is that term limits are always welfare reducing.<sup>4</sup>

Finally, it is worth emphasizing that the concept of political entrenchment is quite general and can be applied to different frameworks. For example, if we consider the case of national defence and assume that this gives a relatively higher utility to the natural constituency of the Right and that such a party has an advantage in providing it, then it is possible that the Right pursues entrenchment strategies through an unnecessarily aggressive foreign policy. However, we show that the Right may find it optimal to adopt entrenchment policies also in (an extended version of) our framework.

This paper is related to the broad literature on the strategic manipulation of a state variable by an incumbent politician in order to modify future policies or the future balance of political power. In the first strand of this literature incumbent politicians manipulate current policies in order to shape the constraints, and therefore the policies, of future governments but the *identity* of future policymakers is either predetermined (e.g., Persson and Svensson, 1989) or independent of current policies (e.g., Alesina and Tabellini, 1990). In the other strand of the literature, the incumbent aims at increasing its reelection probability. This strand includes the original research on political business cycles, where a given policy affects the election outcome either because people vote retrospectively or because the policy signals some unobserved government characteristic.<sup>5</sup>

Our paper is more related to the part of this literature where voters are rational and information is complete. Aghion and Bolton (1990) show that a right-wing government may choose to accumulate a large public debt to increase the probability of reelection because this reduces the attractiveness of a left-wing government. In a similar spirit, Milesi-Ferretti and Spolaore (1994) demonstrate that an incumbent leader may choose to manipulate the

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<sup>4</sup>This is because in standard models (e.g., Barro, 1973; Ferejohn, 1986; Persson et al., 1997) repeated elections are sufficient to provide incentives to politicians in power to refrain from appropriating too much rents. Term limits represent a harmful constraint since they force voters to replace politicians even if the latter have behaved well in office. As a result, elections prove to be less valuable as a discipline device in presence of term limits.

<sup>5</sup>See, for example, Nordhaus (1975), Rogoff and Siebert, (1988), Rogoff (1990), Alesina and Cukierman (1990) and Harrington (1993).

efficiency of the tax system in order to increase its future electoral comparative advantage.<sup>6</sup> In Besley and Coate (1998) a leader representing the low-skill workers may decide not to implement an efficient policy (like investing in education) in order to preserve the power of its own constituency. Biais and Perotti (2002) propose a model where the right-wing party implements a strategic privatization program to increase its probability of reelection by gaining the votes of the lower classes.<sup>7</sup>

Relative to this research, our paper's innovations are as follows. First, this is the first paper where an incumbent party manipulates a state variable to harm its *own* constituency while in current political economy models the manipulation of a state variable is always made in the interest of the incumbent's constituency. This allows us to explain some of the puzzles discussed in Section 2. And this is possible because we emphasize the consequences of the imperfect agency relationship between voters and parties, while in the other papers parties are perfect agents of their voters. Second, the economic issues with which we illustrate the entrenchment problem are different from those in the literature mentioned above. In particular, we focus on the incentives of a left-wing incumbent to underinvest in the lower class' productivity level, so as to increase the future demand for redistribution.<sup>8</sup> Third, we analyse how the incumbent politician comes to be in power in the first place, while the other papers take the existence of a party in power as exogenous.<sup>9</sup> Fourth, we determine under what conditions the possibility to implement entrenchment policies may ex-ante damage the party that is expected to entrench once in power by reducing its election probability in the first place. This analysis is not developed in the previous papers as they take the existence of the party in power as exogenous.<sup>10</sup> Fifth, our analysis contains new and interesting results related to the theories of

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<sup>6</sup>Milesi-Ferretti (1995) illustrates a similar point focusing on the choice of exchange rates.

<sup>7</sup>Robinson and Torvik (2005) is also related to this literature as they propose a theory of inefficient redistribution based on the adoption of socially inefficient projects (white elephants) arguing that only politicians respresenting some groups can keep operating such projects.

<sup>8</sup>Therefore, our paper also relates to the dynamic models of income redistribution, such as Saint-Paul and Verdier (1997), Bénabou (2000) and Hassler et al. (2003), where, unlike in the classic static models à la Meltzer and Richard (1981), income inequality is an endogenous state variable and voting over fiscal policy is forward-looking. Moreover, our paper is closely related to the recent work on the persistence of political power and political institutions (e.g., Acemoglu and Robinson, 2008; Acemoglu et al., 2011); yet, the origin of political persistence in our paper is rather different from any of these works.

<sup>9</sup>Besley and Coate (1998) also remark the importance of explaining how the incumbent comes to power (see footnote 6, pp. 140-141) and it is the only paper in this literature solving explicitly this problem. However, in Besley and Coate's paper the incumbent politician implements an inefficient policy to favor, and not to damage, its own constituency. Such a result emerges because the incumbent is a perfect agent of its own constituency, while in our paper the voters-party's agency relationship is imperfect and the inefficient policy comes from the party's desire to remain in power.

<sup>10</sup>In a recent paper, Fergusson et al. (2012) present a model and evidence where an incumbent politician with a comparative advantage in fighting the insurgents may underperform in this task to increase the chances to remain in office.

state fiscal capacity and of term limits.

Our work is also related to Padró-i-Miguel (2007) and Glaeser and Shleifer (2005). The Padró-i-Miguel's work shares with ours the imperfect agency relationship between the politician and its constituency as the leaders of competing ethnic groups, once in power, exploit not only the adversary groups but also in part their own group. Glaeser and Shleifer analyze the political strategy of an incumbent politician consolidating its power by shaping the electorate in his favor through the adoption of distortionary policies that benefit its own constituency and damage the other voters. In both papers, the leader in office does not manipulate a state variable of the dynamic political game and the mechanism increasing the reelection probability in latter paper is exactly the opposite of ours.

The rest of the paper is organized as follows. Section 2 presents some evidence for our theory. Section 3 describes the framework and Section 4 characterizes the equilibrium. Section 5 contains the comparative statics analysis. Section 6 analyzes under what conditions the Left finds it optimal to give up the possibility of adopting entrenchment policies in the future. Section 7 discusses an extension of our framework where policies of entrenchment may be optimal also for the Right. Section 8 concludes. Some of proofs omitted from the text are contained in Appendix A. Appendix B, which contains other omitted proofs, is available online.

## 2 Some Evidence

The main contribution of our paper is to explain why sometimes politicians find it optimal implementing policies that damage the economic interests of their own constituencies. In this Section, we briefly illustrate some examples that are consistent with our theory.

### 2.1 Immigration Policies in Western Europe and in the US

A clear and unambiguous implication of the standard textbook model of a competitive labor market is that immigration should lower the wage of competing workers.<sup>11</sup> To the extent that immigrants are disproportionately unskilled, an immigration-induced supply shift should lower unskilled wages and lead these workers to be oppose to immigration. Moreover, the complementarity between skilled and unskilled labor should lead to a raise in skilled wages and induce skilled individuals (as well as capital owners) to have a pro-immigration attitude.

While the economics literature has initially not found a clear negative relationship between

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<sup>11</sup> "After World War I, laws were passed severely limiting immigration. Only a trickle of immigrants has been admitted since then... By keeping labor supply down, immigration policy tends to keep wages high." Paul Samuelson (quoted in Borjas, 2003, p. 1335).

immigration-induced supply shifts and wages of the natives, more recent evidence is consistent with the prediction of the textbook model of a competitive labor market (see Aydemir and Borjas, 2011).<sup>12</sup> However, what matters for our theory is that the unskilled workers *believe* that immigration of people with the same skills lowers their wages and welfare rather than its *real* effects. The available empirical evidence strongly confirms the existence of such beliefs. For example, Scheve and Slaughter (2001) find robust evidence that less skilled workers are significantly more likely to prefer limiting immigrant inflows into the US; Mayda (2006) using a wide range of developed and developing countries finds support for the prediction that skilled individuals should favor immigration in countries where native are more skilled than immigrants and oppose it otherwise.

Since unskilled workers are part of the constituency of the left-wing parties, one would expect that these parties support conservative migration policies, in line with the economic interests of a large share of their voters. Our theory instead predicts that it may be optimal for the left-wing parties adopting liberal immigration policies that raise income inequality and the value of income redistribution for the unskilled and, in turn, their incentives to vote for such parties. We now present some evidence on the pattern of immigration laws passed by the European Union (EU) in recent years and in the US through the 20<sup>th</sup> century consistent with this prediction of our theory.

Migration and immigrant integration policies in Europe are increasingly determined at the EU level. EU rules now cover the full gamut of “migration policies,” from entry, residence, and economic rights of immigrants to societal integration of immigrants and their descendents; in addition, the European Parliament has significant amendment and veto powers in the adoption of these policies. In a recent empirical study, Hix and Noury (2007) address the question of which interests EU politicians promote when making migration policies, by looking at the passage of six pieces of migration related legislation in the fifth directly elected European Parliament (1999–2004). In reporting the results of their empirical analysis Hix and Noury (2007, p. 184) write that, “We find that the strongest determinants of behavior in the European

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<sup>12</sup>Some papers (e.g., LaLonde and Topel, 1991; Card, 2001), based on the computation of the spatial correlation between native wages and the extent of the penetration of immigrants in local labor markets find that immigrants have little or no effect on the employment opportunities of competing native workers. Borjas (2003) argues that such spatial correlation does not necessarily uncover a causal effect for several reasons; immigrants may not be randomly assigned to labor markets and natives may respond to immigration by moving elsewhere. Using a new approach, he provides evidence using US data from 1960 to 2000 of a statistically significance inverse relationship between immigrant-induced shifts in labor supply and wages of the natives. Aydemir and Borjas (2007) confirm these results using data from Canada, Mexico and the US. Aydemir and Borjas (2011) argue that the weak evidence of the effect of immigration on wages could be due to sampling errors in the measure of supply shifts and, indeed, find that the correction of such errors substantially increases the estimates of the impact of immigration on wages.



Parliament on migration and related issues are the general left-right ideological positions of the European parliamentarians and the transnational European parties. These are stronger predictors of political behavior in the European Parliament on these issues than the economic preferences of the European parliamentarians' constituents, or the economic interests or political preferences of the EU member states. In other words, left-wing politicians support liberal migration policies, despite the economic interests of many of their voters, who often compete with immigrants for unskilled jobs. Meanwhile, right-wing politicians support restrictive migration policies, despite the economic interests of many of their supporters, who benefit from increasing returns on capital investment which results from greater immigration.”

Given that European parliamentary elections are based on a proportional system, we expect Euro-MPs to face relatively little personal accountability for deviating from their constituents' preferences (see, for example, Persson and Tabellini, 2000); in such a context rents from being in office are likely to be more influential than the constituents' well-being. Our model predicts that this is when entrenchment is most likely to arise, and this is in line with the above evidence on the MEP's voting pattern on migration.<sup>13</sup>

Some evidence consistent with the predictions of our theory also comes from the history of immigration laws in the US through the 20<sup>th</sup> century with several examples of legislative reforms clearly document that the Republican Party has been generally in favor of restricting immigration, whereas the Democratic Party has often assumed the opposite stance.<sup>14</sup>

The immigration policy in the US became more restrictive in the second decade of the 20<sup>th</sup> century with the Immigration Act of 1924, or Johnson–Reed Act, including the National Origins Act, and the Asian Exclusion Act, passed by the 68<sup>th</sup> Congress. This new legislation limited the annual number of immigrants who could be admitted from any country to 2% of the number of people from that country who were already living in the US in 1890, down from the 3% cap set by the Immigration Restriction Act of 1921, according to the Census of 1890. Congressman Albert Johnson and Senator David Reed, both Republicans, were the two main architects of the reform, and both the House of Representatives and the Senate had a

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<sup>13</sup>In our model, parties partly internalize the welfare of their constituents. This is because the politicians are (partly) “citizen-candidates” who belong to the same social class as their constituents. In practice, one observes that some politicians on the Left comes from the upper-middle class. In this case, it is not as persons that they internalize their constituents' welfare. Rather, this component of their utility is best viewed as a metaphor for their individual strategies in a context where they have to maintain a reputation with their voters. Again, given the proportional system and the aloofness of the European Parliament to most voters, we expect such an internalization to be weaker there. While this means that office rents play a bigger role, it may also imply that the politicians' own personal tastes affect their voting behavior. This latter mechanism is absent from our model however.

<sup>14</sup>A detailed historical analysis of the US immigration policies can be found, for example, in Zolberg (2008).

Republican majority.<sup>15</sup>

The Immigration Act of 1965, also known as the Hart-Celler Act, fundamentally reshaped the American immigration policy for the remainder of the 20<sup>th</sup> century. It abolished the national origins system, set up in the Immigration Act of 1924 and modified by the Immigration Act of 1952. While seeming to maintain the principle of numerical restriction, it so increased the categories of persons who could enter “without numerical limitation” as to make its putative numerical caps—170,000 annually for the Eastern Hemisphere with a maximum of 20,000 per nation plus 120,000 annually for the Western Hemisphere with no national limitations—virtually meaningless within a few years. By changing long-held immigration policies, the act resulted in new immigration from non-European nations which changed the ethnic make-up of the US. Immigration doubled between 1965 and 1970, and doubled again between 1970 and 1990 and it shifted from Europe to Asia and Central and South America.<sup>16</sup>

Finally, the 101<sup>st</sup> US Congress, in which both chambers had a Democratic majority, passed the Immigration Act of 1990. The new law increased the number of legal immigrants allowed into the US each year and provided exceptions to the English testing process required for naturalization set forth by the Naturalization Act of 1906. After it became law, the US would admit 700,000 new immigrants annually, up from 500,000 before the bill’s passage.

## 2.2 The North American Free Trade Agreement

Another example where political entrenchment may have played a role is the passing of the North American Free Trade Agreement (NAFTA) by the democratic-controlled Congress in 1992 with the support of President Clinton. While free trade has positive aggregate gains, the Stolper-Samuelson theorem implies that the low skilled workers in the US will lose, while the high-skilled workers will gain. Therefore, it is surprising that the agreement was signed by a Democratic administration, which may be expected to give a relatively high political voice to the lower classes. In fact, the union movement, which we may interpret as representing the welfare of the incumbent, median, low-skilled workers, and which clearly derives less rents from Democratic politicians being in office than the politicians themselves, strongly opposed NAFTA. Our model suggests that one of the possible reasons why the Democratic administration went ahead with NAFTA is that, by widening the earnings gap between skilled and

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<sup>15</sup>There were only nine dissenting votes in the Senate and a handful of opponents in the House, the most vigorous of whom was the Brooklyn Democrat Representative Emanuel Celler.

<sup>16</sup>Although the percentage of high school dropouts among immigrants has fallen somewhat, the gap between natives and the foreign born has grown significantly, with immigrants more than twice as likely as native-born Americans not to have completed high school. This has contributed to a growing pool of blue-collar workers competing for a shrinking number of well-paying jobs.

unskilled, it would increase future political support for the redistributive programs that are traditionally implemented by the Democratic party. While this is arguably not the only reason (a substantial fraction of Democratic voters are rich and benefit from NAFTA), it may have nonetheless contributed to the overall outcome.

Some interesting features are worth noting. First, the Republicans supported the agreement more than the Democrats, and they are the ones who initiated it; in fact, if only democratic congressmen had voted it, it would not have passed.<sup>17</sup> Does that contradict our model? Not necessarily, to the extent that the policy generates aggregate gains, it is possible for the Republicans to benefit from it too, since the direct economic gains accrue to the upper class, even though their reelection probability suffers. Second, it may well be that the President is more prone to entrenchment than representatives. In our model, entrenchment is more likely to arise, the greater is “state capacity,” i.e. the greater the amount of money that the government can redistribute (see Lemma 6.(ii)). Since the US (as opposed to Europe) is characterized by low party discipline, each individual congressman is accountable to his or her constituency, and has little ability to implement a redistributive programme at the congressional district level. Hence “state capacity” is low for congressmen, while it is larger for the President, implying that the latter may be more prone to entrenchment than the former.<sup>18</sup>

### **2.3 Educational and Other Policies in Latin America**

As the policies improving the efficiency of the educational system are among the most effective ones in increasing the income of the poor, one would expect they are often pursued by left-wing parties, especially in poor and unequal societies. However, our theory predicts that left-wing governments may sometimes avoid improving the educational system so to keep part of their constituency more “dependent” on income redistribution and, therefore, more attached to this party. Some evidence consistent with this result can be found in Edwards (2010) who argues that dysfunctional educational policies of many Latin American countries have a premier role in explaining both the persistence of underdevelopment and of income inequality in that continent and that, while the quality of the educational systems in most countries of this continent has been historically very low, the “efforts to reform and modernize the educational system have

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<sup>17</sup>Accounts on the determinants of congressional voting on NAFTA differ. But both Kang and Greene (1999) and Kahane (1996) find that these determinants obey a conventional logic, in that congressional districts with a greater proportion of potential losers were more likely to oppose the bill.

<sup>18</sup>It is interesting to observe that Barack Obama himself initially took a negative stance over NAFTA, linking it to lost jobs in the US more than once during the electoral campaign of 2007–2008. However, once in office, Obama appeared to change his mind rather quickly. In his first foreign trip as President, Obama announced, in the presence of Canadian Prime Minister Stephen Harper, “I want to grow trade and not contract it” (quoted in Stokes, 2009, p. 26).

been strongly opposed by teachers' unions and left-of-center political parties" (p. 182).

Examples of failed educational reforms include the effort undertaken in 2001 by the Argentinian minister Juan Llach to improve the quality of the school system and the ability of Argentina to compete more effectively in a global economy. Llach's program, while ingenious and ambitious, was not ultimately implemented due to the opposition of the powerful teacher's union, of the Peronist opposition party and especially of the President Fernando de la Rúa's own party, the Union Civica Radical, an old and traditional center-left political party. Not surprisingly, the quality of education in Argentina has gradually deteriorated and while there is a considerable variation across provinces, with the rich areas doing relatively well, the educational system in the poorer regions of the country lays in disarray, performing "no better than the more destitute countries of the world" (Edwards, p. 182).

Edwards explains that educational reforms aim at improving education coverage and the promotion of major literacy campaigns promoted by other left-wing Latin American leaders, such as by Evo Morales in Bolivia or by Daniel Ortega in Nicaragua, had a similar dismal outcome. The government of Hugo Chávez in Venezuela also launched a variety of ambitious projects aimed, in principle, at improving education at various levels but many observers have criticized all such programs as ineffective and fraught with corruption. Indeed, despite massive investments, illiteracy barely declined during the Chávez presidency (see Edwards, p. 182).<sup>19</sup>

Other types of policies implemented by Chávez's government with the (apparent) goal of reorienting state priorities to benefit the poor, have also appeared to harm rather than to improve the social conditions of some segments of the constituency of the leader. Overall, despite the original promises, after twelve year of Chávez's presidency, the economic performance of the lower classes has stagnated at best, but more likely has even declined.<sup>20</sup> In a recent contribution, Corrales (2010) goes even further and makes the argument that Chávez's policies were inspired by *explicit* goal of reducing the (pre-tax) income of the lower classes, in order to create more social and political "demand" for his own government and thereby consolidating his future power:

"One result of the Chavista political economy is that, like most-heavy-handed

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<sup>19</sup>These reforms included a literacy campaign (the Misión Robinson), a program aimed at improving quality and coverage of public education (the Misión Robinson II), a program dealing with high-school students and dropouts (the Misión Ribas), and finally a program aimed at reforming higher education (the Misión Sucre).

<sup>20</sup>Using official statistics Francisco Rodríguez has argued in an article in *Foreign Affairs* (March/April 2008) that, "Most health and human development indicators have shown no significant improvement beyond that which is normal in the midst of an oil boom. Indeed, some have deteriorated worryingly, and official estimates indicate that income inequality has increased. The 'Chávez is good for the poor' hypothesis is inconsistent with the facts."

statist models it contains a mechanism for permanently generating its own demand. The state creates poor business conditions for many sectors, which yields unemployment or capacity underutilization or both. The government then uses this outcome as an excuse for taking over.” (Corrales, 2010, p. 44).

Indeed, the high inflation and unemployment generated by Chávez’s policies lead overall to a real de-industrialization process and have been especially harmful for the lower classes.

All of these examples naturally raise the question of why the masses in Latin America have been sometime inclined to support populist parties and leaders. Our theory suggests that they probably had little alternative to the populist redistributive policies appealing for the Left. Moreover, it is interesting to remark that other leading leftist Latin American parties since the 1980’s and 1990’s have instead refrained, to some degree, to implement the kind of perverse economic policies described above. Examples include the Chilean moderate Left (e.g., the *Concertación* of Ricardo Lagos and Michelle Bachelet) and the government of Lula da Silva in Brazil. Interestingly, both the Chilean and Brazilian “exceptionalism” are potentially accounted for by our theory. Indeed, both countries had developed a set of relatively consolidated political constraints and institutional rules, which arguably reduced sharply the rents from office (a key determinant of entrenchment in our model) relative to cases such as those of Venezuela and Bolivia (see Weyland, 2010, p. 19), whose governments largely captured all power for themselves, facing very little opposition.

### 3 The Model

We consider an economy populated by a continuum of measure one of citizens. There are two periods of time,  $t \in \{0, 1\}$ , and citizen  $i$  has preferences represented by the following expected utility function  $\mathbf{u}_0^i = \mathbb{E}_0 \sum_{t=0}^1 \beta^t u_t^i$ , where  $u_t^i$  is the per period utility function of agent  $i$ ,  $\mathbb{E}_0$  is the expected value operator conditional on the information available at date  $t = 0$ , and  $\beta \in (0, 1)$  is the discount factor. The utility function  $u_t^i$  is assumed to be linear in private good consumption, equal to post-tax income, in the level of the public good provided  $G_t$ , financed through proportional taxation at rate  $\tau$ , and in an ideological component  $\xi_t^i$  reflecting the preferences for the political party in power (more on this below); hence, it can be written as

$$u_t^i = (1 - \tau_t) a_t^i + G_t + \xi_t^i, \tag{1}$$

where  $a_t^i$  denotes the income of agent  $i$  at time  $t \in \{0, 1\}$ .

We assume that citizens also differ in terms of their productivity, and that a mass  $\lambda \in (0, 1/2)$  are high-skill or rich with pre-tax income equal to  $a^r$ , while the remaining majority of agents  $1 - \lambda$  are low-skill or poor with pre-tax income  $a^p(\theta_t) = \theta_t a^p$ , where  $0 < a^p < a^r$ .

The productivity of high-skill agents is constant over time, whereas the productivity of the low-skilled is potentially time-varying and depends on an endogenous state variable  $\theta_t \in [\theta^L, 1]$ , where  $0 \leq \theta^L \leq 1$ .<sup>21</sup> The initial value of  $\theta$ ,  $\theta_0 \geq \theta^L$ , is exogenously given, while the value of  $\theta_1$  is chosen by the government in office at period  $t = 0$  at zero cost, so that potential output is always maximized by setting  $\theta_1 = 1$ , while any  $\theta_1 < 1$  represents an inefficient policy choice. Also note that lower levels of  $\theta_1$  imply a poorer and a more unequal society since only the unskilled workers experience a productivity loss. The aggregate and average income at time  $t \in \{0, 1\}$  is equal to  $\bar{a}(\theta_t) \equiv \lambda a^r + (1 - \lambda) \theta_t a^p$ , and the government budget constraint reads

$$G_t \leq \tau_t \bar{a}(\theta_t) \equiv \tau_t [\lambda a^r + (1 - \lambda) \theta_t a^p]. \quad (2)$$

We also assume that taxes create no distortions for all  $\tau \leq \hat{\tau}$ , where  $\hat{\tau} \in (0, 1)$  is an exogenous level of “fiscal capacity” of the state, while distortions are prohibitively high for  $\tau > \hat{\tau}$ .

There are two political parties, denoted by  $J \in \{P, R\}$ , where  $P$  denotes the left-wing party and  $R$  the right-wing party, and their preferences can be written as  $\mathbf{v}_0^J = \mathbb{E}_0 \sum_{t=0}^1 \beta^t v_t^J$ , with

$$\begin{aligned} v_t^P &= (1 - \tau_t) a^p(\theta_t) + G_t + \delta_t, \\ v_t^R &= (1 - \tau_t) a^r + G_t + \delta_t, \end{aligned}$$

where  $\delta_t$  represents the private benefit from being in power with  $\delta_t = \delta > 0$  if the party is in power and  $\delta_t = 0$  if it is not. These expressions reflect the assumption that political parties are partially benevolent, i.e., they care about the economic utility of one specific social class (the Left party cares about the poor and the Right about the rich), and partially self-interested, as they care about the rents from being in office.<sup>22</sup>

The political process is based on a simple dynamic version of the standard probabilistic voting model (e.g., Lindbeck and Weibull, 1987; Dixit and Londregan, 1998), where the outcome of elections is potentially affected by exogenous ideological shocks. As in the spirit of the partisan models of politics (e.g., Alesina, 1988), we assume that parties cannot commit

<sup>21</sup>The lower bound  $\theta^L$  does not play any role in our analysis and results are unchanged when  $\theta^L = 0$ . However, as shown in Section 6, the existence of a lower bound to the income of the poor allow us to analyze under what conditions the possibility of entrenchment is ex-ante desirable for the left-wing party and when it is not.

<sup>22</sup>A possible microfoundation of this assumption is that politicians are citizen-candidates as in the models of Osborne and Slivinsky (1996) and Besley and Coate (1997), and therefore care about the policy implemented. However, politicians also care to some extent about being in power *per se* because this allows them to appropriate some rents from office (either due to political institutions or psychological factors, such as “ego rents”).

to implement a policy different from their own ideal one and that individuals vote sincerely, which is a weakly dominant strategy in a two-party system.

The ideological component  $\xi_t^i$  in the per period utility of the citizens (1) can be written as

$$\xi_t^i = \begin{cases} \varepsilon_t^i + \eta_t, & \text{if } \rho_t = P \\ 0, & \text{if } \rho_t = R, \end{cases} \quad (3)$$

where  $\rho_t \in \{P, R\}$  denotes the party in office at time  $t$ . The first term on the right hand side of (3) decomposes the overall ideological bias of citizen  $i$  in favor of party  $P$  at time  $t$ ,  $\xi_t^i$ , in two components,  $\varepsilon_t^i$  and  $\eta_t$ , while the bias is normalized to zero when the Right is in power.<sup>23</sup>

The  $\varepsilon$  variable represents an idiosyncratic ideological shock that varies both across agents and across time, and whose realizations are *i.i.d.* over time for each agent and drawn from a continuous distribution function  $F(\varepsilon)$  with smooth (i.e., differentiable with continuity) density  $f(\varepsilon) \equiv F'(\varepsilon)$  and zero mean. A positive value of  $\varepsilon^i$  reflects an idiosyncratic bias of agent  $i$  in favor of party  $P$ , whereas a negative value of  $\varepsilon^i$  reflects a bias of agent  $i$  against it. We assume that the density function  $f(\varepsilon)$  has the following properties.

**Assumption 1**  $f(x) = f(-x)$ .

**Assumption 2**  $xf'(x) \leq 0$ .

Assumptions 1 and 2 imply that the density function of the idiosyncratic ideological shock  $\varepsilon$  is symmetric around its mean and hump-shaped.<sup>24</sup>

The random variable  $\eta_t$  represents an aggregate ideological shock that is equal for all agents at each point in time and it is assumed to be *i.i.d.* over time. The realizations of  $\eta_t$  are drawn from a continuous distribution function  $\Phi(\eta)$ , with smooth density  $\phi(\eta) \equiv \Phi'(\eta)$  and zero mean. A positive value of  $\eta_t$  reflects the existence of an aggregate bias in favor of party  $P$  at time  $t$ , whereas a negative value of  $\eta_t$  represents an aggregate bias against such party. While the computation of the political equilibrium does not require any distributional restriction on  $\Phi(\eta)$ , in the comparative static analysis we will assume that  $\phi(\eta)$  is hump-shaped and reaches a maximum at  $\eta = 0$ , but it is not necessarily symmetric.

**Assumption 3**  $x\phi'(x) \leq 0$ .

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<sup>23</sup>As standard in probabilistic voting models (see, for example, Lindbeck and Weibull, 1987; Dixit and Londregan, 1998), both shocks reflect the preferences of the agent for the non-economic policies potentially implemented by the party in office at time  $t$ . Note, however, that our model differs from a standard probabilistic voting model since we are not allowing parties to commit to any policy other than their own preferred one.

<sup>24</sup>Symmetry guarantees that there is a lower density of voters when their ideological tastes are more extreme, even when comparing a left-leaning voter with a right-leaning one.

In our dynamic political game, events take place according to the following timing.

- (i) At the beginning of time  $t = 0$ , the realization of  $\eta_0$  and of  $\varepsilon_0^i$  for each  $i$  is revealed.
- (ii) (First election). Citizens vote for either party  $P$  or party  $R$  conditionally on  $\theta_0$ , on  $\eta_0$  and on  $\varepsilon_0^i$ ; a government is elected depending on the outcome of the voting process.
- (iii) The elected government chooses and implements the policy vector  $\langle \tau_0, G_0, \theta_1 \rangle$ .
- (iv) At the beginning of time  $t = 1$ , the realization of  $\eta_1$  and of  $\varepsilon_1^i$  for each  $i$  is revealed.
- (v) (Second election). Citizens vote for either party  $P$  or party  $R$  conditionally on  $\theta_1$ , on  $\eta_1$  and on  $\varepsilon_1^i$ ; a government is elected depending on the outcome of the voting process.
- (vi) The government chooses and implements the policy vector  $\langle \tau_1, G_1 \rangle$ , and the game ends.

We will now proceed to characterize the Subgame Perfect Equilibria (SPE) in pure strategies of this dynamic political game.

## 4 Characterization of the Equilibrium

Since we have a finite game, we solve it by backward induction by computing the political equilibrium for every possible history in the last period ( $t = 1$ ). Then, we will determine the equilibrium in the initial period ( $t = 0$ ).

### 4.1 Equilibrium in the Last Period ( $t = 1$ )

The preferred fiscal policy by the party in office at  $t = 1$  is the solution to the problem

$$V_1^J(\theta_1 | \rho_1 = J) = \max_{\tau_1, G_1} \{ (1 - \tau_1) a^J(\theta_1) + G_1 + \delta \}$$

*s.t.* (2) with  $t = 1$ ,

where  $V_1^J(\theta_1 | \rho_1 = J)$  denotes the maximized utility of party  $J \in \{P, R\}$  from being in power, conditionally on the level of  $\theta_1$  that has been chosen by the government in office at time  $t = 0$ .

Since there is no commitment, each party implements his preferred policy as stated by the following proposition (the proof is straightforward and omitted).

**Proposition 1** *At time  $t = 1$ : (i) a right-wing government always sets taxes at the level  $\tau_1^R \equiv 0$  and provides no public good,  $G_1^R \equiv 0$ ; (ii) conditionally on  $\theta_1 \in [\theta^L, 1]$ , a left-wing government sets taxes and public good provision respectively at  $\tau_1^P = \hat{\tau}$  and  $G_1^P = \hat{\tau} \bar{a}_1(\theta_1)$ .*

A right-wing government provides no public good since it is not optimal for the rich undertaking any redistribution. Therefore, using the normalization to zero of the ideological bias in



favor of party  $R$  (see (3)), the per period utilities of the poor and the rich when party  $R$  is in power are respectively  $u_1^{i,p}(\eta_1, \varepsilon_1^i, \theta_1 | \rho_1 = R) = \theta_1 a^p$ , and  $u_1^{i,r}(\eta_1, \varepsilon_1^i, \theta_1 | \rho_1 = R) = a^r$ .

If instead the Left is in power, it sets taxes at the maximum possible level  $\hat{\tau}$  (since they are not distortionary below that level) and the per period utility of a poor will be

$$u_1^{i,p}(\eta_1, \varepsilon_1^i, \theta_1 | \rho_1 = P) = \theta_1 a^p + \Delta_1^p(\theta_1) + \varepsilon_1^i + \eta_1, \quad (4)$$

where

$$\Delta_1^p(\theta_1) = G_1^P - \hat{\tau}\theta_1 a^p = \hat{\tau}\lambda(a^r - \theta_1 a^p) > 0, \quad (5)$$

denotes the net value of fiscal redistribution for the poor. Since the Right provides no fiscal redistribution,  $\Delta_1^p(\theta_1)$  also represents the relative net economic gain for the low-skill agents from voting for party  $P$  rather than for party  $R$ . Similarly, the per period utility of a rich when party  $P$  is in power reads

$$u_1^{i,r}(\eta_1, \varepsilon_1^i, \theta_1 | \rho_1 = P) = a^r + \Delta_1^r(\theta_1) + \varepsilon_1^i + \eta_1, \quad (6)$$

where  $\Delta_1^r(\theta_1)$  is the net value of fiscal redistribution for the rich equal to

$$\Delta_1^r(\theta_1) = G_1^P - \hat{\tau}a^r = -\hat{\tau}(1 - \lambda)(a^r - \theta_1 a^p) < 0. \quad (7)$$

A key feature of the model is that  $\Delta_1^p(\theta_1)$  is decreasing in  $\theta_1$ . As  $\theta_1$  increases, inequality falls because the poor get richer and less is gained from redistribution. This result is important because it implies that the Left can strategically increase its comparative politico-economic value (relative to the Right) for the lower class,  $\Delta_1^p(\theta_1)$ , by reducing the pre-tax income of the unskilled, i.e. of its natural constituency. For similar reasons,  $\Delta_1^r(\theta_1)$  is increasing in  $\theta_1$ .

Citizen  $i$  votes for party  $P$  at time 1 if  $u_1^{i,\chi}(\eta_1, \varepsilon_1^i, \theta_1 | \rho_1 = P) \geq u_1^{i,\chi}(\eta_1, \varepsilon_1^i, \theta_1 | \rho_1 = R)$ , for  $\chi \in \{p, r\}$ . Using the expressions just derived for the citizens ex-post utility, this condition is equivalent to  $\varepsilon_1^{i,\chi} \geq -\Delta_1^\chi(\theta_1) - \eta_1$ . Given the distributional assumptions on the ideological shocks, the total number of votes that party  $P$  obtains in state  $(\eta_1, \theta_1)$  is

$$S^P(\eta_1, \theta_1) = (1 - \lambda)[1 - F(-\Delta_1^p(\theta_1) - \eta_1)] + \lambda[1 - F(-\Delta_1^r(\theta_1) - \eta_1)]. \quad (8)$$

The first term on the right hand side of (8) is the number of votes coming from the poor, and the second represents the votes coming from the rich. Since  $\Delta_1^p(\theta_1) > 0$  and  $\Delta_1^r(\theta_1) < 0$ , and the distribution of  $\varepsilon$  is the same across income groups, this formula implies that for any value of  $\eta_1$ , the Left always gets a greater proportion of votes among the poor than among the rich.

The Left wins the election if  $S^P(\eta_1, \theta_1) > 1/2$ .<sup>25</sup> Since  $S^P(\eta_1, \theta_1)$  is strictly increasing in  $\eta_1$ , that is equivalent to  $\eta > \eta_1^*(\theta_1)$ , where  $\eta_1^*(\theta_1)$  is defined by  $S^P(\eta_1^*(\theta_1), \theta_1) = 1/2$ , i.e.,

$$(1 - \lambda)F(-\Delta_1^p(\theta_1) - \eta_1^*(\theta_1)) + \lambda F(-\Delta_1^r(\theta_1) - \eta_1^*(\theta_1)) = 1/2. \quad (9)$$

The following proposition summarizes the results obtained up to this point.

**Proposition 2** *Conditionally on the realization of the aggregate ideological shock  $\eta_1$ , the equilibrium of the subgame beginning at period  $t = 1$  is the following. If  $\eta_1 < \eta_1^*(\theta_1)$ , party R wins the elections while party P wins if  $\eta_1 > \eta_1^*(\theta_1)$ . If  $\eta_1 = \eta_1^*(\theta_1)$ , each party wins the elections with probability 1/2. The fiscal policy implemented by the winner is described by Proposition 1. Moreover, the ex-ante probability that party R wins the elections at  $t = 1$  is  $\sigma_1^R(\theta_1) \equiv \Pr\{\eta < \eta_1^*(\theta_1)\} = \Phi(\eta_1^*(\theta_1))$ , and the ex-ante the probability that party P wins the elections is  $\sigma_1^P(\theta_1) \equiv 1 - \Phi(\eta_1^*(\theta_1))$ .*

The following lemmas characterize the sign of the cutoff  $\eta_1^*(\theta_1)$  and its relationship with  $\theta_1$ , which will be used to characterize the equilibrium at  $t = 0$  (the proofs are in the Appendix).

**Lemma 1**  $\eta_1^*(\theta_1) < 0$  for all  $\theta_1$ .

This lemma states that the two parties obtain the same number of votes in equilibrium when there is a sufficiently large aggregate ideological shock in favor of the Right. This comes from the fact that the poor are more numerous than the rich and, on average, more inclined to vote for the Left than for the Right because of the more convenient fiscal policy.

**Lemma 2**  $\eta_1^{*'}(\theta_1) \equiv d\eta_1^*(\theta_1)/d\theta_1 > 0$  for all  $\theta_1$ .

Intuitively, the threshold  $\eta_1^*(\theta_1)$  is increasing in the last period productivity of low-skill agents because as these become richer, they gain less from fiscal redistribution, and therefore they are less inclined to vote for the Left. A greater  $\theta_1$  also increases the fraction of rich voting for the Left. However, as the rich are less numerous than the poor, the net effect is that the overall probability of the Left winning the election falls with  $\theta_1$ . This is a key result of the model, which will explain why, under some conditions, the Left may choose to reduce the income of its own natural constituency in order to consolidate its own future political power.

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<sup>25</sup>In the case where  $S^P(\eta_1, \theta_1) = 1/2$ , we assume both parties win with probability 1/2.

## 4.2 Equilibrium in the Initial Period ( $t = 0$ )

We now continue with the backward induction solution of the political game by computing the equilibrium of the subgame of the stage game played at time  $t = 0$  after elections have been held and a government appointed. Conditionally on the exogenous level of  $\theta_0$ , the optimal policy of party in power  $J \in \{P, R\}$  solves the following problem

$$V_0^J(\theta_0) = \max_{\tau_0, G_0, \theta_1} \{[(1 - \tau_0)a^J(\theta_0) + G_0] + \delta + \beta \mathbb{E}_\eta[V_1^J(\eta, \theta_1)]\},$$

*s.t.* (2) with  $t = 0$ ,

where  $\mathbb{E}_\eta[V_1^J(\eta, \theta_1)]$  is the expected continuation value (with respect to the realization of  $\eta$ ) of party  $J$  conditionally on  $\theta_1$ , defined as

$$\mathbb{E}_\eta[V_1^J(\eta, \theta_1)] = \int V_1^J(\theta_1 | \rho_1(\eta, \theta_1)) \phi(\eta) d\eta = \sigma_1^P(\theta_1) V_1^J(\theta_1 | \rho_1 = P) + \sigma_1^R(\theta_1) V_1^J(\theta_1 | \rho_1 = R).$$

Since the choice of  $\theta_1$  is made at no resource cost, it can be separated from the fiscal policy decisions  $(\tau_0, G_0)$  and its optimal value for party  $J$  is:  $\theta_1^J = \arg \max_{\theta_1 \in [\theta^L, 1]} \mathbb{E}_\eta[V_1^J(\eta, \theta_1)]$ .

Using Propositions 1 and 2, the expected continuation value  $\mathbb{E}_\eta[V_1^J(\eta, \theta_1)]$  for the Left ( $J = P$ ) in period 1 can be written as

$$V_1^P(\theta_1) \equiv \mathbb{E}_\eta[V_1^P(\eta, \theta_1)] = \theta_1 a^P + [1 - \Phi(\eta_1^*(\theta_1))] [\delta + \Delta_1^P(\theta_1)], \quad (10)$$

and from (10) follows that

$$\frac{\partial V_1^P(\theta_1)}{\partial \theta_1} = a^P - [1 - \Phi(\eta_1^*(\theta_1))] \hat{\tau} \lambda a^P - \phi(\eta_1^*(\theta_1)) \eta_1^{*'}(\theta_1) [\delta + \Delta_1^P(\theta_1)]. \quad (11)$$

The sign of this derivative is generally ambiguous. The first term is positive since it reflects the standard welfare gain that the low-skill agents obtain when they become more productive at the margin, which is partially internalized by party  $P$ . The second term is negative since it reflects the loss in fiscal redistribution that the low-skilled experience when their productivity becomes higher, whenever the Left is in power.<sup>26</sup> The third term is also negative (note that  $\eta_1^{*'}(\theta_1) > 0$  from Lemma 2), as it represents the loss of the Left from the reduced chances of winning the elections in period 1 when  $\theta_1$  increases. This utility loss includes both the office rent (which the Left does not get if the Right is in power) and the fiscal transfer potentially benefiting the lower class (which the Left internalizes due to its partial altruism).

Similarly, the expected value  $\mathbb{E}_\eta[V_1^R(\eta, \theta_1)]$  for the Right ( $J = R$ ) in period 1 is given by

$$V_1^R(\theta_1) = a^R + \Phi(\eta_1^*(\theta_1)) \delta + [1 - \Phi(\eta_1^*(\theta_1))] \Delta_1^R(\theta_1).$$

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<sup>26</sup>The sum of the first two terms in (11) is positive and represents the expected increase in the ex-post tax income and transfers following an increase in  $\theta_1$ .

The derivative of this expression with respect to the policy variable of interest reads

$$\frac{\partial V_1^R(\theta_1)}{\partial \theta_1} = [1 - \Phi(\eta_1^*(\theta_1))] \hat{\tau} (1 - \lambda) a^p + \phi(\eta_1^*(\theta_1)) \eta_1'^*(\theta_1) [\delta - \Delta_1^r(\theta_1)] > 0, \quad (12)$$

as  $\eta_1'^*(\theta_1) > 0$  and  $\Delta_1^r(\theta_1) < 0$ , which means that the objective function of the Right is strictly increasing in  $\theta_1$ . Indeed, a higher value of  $\theta_1$  raises the income of the poor and reduces inequality, which in turn increases the expected utility of the Right by increasing its probability of electoral victory (second term in (12)) as well as by reducing the losses from redistribution beared by the rich when the Left is in power (first term of (12)).

The following proposition summarizes these results.

**Lemma 3** *When in power at  $t = 0$ , the Right always sets the value of  $\theta_1$  at level  $\theta_1^R = 1$ , while the Left chooses  $\theta_1^* \equiv \theta_1^P = \arg \max_{\theta_1 \in [\theta^L, 1]} V_1^P(\theta_1)$ , where  $V_1^P(\theta_1)$  is given by (10).<sup>27</sup>*

The following proposition (the proof is reported in Appendix) clarifies that large enough office rents  $\delta$  is a sufficient condition for the Left choosing a value of  $\theta_1$  strictly lower than 1.

**Proposition 3** *There exists a finite value of  $\delta$  independent of  $\theta_1$ , that we call  $\delta^*$ , such that  $V_1^P(\theta_1; \delta)$  is everywhere decreasing in  $\theta_1$  for any  $\delta > \delta^*$ . In this case, the political rents are sufficiently large to ensure that the program of party  $P$  has the lower corner solution  $\theta_1^* = \theta^L$ .*

We now analyze how election results are determined in the initial period ( $t = 0$ ).

Anticipating the policy chosen by each party, a poor citizen  $i$  votes for the Left at time 0 if the discounted expected utility with this party in office is higher than the one with Right, i.e.

$$\begin{aligned} U_0^{i,p}(\eta_0, \varepsilon_0^{i,p}, \theta_0 | \rho_0 = P) &\equiv (1 - \hat{\tau}) \theta_0 a^p + \hat{\tau} [\lambda a^r + (1 - \lambda) \theta_0 a^p] + \varepsilon_0^{i,p} + \eta_0 + \beta U_1^P(\theta_1^P) \\ &\geq \theta_0 a^p + \beta U_1^P(1) \equiv U_0^{i,p}(\eta_0, \varepsilon_0^{i,p}, \theta_0 | \rho_0 = R), \end{aligned}$$

where  $U_1^P(\theta_1)$  denotes the expected utility of the poor at time  $t = 1$  conditional on the choice of  $\theta_1$  (reported in Lemma 3) by the government in power at  $t = 0$ . From the analysis of the voting decision of the poor, that we do not repeat in detail as it is similar to the one presented above for period 1, we obtain that a poor votes for the Left if  $\varepsilon_0^{i,p} \geq -\Delta_0^p(\theta_0) - \eta_0$ , where

$$\Delta_0^p(\theta_0) = \hat{\tau} \lambda (a^r - \theta_0 a^p) + \beta [U_1^P(\theta_1^*) - U_1^P(1)]. \quad (13)$$

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<sup>27</sup>Since the program of party  $P$  involves the maximization of a continuous function over a compact interval, it has a solution by Weierstrass theorem. If there is more than one solution, we invoke a standard Paretian efficiency argument to select the largest value of  $\theta_1$  as the equilibrium value when the Left is in power.

Similarly, a rich citizen  $i$  votes for the Right at time 0 if  $\varepsilon_0^{i,r} \geq -\Delta_0^r(\theta_0) - \eta_0$ , with<sup>28</sup>

$$\Delta_0^r(\theta_0) \equiv -\hat{\tau}(1-\lambda)(a^r - \theta_0 a^p) + \beta [U_1^r(\theta_1^*) - U_1^r(1)] < 0. \quad (14)$$

It is worth noting that these conditions differ from those derived for the second period of the game since they are *dynamic* voting rules. Indeed, when voting in the first period, citizens take into account that the elected government will subsequently choose the productivity level of the poor  $\theta_1$  in a discretionary fashion. That effect is absent in the voting game at  $t = 1$ .

As before, the Left wins the election if it gets the majority of votes,  $S^P(\eta_0, \theta_0) > 1/2$ . This is the case when  $\eta > \eta_0^*(\theta_0)$ , where  $\eta_0^*(\theta_0)$  is defined as the value of  $\eta_0$  satisfying the condition<sup>29</sup>

$$S^P(\eta_0^*(\theta_0), \theta_0) \equiv (1-\lambda)[1 - F(-\Delta_0^p(\theta_0) - \eta_0^*(\theta_0))] + \lambda[1 - F(-\Delta_0^r(\theta_0) - \eta_0^*(\theta_0))] = 1/2. \quad (15)$$

The following proposition provides a characterization of the equilibrium in the first period of the game that is similar to that one of the second period contained in Proposition 2.

**Proposition 4** *The equilibrium of the subgame beginning at period  $t = 0$  is as follows.*

- (1) *If  $\eta_0 < \eta_0^*(\theta_0)$ , the Right wins the elections, implements the fiscal policy ( $\tau_0^R = 0, G_0^R = 0$ ), and sets  $\theta_1^R = 1$ .*
- (2) *If  $\eta_0 > \eta_0^*(\theta_0)$ , the Left wins the elections, implements the fiscal policy ( $\tau_0^P = \hat{\tau}, G_0^P = \hat{\tau} \bar{a}_0(\theta_0)$ ), and chooses  $\theta_1^P \equiv \theta_1^* \in [\theta^L, 1]$  as defined in Lemma 3.*
- (3) *If  $\eta_0 = \eta_0^*(\theta_0)$ , each party wins the elections with probability 1/2 and (1) or (2) apply.*

When the Left chooses  $\theta_1^* < 1$  if in power, we call the equilibrium with *political entrenchment* because this is characterized by the fact that the left-wing party deliberately reduces the income of its own constituency in order to consolidate its power. It is also immediate to verify that the equilibrium of the game has two important features described in the following corollary.

**Corollary 1** *The equilibrium of the game is (i) Pareto inefficient (potential output is not maximized), and (ii) it features the persistence of political power as the probability that a party is in power in the second period increases if it gets to power in the first one.<sup>30</sup>*

<sup>28</sup>It is worth noting that while  $\Delta_0^r(\theta_0)$  is always negative since  $U_1^r(\theta_1^*) < U_1^r(1)$ ,  $\Delta_0^p(\theta_0)$  may have an ambiguous sign as  $U_1^p(\theta_1^*)$  may be lower than  $U_1^p(1)$ .

<sup>29</sup>Note that  $\eta_0^*$  also depends on  $\theta_1$  since  $\Delta_0^p(\theta_0)$  and  $\Delta_0^r(\theta_0)$  are affected by this state variable. To simplify the notation, we will use  $\eta_0^*(\theta_0)$  rather than  $\eta_0^*(\theta_0, \theta_1^*)$  when this does not make any confusion.

<sup>30</sup>It is immediate that the probability that the Left is power at time 1 is higher if it is in power at time 0:

$$\Pr \{\rho_1 = P | \rho_0 = P\} = \sigma_1^P(\theta_1^*) > \Pr \{\rho_1 = P | \rho_0 = R\} = \sigma_1^P(1)$$

for all  $\theta_1^* < 1$ , as  $\sigma_1^P(\theta_1^*) = 1 - \Phi(\eta_1^*(\theta_1^*))$  and  $\eta_1^*(\theta_1^*) > 0$ . Furthermore, from (15) it follows that the threshold  $\eta_0^*(\theta_0)$  is increasing in  $\theta_0$ , since the potential gains from fiscal redistribution (and therefore the bias of the poor in

## 5 Comparative Statics

We here analyze how some parameters of the model change the degree of entrenchment of the Left. In particular, we determine how the equilibrium value  $\theta_1^*$  changes when there is a variation in (i) the rents from office  $\delta$ , (ii) the inter-party balance of power, and (iii) the level of state fiscal capacity  $\hat{\tau}$ . The effect of a higher degree of income inequality on  $\theta_1^*$  is reported in Appendix 11.2 as the analysis is very similar to that one of state capacity.<sup>31</sup>

In order to obtain sharper results, we will consider at some point the following additional restrictions on the functional form of the density of the aggregate popularity shock  $\eta$  and the idiosyncratic popularity shock  $\varepsilon$ .

**Condition 1.**  $\phi'(x)/\phi(x) \leq 1/[\delta + \Delta_1^p(\theta^L)]$ .<sup>32</sup>

**Condition 2.**  $|f'(x)/f(x)|$  is weakly increasing in  $|x|$ .<sup>33</sup>

### 5.1 An Increase in Office Rents

**Lemma 4** *An increase in the rents  $\delta$  from office (weakly) reduces  $\theta_1^*$ , i.e.  $\partial\theta_1^*/\partial\delta \leq 0$ .*

**Proof.** From (11) we obtain that  $\partial^2 V_1^P(\theta_1; \delta)/(\partial\theta_1\partial\delta) = -\phi(\eta_1^*(\theta_1))\eta_1^{*'}(\theta_1) < 0$  from Lemma 2. This means that  $V_1^P(\theta_1; \delta)$  is submodular in  $(\theta_1, \delta)$  and, by Topkis' theorem (Topkis, 1998), it follows that  $\theta_1^*$  is nonincreasing in  $\delta$  (i.e.,  $\partial\theta_1^*/\partial\delta \leq 0$ ).<sup>34</sup> ■

A rise in the rents from office  $\delta$  always increases the incentive of the Left for entrenchment because a lower pre-tax income of its own constituency  $\theta_1$  increases the probability of this party get in power in the next period, which is now more valuable.<sup>35</sup>

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favor of the Left) decreases as their pre-tax income increases relative to the average income. Consequently, there is persistence in the value of the productivity  $\theta$  of the low-skilled, in addition to persistence in political power: a greater  $\theta_0$  makes it more likely that the Right wins at  $t = 0$ , which in turn (weakly) raises the equilibrium value of  $\theta_1$ , unless one is in an equilibrium without entrenchment.

<sup>31</sup>As the objective function (10) of the Left is not generally concave in  $\theta_1$ , we cannot apply the standard methods (based on the implicit differentiation of the first order condition) to characterize the comparative statics properties of the equilibrium. For this reason the analysis will be conducted using the techniques of monotone comparative statics (e.g., Milgrom and Shannon, 1994; Topkis, 1998).

<sup>32</sup>Note that this condition is satisfied when the aggregate popularity shock  $\eta$  has a uniform distribution (and therefore  $\phi'(x) = 0$  for any  $x$ ), as it is often assumed in political economy models based on probabilistic voting.

<sup>33</sup>It is worth noting that a number of important continuous distribution has this property, including the Gaussian and the double-exponential distribution.

<sup>34</sup>The notation used to write the expression of the value function  $V_1^P(\theta_1; \delta)$  reflects that  $\theta_1$  is an endogenous state variable whereas  $\delta$  represents an exogenous parameter of the model.

<sup>35</sup>Note, however, that even if  $\delta = 0$  it could be that  $\partial V_1^P(\theta_1)/\partial\theta_1 < 0$  if  $\eta_1^{*'}(\theta_1)$  is large enough (see (11)). This means that the poor themselves would be willing to forego some pre-tax income in exchange of a sufficiently large increase in the probability that the Left wins the election and, therefore, of the benefits from redistribution.

## 5.2 Effects of the Inter-Party Balance of Power

We now consider the effect of an exogenous variation in the balance of power in favor of the Left. A way to model this bias is by considering a shift to the right in the distribution function of the ideological bias  $\varepsilon$  of the citizens for party  $P$ . Formally, the cumulative distribution function of  $\varepsilon$  can be rewritten as  $F_\nu(\varepsilon) \equiv F(\varepsilon - \nu)$ , with the density function equal to  $f(\varepsilon - \nu) \equiv F'(\varepsilon - \nu)$ , where  $\nu$  is the mean of the distribution ( $\nu = 0$  corresponds to our baseline model).<sup>36</sup>

**Lemma 5** *A stronger bias for the Left (i.e., a higher  $\nu$ ) (i) has generally an ambiguous effect on  $\theta_1^*$ , (ii) it reduces entrenchment ( $\partial\theta_1^*/\partial\nu \geq 0$ ) when the rents from office  $\delta$  are sufficiently large, and (iii) it increases entrenchment ( $\partial\theta_1^*/\partial\nu \leq 0$ ) when Condition 1 holds.*

**Proof.** In order to determine the sign of  $\partial\theta_1^*/\partial\nu$ , we explore whether  $V_1^P(\theta_1; \nu)$  is super-modular or submodular in  $(\theta_1, \nu)$ . From (11) and (9), we obtain that

$$\frac{\partial^2 V_1^P(\theta_1; \nu)}{\partial\theta_1 \partial\nu} = -\phi(\eta_1^*(\theta_1))\hat{\tau}\lambda a^p + \phi'(\eta_1^*(\theta_1))\eta_1^{*'}(\theta_1)[\delta + \Delta_1^p(\theta_1)], \quad (16)$$

which has generally an ambiguous sign as the first term is negative and the second is positive. Since the second term in (16) is increasing in  $\delta$ , there exists a  $\bar{\delta}$  such that  $\partial^2 V_1^P(\theta_1; \nu)/(\partial\theta_1 \partial\nu) > 0$ , and therefore  $\partial\theta_1^*/\partial\nu \geq 0$ , for all  $\delta > \bar{\delta}$ , which proves (ii). Since  $\eta_1^{*'}(\theta_1)$  is bounded from above by  $\lambda\hat{\tau}a^p$  and  $\Delta_1^p(\theta_1)$  is maximized at  $\theta_1 = \theta^L$ , it follows that  $\partial^2 V_1^P(\theta_1; \nu)/\partial\theta_1 \partial\nu < 0$  everywhere when Condition 1 is satisfied; this implies that  $\partial\theta_1^*/\partial\nu \leq 0$ , which proves (iii). ■

The intuition for these results is the following. A higher  $\nu$  means that citizens have a stronger bias in favor of the Left that will then be in power more often. Hence, the poor will get income redistribution with a higher probability; this reduces the cost of entrenchment for the Left party which therefore entrench more (i.e., it chooses a lower  $\theta_1^*$  as  $\partial\theta_1^*/\partial\nu \leq 0$ ).<sup>37</sup> This *appropriation effect* is represented by the first term in (16), which is negative. A stronger bias for the Left (higher  $\nu$ ) also reduces the local density of swing voters gained by entrenchment, as a more extreme aggregate preference shock in favor of the Right is needed for the election to be in a knife-edge situation.<sup>38</sup> Given the existence of fewer citizens at the margin (i.e.,  $\phi'(\eta_1^*(\theta_1))\eta_1^{*'}(\theta_1) > 0$ ), a reduction of  $\theta_1$  leads to a lower increase in the votes gained by the Left, which means that the marginal political return from entrenchment (a lower  $\theta_1$ ) decreases

<sup>36</sup>Note that Assumptions 1 and 2 are no longer valid. However, if  $\nu$  is not too large, the critical property of the equilibrium that the marginal density of swing voters is lower among the rich than among the poor, which is behind Lemmas 1 and 2, still holds.

<sup>37</sup>Income redistribution reduces the cost of entrenchment because it partially offset the utility loss of the poor generated by a lower level of their productivity which is internalized by the Left through its partial altruism.

<sup>38</sup>This comes from  $\partial\eta_1^*(\theta_1)/\partial\nu < 0$  and Assumption 3 which implies that  $\phi'(\eta_1^*(\theta_1)) > 0$  as  $\eta_1^*(\theta_1) < 0$ .

with  $\nu$ ; therefore a higher  $\nu$  leads to less entrenchment (i.e., to a higher  $\theta_1^*$  as  $\partial\theta_1^*/\partial\nu \geq 0$ ). This *decreasing marginal political return effect* is captured by the second term in (16), which is positive. In general, it is not clear which of these two effects dominates as the sign of (16) is ambiguous. However, the appropriation effect does not depend on the rents from holding in office and therefore the decreasing marginal political return effect dominates when these rents are large enough leading to less entrenchment when there is a stronger bias for the Left.

Point (iii) of Lemma 5 describes the case where less political competition (more insulation of the Left) lead to more distortions, in the form of higher entrenchment. This result is consistent with the recent finding of Acemoglu, Golosov and Tsyvinski (2011) that politicians facing a higher “effective discount factor” (which will be the case if they expect to stay in power longer) are likely to implement macroeconomic policies featuring more, rather than less, political distortions. This conclusion is in contrast with one of the main insights of the previous literature (e.g., Barro, 1973; Ferejohn, 1986; Persson, Roland and Tabellini, 1997), according to which more stability of power should be conducive to better policies and allocations of resources, by alleviating the political agency problem arising between voters and politicians.

### 5.3 The Effect of State Fiscal Capacity

**Lemma 6** *A higher state fiscal capacity  $\hat{\tau}$  (i) has in general an ambiguous effect on  $\theta_1^*$ , and (ii) it increases entrenchment ( $\partial\theta_1^*/\partial\hat{\tau} \leq 0$ ) when Conditions 1 and 2 hold or  $\hat{\tau}$  is small enough.*

The proof of Lemma 6 and a deeper discussion on this point are contained in Appendix 11.1. Similarly to the previous case on inter-party balance of power there are two effects at work. Greater state capacity raises the level of redistribution, making it less costly for the poor (and the Left) to reduce  $\theta_1$ . This *appropriation effect* increases entrenchment as it induces a reduction of  $\theta_1^*$  when  $\hat{\tau}$  increases. The *decreasing marginal political returns effect* also comes into play but it has an ambiguous sign as there is now an extensive margin (the Left is more popular when  $\hat{\tau}$  is greater, hence tie situations arise for more extreme aggregate party preference shocks in favor of the Right, hence the marginal density of swing voters is lower) as well as an intensive margin (the level of  $\hat{\tau}$  affects how responsive an individual voter is to a change in  $\theta_1$ ). As in the previous case, the decreasing political return effect dominates if rents from office are sufficiently large. However, the fact that the sign of such effect is now ambiguous does not allow to have clear-cut predictions on the relationship between  $\theta_1^*$  and  $\hat{\tau}$ .

Lemma 6 also states conditions, such as a low level of state capacity, under which an increase in state capacity is socially harmful as this provides to governments the incentives to distort



their policies for power consolidation.<sup>39</sup> Since a low level of state capacity is characteristic of developing economies, this means that, at the margin, an autonomous increase in state capacity, is particularly likely to have harmful consequences for such countries. While the conventional view (e.g., Besley and Persson, 2009) is that higher state capacity is generally socially beneficial, our result is more in line with Acemoglu (2010) who argues that an increase in state capacity without an appropriate change in political institutions may be socially harmful.

## 6 The Incentive of the Left to Limit Entrenchment Policies

In our analysis we have assumed that  $\theta_1$  has an exogenous lower bound at  $\theta^L > 0$ . When this constraint is binding ( $\theta_1^* = \theta^L$ ), a lower value of  $\theta^L$  means that the Left has potentially a greater capacity to manipulate the economy for electoral purposes if it is in power in the initial period (remember that the higher the reduction of income of the poor, the higher the probability that the Left wins the elections in the following period). Nevertheless, lower values of  $\theta^L$  may also turn against the left-wing party because the poor have less incentives to vote for this party in the initial period as they anticipate the adoption of entrenchment policies. Therefore, the possibility to entrench may not be beneficial for the Left.

We here analyze under what conditions this is the case and, therefore, the Left would find optimal to set a relatively high value of  $\theta^L$ , which is equivalent to a commitment not to implement entrenchment policies once in power. Such commitment devices may include delegation of part of public policy to independent agencies, as well as investment in public infrastructure.

Let us then consider the case where  $\theta^L$  is endogenous and chosen by the Left *before* the first elections are held when the constraint  $\theta_1^* \geq \theta^L$  is binding (so that the Left sets  $\theta_1^* = \theta^L$  if in power in the first period).<sup>40</sup> Hence, we determine under what conditions this party prefers to constrain itself by choosing relatively high values of  $\theta^L$ . In order to simplify the analysis and make it more transparent, we focus on the case where the left-wing party prefers committing to not undertaking entrenchment policies in the future, which corresponds to choosing  $\theta^L = 1$ .

If  $\theta_1^* = \theta^L$ , then the maximized expected utility of the Left at  $t = 0$  can be written as

$$V_0^P(\theta^L) = [1 - \Phi(\eta_0^*(\theta^L))][\theta_0 a^p + \hat{\tau} \lambda (a^r - \theta_0 a^p) + \delta + \beta V_1^P(\theta^L)] + \Phi(\eta_0^*(\theta^L))[\theta_0 a^p + \beta V_1^P(1)], \quad (17)$$

<sup>39</sup>Indeed, when  $\hat{\tau}$  is small enough, the decreasing marginal political return becomes second order as both parties nearly implement the same policy and, therefore, the appropriation effect dominates.

<sup>40</sup>A sufficient condition ensuring that  $\theta_1^* = \theta^L$  is  $\partial V_1^P(\theta_1) / \partial \theta_1 < 0$  for all  $\theta_1 \in [\theta^L, 1]$ , which is always satisfied when the rents from office  $\delta$  are large enough (see Proposition 3).

where  $\eta_0^*(\theta^L)$  and  $V_0^P(\theta^L)$  also depend from  $\theta_0$ . We then obtain that

$$\begin{aligned} \partial V_0^P(\theta^L)/\partial \theta^L &= [1 - \Phi(\eta_0^*(\theta^L))] \beta (\partial V_1^P(\theta^L)/\partial \theta^L) \\ &\quad - \phi(\eta_0^*(\theta^L)) (\partial \eta_0^*(\theta^L)/\partial \theta^L) \{ \hat{\tau} \lambda (a^r - \theta_0 a^p) + \delta + \beta [V_1^P(\theta^L) - V_1^P(1)] \}. \end{aligned} \quad (18)$$

The first component of (18) is negative as  $\partial V_1^P(\theta_1)/\partial \theta_1 < 0$  for all  $\theta_1 \in [\theta^L, 1]$ , and it represents the reduction of utility of the Left from the fact that a higher  $\theta^L$  reduces the scope for future entrenchment. The second component represents the variation of utility from the change in the likelihood of winning the election at  $t = 0$  due to a higher  $\theta^L$ . Appendix 11.3 reports the proof of the following lemma. We there show that the sign of  $\partial V_0^P(\theta^L)/\partial \theta^L$  is generally ambiguous and that it is positive (i.e., the Left prefers committing to not entrench once in power) when the state capacity is sufficiently small and rents from office large enough.

**Lemma 7** *If  $\hat{\tau}$  is small enough and  $\delta$  is higher than a certain threshold (i.e.,  $\delta > \delta^{**} \equiv \max\{\delta^*, \tilde{\delta}\}$ , where  $\tilde{\delta} = \beta a^p$  and  $\delta^*$  is defined in Proposition 3), the Left prefers to give up the possibility of implementing entrenchment policies once in power, namely it sets  $\theta^L = 1$  as  $\partial V_0^P(\theta^L)/\partial \theta^L > 0$  for all  $\theta^L \in [0, 1]$ .*

## 7 The Possibility of Entrenchment by the Right

Our analysis has focused on the case where only the Left has incentives to pursue entrenchment policies. However, in a more general framework, the Right could also adopt policies damaging its own constituency to increase the probability of reelection. Given that the poor are a majority, entrenchment policies require getting more votes from the poor at the expense of losing some votes from the rich, which means choosing policies that reduce income inequality. Thus the Right, like the Left, may benefit from reducing the pre-tax income of its own constituency, but this is a false symmetry as in both cases the goal is to get more votes from the poor.

In Appendix 11.4, we extend the baseline version of the model by assuming that the policy variable  $\theta$  also affects the income of the rich and obtain that the Right may want to set  $\theta$  so as to reduce inequality. Depending on how the policy variable affects the income of the two classes, this may imply the adoption of policies harming the rich. We also show that, under some conditions, entrenchment policies may produce socially efficient outcomes.

## 8 Conclusions

This paper has posed the (novel) question of why politicians occasionally implement policies damaging the economic interests of the same people that brought them in power.

We have addressed this question by proposing a simple dynamic model of voting with redistributive fiscal policy in a two-parties system where only the left-wing party can credibly be expected to provide some redistribution in favor of the lower classes that may outweigh the emergence of a strong ideological bias in favor of the Right. We have found that policies that reduce the income of the poor relative to the average income, such as failing to upgrade the skills of the workers and preventing their erosion by new, skill-biased, technologies, paradoxically consolidates the political power of the Left. This is because these policies make the natural constituency of the Left endogenously more dependent on it and, therefore, increase the support for the party itself. An equilibrium with entrenchment features relative economic stagnation and, in particular, falling unskilled wages, higher inequality, and persistence of the power of the Left. Such an equilibrium is not based on any form of myopia or irrationality of politicians or voters and is more likely to emerge, *inter alia*, when the political rents are relatively high (as for example in weakly-institutionalized polities).<sup>41</sup>

Our comparative statics analysis has clarified how some features, such as rents from office, state capacity, the bias in favor of a party and income inequality affect the incentive of parties to pursue entrenchment policies. We have also discussed the case where the left-wing party may have the incentive to *ex-ante* commit to not pursue entrenchment policies once in power. We have clarified that, in a more general framework, also the right-wing party may adopt policies damaging its own constituency in order to increase its electoral advantage and that entrenchment policies are not necessarily inefficient from a social perspective.

An interesting application of the theory in the area of the positive analysis of institutional design is the rationale for the existence of term limits in democratic constitutions. Our analysis reported in Appendix 11.5 suggests that term limits are potentially beneficial for society to the extent that they reduce the incentives of incumbent politicians in promoting socially inefficient entrenchment policies by reducing their political time-horizon. Nevertheless, the benefits from term limits may be related to other features of the political system, such as the degree of party discipline or the form of government and the electoral system. The endogenous determination of the politics of entrenchment, party discipline and term limits in a dynamic political setup seems to be a potentially interesting topic for future research.

Finally, it is worth noting that the scope for political entrenchment is much wider than the

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<sup>41</sup>If instead we had considered an infinitely repeated voting game, this would have opened up the possibility of a no-entrenchment equilibrium whereby the poor would punish the Left if it deviated from such an equilibrium by voting for the Right. However note that voting for the Right is not subgame perfect (and therefore the corresponding implicit threat is not credible), unlike what is happening in the literature on dynamic oligopoly where punishment consists of a reversion to the non-cooperative repeated Nash outcome. It is thus *a priori* unclear how such an equilibrium would arise.

one on income redistribution and can be applied to other policies (e.g., national defence).

## 9 Appendix A

### 9.1 Proof of Lemma 1

Let  $\psi(h, \eta) \equiv (1 - \lambda)F(-\lambda h - \eta) + \lambda F((1 - \lambda)h - \eta)$ . Clearly,  $\partial\psi/\partial\eta < 0$ . Furthermore,  $\psi(0, 0) = F(0) = 1/2$  and  $\partial\psi(h, 0)/\partial h = \lambda(1 - \lambda)[f((1 - \lambda)h) - f(-\lambda h)]$ . Since  $\lambda < 1/2$ ,  $|(1 - \lambda)h| > |-\lambda h|$ . Therefore,  $f((1 - \lambda)h) < f(-\lambda h)$  and  $\partial\psi(h, 0)/\partial h < 0$ . Consequently,  $\psi(h, 0) < 1/2$  for all  $h > 0$ . Next, note that  $\eta_1^*(\theta_1)$  is the solution to the equation  $\psi(\hat{\tau}(a^r - \theta_1 a^p), \eta_1^*(\theta_1)) = 1/2$ . Since  $\psi(h, \cdot)$  is decreasing in  $\eta$  and  $\psi(\hat{\tau}(a^r - \theta_1 a^p), 0) < 1/2$ , it must be that  $\eta_1^*(\theta_1) < 0$ .

### 9.2 Proof of Lemma 2

Let us define  $z_P \equiv -\Delta_1^p(\theta_1) - \eta_1^*(\theta_1)$ , and  $z_R \equiv -\Delta_1^r(\theta_1) - \eta_1^*(\theta_1)$ . From  $\eta_1^*(\theta_1) < 0$ , (5), (7), and (9), we have  $z_R > 0 > z_P > -z_R$ . Differentiating (9) with respect to  $\theta_1$ , we get

$$\eta_1^{*'}(\theta_1) = \lambda(1 - \lambda)a^p \hat{\tau} \frac{f(z_P) - f(z_R)}{(1 - \lambda)f(z_P) + \lambda f(z_R)}. \quad (19)$$

Since  $|z_P| < |z_R|$ , Assumptions 1 and 2 imply that  $f(z_P) > f(z_R)$  and, therefore,  $\eta_1^{*'}(\theta_1) > 0$ .

### 9.3 Proof of Proposition 3

The function  $\eta_1^*(\theta_1)$  is continuously differentiable over the compact support  $[\theta^L, 1]$  and its derivative is strictly positive and continuous. Furthermore,  $\phi(\cdot)$  is continuous, strictly positive, and has full support. Finally the function  $\eta_1^*(\theta_1)$  does not depend on  $\delta$ . Consequently, there exists an upper bound  $m$  independent of  $\delta$  such that  $-\phi(\eta_1^*(\theta_1))\eta_1^{*'}(\theta_1) < -m < 0$  for  $\theta \in [\theta^L, 1]$ . By the same token, there exists  $M$  such that  $a^p - [1 - \Phi(\eta_1^*(\theta_1))] \hat{\tau} \lambda a^p < M$  for  $\theta \in [\theta^L, 1]$ . Clearly, then, from (11), we have that  $\partial V_1^P(\theta_1)/\partial\theta_1 < M - m[\delta + \Delta_1^p(\theta_1)] < M - m\delta$ , which is strictly negative for  $\delta > M/m$ .

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## 11 Appendix B (Not for publication)

This appendix contains some proofs omitted from the main text and some additional material not for publication.

### 11.1 The Effect of State Fiscal Capacity and Proof of Lemma 6

We here analyze the effect of a higher state capacity  $\hat{\tau}$  on the entrenchment of the Left. Again, this require determining whether  $V_1^P(\theta_1; \hat{\tau})$  is supermodular or submodular in  $(\theta_1, \nu)$ , i.e. the sign of the following expression obtained from (11):

$$\begin{aligned} \frac{\partial^2 V_1^P(\theta_1; \hat{\tau})}{\partial \theta_1 \partial \hat{\tau}} &= -\phi(\eta_1^*(\theta_1)) \eta_1^{*'}(\theta_1) \lambda (a^r - \theta_1 a^p) - [1 - \Phi(\eta_1^*(\theta_1))] \lambda a^p \\ &\quad + \hat{\tau} \lambda a^p \phi(\eta_1^*(\theta_1)) \frac{\partial \eta_1^*(\theta_1)}{\partial \hat{\tau}} - \phi'(\eta_1^*(\theta_1)) \eta_1^{*'}(\theta_1) [\delta + \Delta_1^p(\theta_1)] \frac{\partial \eta_1^*(\theta_1)}{\partial \hat{\tau}} \\ &\quad - \phi(\eta_1^*(\theta_1)) \frac{\partial^2 \eta_1^*(\theta_1)}{\partial \theta_1 \partial \hat{\tau}} [\delta + \Delta_1^p(\theta_1)]. \end{aligned} \quad (20)$$

This expression includes two derivatives that we need to compute,  $\partial \eta_1^*(\theta_1) / \partial \hat{\tau}$  and  $\partial^2 \eta_1^*(\theta_1) / (\partial \theta_1 \partial \hat{\tau})$ .

To determine  $\partial \eta_1^*(\theta_1) / \partial \hat{\tau}$ , we derive the implicit function (9) defining  $\eta_1^*(\theta_1)$  with respect to  $\hat{\tau}$  and use  $z_P \equiv -\Delta_1^p(\theta_1) - \eta_1^*(\theta_1)$  and  $z_R \equiv -\Delta_1^r(\theta_1) - \eta_1^*(\theta_1)$  (see proof of Lemma 1), which leads to

$$\frac{\partial \eta_1^*(\theta_1)}{\partial \hat{\tau}} = -\lambda(1 - \lambda) (a^r - \theta_1 a^p) \frac{f(z_P) - f(z_R)}{(1 - \lambda)f(z_P) + \lambda f(z_R)} < 0,$$

as  $f(z_P) > f(z_R)$ .

Moreover, differentiating the RHS of (19) with respect to  $\hat{\tau}$  we get

$$\begin{aligned} \frac{\partial^2 \eta_1^*(\theta_1)}{\partial \theta_1 \partial \hat{\tau}} &= \lambda(1 - \lambda) a^p \frac{f(z_P) - f(z_R)}{(1 - \lambda)f(z_P) + \lambda f(z_R)} \\ &\quad - \lambda(1 - \lambda) \hat{\tau} a^p (a^r - \theta_1 a^p) \frac{[(1 - \lambda) f(z_P) f'(z_R) + \lambda f(z_R) f'(z_P)]}{[(1 - \lambda)f(z_P) + \lambda f(z_R)]^2} \\ &\quad - \lambda(1 - \lambda) \hat{\tau} a^p \frac{\partial \eta_1^*(\theta_1)}{\partial \hat{\tau}} \frac{f(z_R) f'(z_P) - f(z_P) f'(z_R)}{[(1 - \lambda)f(z_P) + \lambda f(z_R)]^2}, \end{aligned} \quad (21)$$

which is generally ambiguous as the first term is positive, the second is ambiguous and the last term is positive since  $f'(z_P) > 0$  and  $f'(z_R) < 0$  (from  $z_R > 0 > z_P$  and Assumption 2).<sup>42</sup>

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<sup>42</sup>Remember that when  $\theta_1$  goes up, the benefits of redistribution fall. Therefore, the poor swing voter dislikes the Left less, while the rich one likes it less. Both swing voters become less extreme. (Remember that the poor swing voter dislikes the Left, while the rich one likes it). As is clear from equation (19), the intensity of this effect is proportional to the extent of redistribution, i.e. to state capacity  $\hat{\tau}$ . Furthermore, the net effect of these shifts on the net propensity to vote for the Left depends on the difference between the marginal density of poor swing voters  $f(z_P)$  and the marginal density of rich voters  $f(z_R)$ . This difference is positive due to our assumptions about the shape of  $f(\cdot)$  and the proportion of poor. Finally, the response of the critical value  $\eta_1^*$  is

The first three terms in (20) are negative and they represent the *appropriation effect* generated by a higher feasible tax rate. These components push towards a reduction of  $\theta_1^*$  as  $\hat{\tau}$  increases (i.e.,  $\partial\theta_1^*/\partial\hat{\tau} \leq 0$ ). The interpretation of these components is the following. The first term comes from the fact that the poor gain more from the Left in power when  $\hat{\tau}$  is higher. Hence, the higher is  $\hat{\tau}$  and the higher is the incentive for party  $P$  to reduce  $\theta_1$  in order to increase the probability of being elected. The second term captures the expected increase in redistribution, which takes place when the Left is in power, generated by a higher  $\hat{\tau}$ . This reduces the cost of a lower pre-tax income of the poor (i.e., of a lower  $\theta_1^*$ ) so favoring entrenchment. The third term accounts for the fact that a higher  $\hat{\tau}$  reduces  $\eta_1^*(\theta_1)$  making the Left more popular and more often in power. Again, this reduces the cost of a lower pre-tax income of the poor and favors entrenchment.

The last two terms in (20) represent the *marginal political return effect* generated by the increase in state capacity. The fourth term is positive and comes from the fact that the increase in  $\hat{\tau}$  reduces  $\eta_1^*(\theta_1)$  (the Left is more popular), which in turn leads to a reduction in the mass of citizens at the margin. Hence, a lower level of  $\theta_1$  would lead to a smaller increase in the votes gained by the Left. This lowers the scope for entrenchment and leads to a higher  $\theta_1^*$ . The final term captures the direct effect of  $\hat{\tau}$  on the responsiveness of election outcomes to entrenchment,

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larger, the smaller the average density of swing voters,  $(1 - \lambda)f(z_P) + \lambda f(z_R)$ . This is because the smaller this density, the greater the change in  $\eta$  which is needed at the margin to switch the balance of power by a given number of votes. Since the number of votes for the Left lost due to a higher  $\theta_1$  is also proportional to these marginal densities, what matters for the response of  $\eta_1^*$  to  $\theta_1$  is the *relative* density of swing voters  $f(z_P)/f(z_R)$ , as implied by the fraction expression in (19).

Therefore we see that the increase in  $\eta_1^*$ , and therefore the reduction in the Left's probability of winning the next election, is larger, the greater the state capacity and the greater the relative density of swing voters.

How does this response of  $\eta_1^*$  to  $\theta_1$  change when state capacity becomes larger? The answer is in the RHS of (21). First there is the direct effect of  $\hat{\tau}$ , which increases the intensity of preferences for redistribution and therefore the magnitude with which the swing voters move to the center. This effect tends to magnify the positive response of  $\eta_1^*$  to  $\theta_1$  (which in itself tends to increase entrenchment). Hence the first term on the RHS of (21).

Second,  $\hat{\tau}$  has a direct impact on the ideological preferences of the poor and the rich swing voters,  $z_P$  and  $z_R$ . As more is redistributed from rich to poor whenever the Left is in power, fewer rich people, and more poor people, vote in its favor. Consequently, the poor swing voter dislikes the Left more, while the rich swing voter likes it more. The marginal density of swing voters falls for both the poor and the rich, and therefore the effect on the relative density is ambiguous. This is captured by the second term in the RHS of (21). However, if it were the case that  $|f'(x)/f(x)|$  were nonincreasing with  $|x|$ , then we would have that  $-f'(z_R)/f(z_R) \geq f'(z_P)/f(z_P)$  and this second term would be non negative.

Finally,  $\hat{\tau}$  has an indirect effect on the identity of the swing voters through its effect on  $\eta_1^*$ . We know that  $\partial\eta_1^*/\partial\hat{\tau} < 0$ , meaning that the Left wins the election more often when state capacity is larger, due to the fact that the poor are a majority. Thus, the aggregate ideological shock beyond which the Left wins the election is more unfavorable to the Left, meaning that the corresponding swing voters have an increased own taste for the Left. Therefore,  $z_P$  and  $z_R$  both go up. This makes the poor swing voter less extreme (i.e. disliking the Left less) and the rich swing voter more extreme (i.e. liking the Left more). This raises  $f(z_P)$  and reduces  $f(z_R)$ . Therefore, the relative density  $f(z_P)/f(z_R)$  goes up, which increases the votes lost by the Left when  $\theta_1$  goes up, thus increasing  $\eta_1^*(\theta_1)$ . Hence the third term in the RHS of (21), which is positive.

as captured by  $\eta_1^*(\theta_1)$ , and it can be positive or negative. In sum, as the *appropriation effect* and the *marginal political return effect* may have opposite sign, the total effect of higher state capacity on the choice of  $\theta_1^*$  will generally be ambiguous, which proves Lemma 6.(i).

Nevertheless, the effect of state capacity on entrenchment is not ambiguous when Conditions 1 and 2 hold or  $\hat{\tau}$  is small enough.

Condition 2 ensures that  $-f'(z_R)/f(z_R) \geq f'(z_P)/f(z_P)$  since  $|z_P| < |z_R|$ , which implies that also the second term in equation (20) is positive, so that  $\partial^2 \eta_1^*(\theta_1)/\partial \theta_1 \partial \hat{\tau} > 0$ . Condition 1 guarantees that the algebraic sum of the third and fourth terms in equation (20) is negative, again since  $\eta_1^*(\theta_1)$  is bounded from above by  $\lambda \hat{\tau} a^p$  and  $\Delta_1^p(\theta_1)$  is maximized at  $\theta_1 = \theta^L$ , which implies that  $\partial^2 V_1^P(\theta_1; \hat{\tau})/\partial \theta_1 \partial \hat{\tau} < 0$  everywhere, which proves the first part of Lemma 6.(ii).

As  $\hat{\tau} \downarrow 0$ ,  $\eta_1^*(\theta_1) \downarrow 0$ , and  $z_P$  and  $z_R$  both tend to zero, which means that also  $[f(z_P) - f(z_R)]$  tend to zero. This in turn implies that  $\partial \eta_1^*(\theta_1)/\partial \hat{\tau} \uparrow 0$  and  $\partial^2 \eta_1^*(\theta_1)/\partial \theta_1 \partial \hat{\tau} \downarrow 0$ , so that from (20) follows that

$$\lim_{\hat{\tau} \rightarrow 0} \frac{\partial^2 V_1^P(\theta_1; \hat{\tau})}{\partial \theta_1 \partial \hat{\tau}} = -[1 - \Phi(\eta_1^*(\theta_1))] \lambda a^p < 0.$$

Therefore, if state capacity is limited, by submodularity it follows that higher state capacity weakly increases entrenchment by the Left (i.e.,  $\partial \theta_1^*/\partial \hat{\tau} \leq 0$ ), which proves the second part of Lemma 6.(ii).

## 11.2 The Effect of Income Inequality

In this appendix, we analyze the effect of income inequality on entrenchment. We rewrite

$$a^r = \frac{\mu}{\lambda} a \quad \text{and} \quad a^p = \frac{1 - \mu}{1 - \lambda} a, \quad (22)$$

with  $\mu \in (\lambda, 1)$  representing an index of income inequality and  $a$  the average income. Higher  $\mu$  means a higher income of the rich and a lower income of the poor with the same mean income, i.e. it corresponds to a mean preserving spread.

In order to determine the effect of higher inequality on entrenchment, we determine whether  $V_1^P(\theta_1; \mu)$  is supermodular or submodular in  $(\theta_1, \mu)$ , and from (11) we obtain that

$$\begin{aligned} \frac{\partial^2 V_1^P(\theta_1; \mu)}{\partial \theta_1 \partial \mu} &= -\frac{a}{1 - \lambda} [1 - (1 - \Phi(\eta_1^*(\theta_1))) \hat{\tau} \lambda] \\ &\quad - \phi(\eta_1^*(\theta_1)) \eta_1'^*(\theta_1) \left[ 1 + \hat{\tau} \lambda \left( \frac{a}{\lambda} + \frac{\theta_1 a}{1 - \lambda} \right) \right] + \phi(\eta_1^*(\theta_1)) \frac{\partial \eta_1^*(\theta_1)}{\partial \mu} \hat{\tau} \lambda a^p \\ &\quad - \phi'(\eta_1^*(\theta_1)) \frac{\partial \eta_1^*(\theta_1)}{\partial \mu} \eta_1'^*(\theta_1) [\delta + \Delta_1^p(\theta_1)] - \phi(\eta_1^*(\theta_1)) \frac{\partial \eta_1'^*(\theta_1)}{\partial \mu} [\delta + \Delta_1^p(\theta_1)]. \end{aligned} \quad (23)$$

From the implicit differentiation of (9) with respect to  $\mu$  and (22) we have that

$$\frac{\partial \eta_1^*(\theta_1)}{\partial \mu} = -\hat{\tau}\lambda(1-\lambda) \left( \frac{a}{\lambda} + \frac{\theta_1 a}{1-\lambda} \right) \frac{f(z_P) - f(z_R)}{(1-\lambda)f(z_P) + \lambda f(z_R)} < 0,$$

and the derivative of  $\eta_1^*(\theta_1)$  in (19) with respect to  $\mu$  leads to

$$\begin{aligned} \frac{\partial \eta_1^*(\theta_1)}{\partial \mu} &= -\lambda \hat{\tau} a \frac{f(z_P) - f(z_R)}{(1-\lambda)f(z_P) + \lambda f(z_R)} \\ &\quad - \lambda(1-\lambda) \hat{\tau}^2 a^p \left( \frac{a}{\lambda} + \frac{\theta_1 a}{1-\lambda} \right) \frac{[\lambda f(z_R) f'(z_P) - (1-\lambda) f(z_P) f'(z_R)]}{[(1-\lambda)f(z_P) + \lambda f(z_R)]^2} \\ &\quad - \lambda(1-\lambda) \hat{\tau} a^p \frac{\partial \eta_1^*(\theta_1)}{\partial \mu} \frac{f(z_R) f'(z_P) - f(z_P) f'(z_R)}{[(1-\lambda)f(z_P) + \lambda f(z_R)]^2}, \end{aligned}$$

whose sign is generally ambiguous as the first term is negative and the other two are positive.

From (23) follows that the effect of higher income inequality on entrenchment is ambiguous and it is very similar to the effect of state capacity. In fact, the first three terms in (23) are negative and they represent the *appropriation effect* generated by higher inequality; these components push towards a reduction of  $\theta_1^*$  as income inequality increases ( $\partial \theta_1^*/\partial \mu \leq 0$ ). The last two terms are the *marginal political return effect* from higher inequality. The fourth term is positive and comes from the fact that an increase in  $\mu$  makes the Left more popular, so reducing the mass of citizens at the margin; this reduces the scope for entrenchment and leads to a higher  $\theta_1^*$  ( $\partial \theta_1^*/\partial \mu \geq 0$ ). The final term has a similar interpretation and will generally be ambiguous since this is case for  $\partial \eta_1^*(\theta_1)/\partial \mu$ .

As the *appropriation effect* and the *marginal political return effect* may have opposite sign, the total effect of income inequality on  $\theta_1^*$  will generally be ambiguous.

### 11.3 Proof of Lemma 7

The maximized expected utility of the Left at  $t = 0$  is given by

$$\begin{aligned} V_0^P(\theta_0, \theta_1^*) &= [1 - \Phi(\eta_0^*(\theta_0, \theta_1^*))] [\theta_0 a^p + \hat{\tau}\lambda(a^r - \theta_0 a^p) + \delta + \beta V_1^P(\theta_1^*)] \\ &\quad + \Phi(\eta_0^*(\theta_0, \theta_1^*)) [\theta_0 a^p + \beta V_1^P(1)], \end{aligned} \quad (24)$$

where we have emphasized that  $\eta_0^*$ , defined by (15), also depends on the optimal value of the  $\theta_1$  chosen by the party in power in the first period and reported in Lemma 3. The first term of (24) represents the expected utility that the Left obtains if it wins the first round of elections; this event occurs with probability  $1 - \Phi(\eta_0^*(\theta_0, \theta_1^*))$ ,  $\theta_1$  is set at the level  $\theta_1^* \in [\theta^L, 1]$  and  $V_1^P(\theta_1^*)$  is the expected utility of the Left at  $t = 1$  as defined by (10). The second term of (24) is the expected utility of this party if the Right wins the first round of elections, which happens

with probability  $\Phi(\eta_0^*(\theta_0, \theta_1^*))$ ; this party sets  $\theta_1 = 1$  and  $V_1^P(1)$  is the expected utility of the Left at  $t = 1$  as defined by (10) with  $\theta_1 = 1$ .

As explained in the main text, we are considering the case where the constraint  $\theta_1^* \geq \theta^L$  is binding, so that the Left sets  $\theta_1^* = \theta^L$  when in power in the first period. A sufficient condition ensuring this is that  $\partial V_1^P(\theta_1)/\partial \theta_1 < 0$  for all  $\theta_1 \in [\theta^L, 1]$ ; Proposition 3 states that this is always the case when the rents from office are sufficiently high ( $\delta \geq \delta^*$ ). We then analyze under what conditions the Left prefers setting  $\theta^L = 1$  before elections are held in the first period, so giving up the possibility of pursuing entrenchment policies once in power. A sufficient condition for this result is that  $V_0^P(\theta^L)$  is monotonically increasing in  $\theta^L$  for all  $\theta^L \in [0, 1]$ .

If  $\theta_1^* = \theta^L$ , then the value in (24) becomes the one reported in (17), i.e.,

$$\begin{aligned} V_0^P(\theta_0, \theta^L) &= [1 - \Phi(\eta_0^*(\theta_0, \theta^L))][\theta_0 a^p + \hat{\tau} \lambda (a^r - \theta_0 a^p) + \delta + \beta V_1^P(\theta^L)] \\ &\quad + \Phi(\eta_0^*(\theta_0, \theta^L))[\theta_0 a^p + \beta V_1^P(1)], \end{aligned}$$

and from this we obtain (18), i.e.,

$$\begin{aligned} \frac{\partial V_0^P(\theta^L)}{\partial \theta^L} &= [1 - \Phi(\eta_0^*(\theta^L))] \beta \frac{\partial V_1^P(\theta^L)}{\partial \theta^L} \\ &\quad - \phi(\eta_0^*(\theta^L)) \frac{\partial \eta_0^*(\theta^L)}{\partial \theta^L} \{ \hat{\tau} \lambda (a^r - \theta_0 a^p) + \delta + \beta [V_1^P(\theta^L) - V_1^P(1)] \}. \end{aligned}$$

As we said in the main text, the first component of (18) is negative as  $\partial V_1^P(\theta_1)/\partial \theta_1 < 0$  for all  $\theta_1 \in [\theta^L, 1]$ , and it represents the reduction of utility of the Left from the fact that a higher  $\theta^L$  reduces the scope for future entrenchment. The second component represents the variation of utility from the change in the likelihood of winning the election at  $t = 0$  due to a higher  $\theta^L$ . The sign of  $\partial V_0^P(\theta^L)/\partial \theta^L$  is in general ambiguous.

We next show the result contained in Lemma 7, i.e.  $\partial V_0^P(\theta^L)/\partial \theta^L > 0$  for all  $\theta^L \in [0, 1]$  if  $\hat{\tau}$  is small enough and  $\delta$  is higher than a certain threshold.

We first show that  $\partial \eta_0^*(\theta^L)/\partial \theta^L < 0$  when state capacity is sufficiently small. From the implicit differentiation of equation (15) defining  $\eta_0^*(\theta_0, \theta^L)$  when  $\theta_1^* = \theta^L$ , we obtain

$$\frac{\partial \eta_0^*(\theta^L)}{\partial \theta^L} = - \frac{(1 - \lambda) f(\hat{z}_P) (\partial \Delta_0^p(\theta_0, \theta^L) / \partial \theta^L) + \lambda f(\hat{z}_R) (\partial \Delta_0^r(\theta_0, \theta^L) / \partial \theta^L)}{(1 - \lambda) f(\hat{z}_P) + \lambda f(\hat{z}_R)},$$

where  $\hat{z}_P \equiv -\Delta_0^p(\theta_0, \theta^L) - \eta_0^*(\theta_0, \theta^L)$  and  $\hat{z}_R \equiv -\Delta_0^r(\theta_0, \theta^L) - \eta_0^*(\theta_0, \theta^L)$ . The differentiation of  $\Delta_0^p(\theta_0, \theta^L)$  and  $\Delta_0^r(\theta_0, \theta^L)$ , defined respectively in (13) and (14), with respect to  $\theta^L$  leads to

$$\frac{\partial \Delta_0^p(\theta_0, \theta^L)}{\partial \theta^L} = \beta \frac{\partial U_1^p(\theta^L)}{\partial \theta^L} = \beta \{ a^p - [1 - \Phi(\eta_1^*(\theta^L))] \hat{\tau} \lambda a^p - \phi(\eta_1^*(\theta^L)) \eta_1^{*'}(\theta^L) \Delta_1^p(\theta^L) \},$$

and

$$\frac{\partial \Delta_0^r(\theta_0, \theta^L)}{\partial \theta^L} = \beta \frac{\partial U_1^r(\theta^L)}{\partial \theta^L} = \beta \{ [1 - \Phi(\eta_1^*(\theta^L))] (1 - \lambda) \hat{\tau} a^p + \phi(\eta_1^*(\theta^L)) \eta_1^{*'}(\theta^L) (1 - \lambda) \hat{\tau} (a^r - \theta_1 a^p) \}.$$

From Lemma 2 follows that  $\eta_1^{*'}(\theta^L) > 0$  and, therefore, that  $\partial \Delta_0^r(\theta_0, \theta^L) / \partial \theta^L$  is always positive. The sign of  $\partial \Delta_0^p(\theta_0, \theta^L) / \partial \theta^L$  is instead generally ambiguous. However, as  $\hat{\tau} \downarrow 0$ ,  $\eta_1^{*'}(\theta_1) \downarrow 0$ , and  $\partial \Delta_0^p(\theta_0, \theta^L) / \partial \theta^L > 0$ , which in turn implies that  $\partial \eta_0^*(\theta^L) / \partial \theta^L < 0$ .

We now show that  $\partial V_0^P(\theta^L) / \partial \theta^L > 0$  for all  $\theta^L \in [0, 1]$  when  $\hat{\tau}$  is small enough and  $\delta$  is relatively high.

From (10), it follows that

$$V_1^P(\theta^L) - V_1^P(1) = \theta_1 a^p + [1 - \Phi(\eta_1^*(\theta_1))] [\delta + \Delta_1^p(\theta^L)] - a^p - [1 - \Phi(\eta_1^*(1))] [\delta + \Delta_1^p(1)],$$

and substituting this expression and (11) into (18), we obtain that

$$\begin{aligned} \partial V_0^P(\theta^L) / \partial \theta^L &= [1 - \Phi(\eta_0^*(\theta^L))] \beta a^p \{ 1 - [1 - \Phi(\eta_1^*(\theta^L))] \hat{\tau} \lambda \} \\ &\quad - [1 - \Phi(\eta_0^*(\theta^L))] \beta \phi(\eta_1^*(\theta^L)) \eta_1^{*'}(\theta^L) [\hat{\tau} \lambda (a^r - \theta_1 a^p) + \delta] \\ &\quad - \phi(\eta_0^*(\theta^L)) \frac{\partial \eta_0^*(\theta^L)}{\partial \theta^L} \beta \{ [1 - \Phi(\eta_1^*(\theta^L))] [\delta + \Delta_1^p(\theta^L)] - [1 - \Phi(\eta_1^*(1))] [\delta + \Delta_1^p(1)] \} \\ &\quad - \phi(\eta_0^*(\theta^L)) \frac{\partial \eta_0^*(\theta^L)}{\partial \theta^L} [\delta - \beta(1 - \theta^L) a^p]. \end{aligned} \tag{25}$$

The first and second term of (25) are respectively positive and negative since  $\eta_1^{*'}(\theta^L) > 0$ .  $\partial \eta_0^*(\theta^L) / \partial \theta^L < 0$  ensures that the third term is positive; in fact, from  $\theta^L < 1$  follows that  $\Delta_1^p(\theta^L) > \Delta_1^p(1)$ , and  $\eta_1^{*'}(\theta^L) > 0$  implies that  $\eta_1^*(\theta^L) < \eta_1^*(1)$  and that  $\Phi(\eta_1^*(\theta^L)) < \Phi(\eta_1^*(1))$ . The fourth term has an ambiguous sign depending on the level of the rents from office; however, this term is positive when the rents are sufficiently high, i.e.  $\delta > \tilde{\delta} \equiv \beta a^p$ .

As  $\hat{\tau} \downarrow 0$ ,  $\eta_1^{*'}(\theta_1) \downarrow 0$ , and the second term of (25) tends to zero. If  $\delta > \delta^{**} \equiv \max\{\delta^*, \tilde{\delta}\}$ , then  $\partial V_0^P(\theta^L) / \partial \theta^L$  is positive for all  $\theta^L \in [0, 1]$ .<sup>43</sup> This means that the ex-ante welfare of the Left is globally strictly increasing in  $\theta^L$  and, therefore, it is maximized at  $\theta^L = 1$ . This result completes the proof of the Lemma.

#### 11.4 The Possibility of Entrenchment by the Right

We here show that also the Right might pursue entrenchment policies damaging their own constituency in order to obtain electoral gains. In particular, we now assume that the pre-tax income of each high-skill agent is

$$a^r(\theta; \gamma) = (1 + \gamma \theta) a^r,$$

<sup>43</sup>We remind that  $\delta^*$  guarantees that  $V_1^P(\theta_1; \delta)$  is everywhere decreasing in  $\theta_1$  for any  $\delta > \delta^*$  so that  $\theta_1^* = \theta^L$  (see Proposition 3 for details).

where  $\gamma$  can be positive or negative. To make sure that the rich have a pre-tax income higher than the poor for any level of  $\theta$ , we make the following assumption.

**Assumption 4**  $\gamma > (a^p/a^r) - 1 \equiv \underline{\gamma}$ .

The aggregate and average level of income can now be written as

$$\bar{a}(\theta; \gamma) \equiv \lambda a^r + [\lambda \gamma a^r + (1 - \lambda) a^p] \theta.$$

Note that when  $\gamma > 0$  the income of both groups, the high-skilled and the low-skilled, is increasing in  $\theta$ . Therefore, a reduction of  $\theta$  harms both groups, thus generating an inefficient outcome. Conversely, when  $\gamma < 0$  the pre-tax income of the rich is decreasing in  $\theta$  and a reduction of  $\theta$  harms the poor and benefit the rich, but it may increase or decrease aggregate output; this case may capture those policies that damage directly the unskilled but benefit directly the skilled, such as permitting the immigration of unskilled labor, which corresponds to a reduction of  $\theta$  when  $\gamma < 0$ . The following Corollary summarizes these points.

**Corollary 2** *A change in  $\theta$  has the following effects on individual and aggregate productivity.*

1. *If  $\gamma > 0$ , a fall in  $\theta$  harms both groups, and reduces aggregate output; hence, the socially efficient value of  $\theta$  is 1.*
2. *If  $\gamma < 0$ , a fall in  $\theta$  harms the poor and benefits the rich. Moreover,*
  - 2a. *if  $-(1 - \lambda)a^p/\lambda a^r < \gamma < 0$ , a fall in  $\theta$  leads to aggregate productivity losses; hence, as in the baseline model, the socially efficient value of  $\theta$  is 1;*
  - 2b. *if  $\gamma < -(1 - \lambda)a^p/\lambda a^r$ , a fall in  $\theta$  leads to aggregate productivity gains; hence, the socially efficient value of  $\theta$  is  $\theta^L$ .<sup>44</sup>*

The analysis of the equilibrium of the subgame played at time  $t = 1$  is basically unchanged and will not be repeated in detail. In particular, since the value of  $\theta_1$  has been already determined at this point, the only action happening in the second stage of the game is the counting of votes. Again, there will exist a threshold value  $\eta_1^*(\theta_1)$  such that the Left wins when  $\eta > \eta_1^*(\theta_1)$ , and vice versa.

To understand the incentives of the two parties to manipulate strategically  $\theta_1$  in this new environment, it is useful to look at net value of fiscal redistribution for the two income groups, which is the endogenous determinant of the period 1 voting rules.<sup>45</sup> The net value of the fiscal

<sup>44</sup>This last range of parameters is non-empty if and only if  $a^p/a^r < \lambda$ , which is the case when  $\underline{\gamma} < -(1 - \lambda)a^p/\lambda a^r$ .

<sup>45</sup>We recall that citizen  $i \in \{p, r\}$  votes for party  $P$  at time 1 if  $U_1^i(\eta_1, \varepsilon_1^i, \theta_1 | \rho_1 = P) \geq U_1^i(\eta_1, \varepsilon_1^i, \theta_1 | \rho_1 = R)$ , i.e.,  $\varepsilon_1^{i,\chi} \geq -\Delta_1^\chi(\theta_1) - \eta_1$ , for  $\chi \in \{p, r\}$ .

transfer obtained by the poor and the rich when the Left is in power is respectively given by

$$\Delta_1^p(\theta_1; \gamma) = \hat{\tau}\lambda [(1 + \gamma\theta_1)a^r - \theta_1 a^p], \quad (26)$$

and

$$\Delta_1^r(\theta_1; \gamma) = -\hat{\tau}(1 - \lambda) [(1 + \gamma\theta_1)a^r - \theta_1 a^p]. \quad (27)$$

Differentiating these expressions with respect to  $\theta_1$ , we obtain that

$$\partial\Delta_1^p(\theta_1; \gamma)/\partial\theta_1 = \hat{\tau}\lambda(\gamma a^r - a^p),$$

and

$$\partial\Delta_1^r(\theta_1; \gamma)/\partial\theta_1 = -\hat{\tau}(1 - \lambda)(\gamma a^r - a^p).$$

The main difference with the baseline model is that  $\Delta_1^p(\theta_1; \gamma)$  and  $\Delta_1^r(\theta_1; \gamma)$  may now increase or decrease with  $\theta_1$  depending on the value of  $\gamma$ . As we will see, there exists now conditions under which the Right may have the incentive to entrench itself, i.e., to reduce the future income of its constituency in order to consolidate its political power. Moreover, if the political rents  $\delta$  appropriated by incumbent politicians are sufficiently high, social welfare (measured by aggregate output) will not necessarily be reduced by entrenchment policies and may in some cases even increase, in contrast to the baseline model where higher levels of  $\delta$  never raise aggregate output.<sup>46</sup>

It is useful to remember that the value of  $\theta_1$  chosen by the party in office in the first period is affected by two forces. As parties are partially benevolent, they tend to choose the value of  $\theta_1$  that maximizes the income of their own natural constituency. However, as they are partially selfish, they also take into account the effect of  $\theta_1$  on their probability of winning the elections in the following period. In particular, from  $\sigma_1^R(\theta_1) = \Phi(\eta_1^*(\theta_1))$  follows that the effect of  $\theta_1$  on the probability of the Right of winning the elections at time 1 is

$$\frac{\partial\sigma_1^R(\theta_1)}{\partial\theta_1} = \phi(\eta_1^*(\theta_1))\eta_1^{*'}(\theta_1), \quad (28)$$

which has the same sign of  $\eta_1^{*'}(\theta_1)$ . By differentiating equation (9) with respect to  $\theta_1$ , we obtain that

$$\eta_1^{*'}(\theta_1) = \lambda(1 - \lambda)\hat{\tau}(a^p - \gamma a^r) \frac{f(z_P) - f(z_R)}{(1 - \lambda)f(z_P) + \lambda f(z_R)}, \quad (29)$$

where  $z_P$  and  $z_R$  are defined as in Lemma 2 and where  $\Delta_1^p(\theta_1; \gamma)$  and  $\Delta_1^r(\theta_1; \gamma)$  in (26) and (27) replace  $\Delta_1^p(\theta_1)$  and  $\Delta_1^r(\theta_1)$ . From (29) it is immediate that the sign of  $\eta_1^{*'}(\theta_1)$  is the same

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<sup>46</sup>We recall that, in the baseline model, higher political rents have either no effect on the choice of  $\theta_1$ , and therefore on social welfare, if the Right is in office, or they are potentially welfare-reducing when the Left is in power since they make entrenchment more valuable.



as of  $(a^p - \gamma a^r)$ . Therefore, if  $a^p - \gamma a^r > 0$ , then  $\eta_1^{*'}(\theta_1) > 0$ , and higher levels of  $\theta_1$  increase the probability of the Right of winning the elections at time 1, and vice versa.<sup>47</sup>

The optimal level of  $\theta_1$  for the Right can be derived from the value of party  $R$  at  $t = 1$

$$V_1^R(\theta_1; \delta) = (1 + \gamma\theta_1)a^r + \Phi(\eta_1^*(\theta_1))\delta + [1 - \Phi(\eta_1^*(\theta_1))] \Delta_1^r(\theta_1; \gamma),$$

which implies that

$$\frac{\partial V_1^R(\theta_1; \delta)}{\partial \theta_1} = \gamma a^r + [1 - \Phi(\eta_1^*(\theta_1))] \hat{\tau} (1 - \lambda) a^p + \phi(\eta_1^*(\theta_1)) \eta_1^{*'}(\theta_1) [\delta - \Delta_1^r(\theta_1; \gamma)]. \quad (30)$$

Finally notice that the expressions in (10) and (11) to determine the optimal level of  $\theta_1$  for the Left are still valid with the caveat that the net transfer is now given by (26).

#### 11.4.1 Case 1a. $\gamma > a^p/a^r$

In this case, a higher level of  $\theta$  also increases the income of the high-skill individuals, so increasing aggregate output. Therefore, both parties should choose  $\theta_1 = 1$  to maximize the income of their own constituencies. However, from  $\eta_1^{*'}(\theta_1) < 0$  (as  $a^p - \gamma a^r < 0$ ) it follows that the Right can increase the probability of winning the elections at time 1 by choosing values of  $\theta_1$  lower than 1. In other words, the entrenchment strategy may be optimal for the Right, while the Left will now choose the efficient level of  $\theta_1 = 1$  as this also maximizes its probability of winning future elections.

In particular, as the first two components of (30) are positive,  $\Delta_1^r(\theta_1; \gamma) < 0$ ,  $\eta_1^{*'}(\theta_1) < 0$ , and  $\eta_1^*(\theta_1)$  is independent on  $\delta$ , then  $\partial V_1^R(\theta_1; \delta)/\partial \theta_1$  is linearly increasing in  $\delta$  and positive at  $\delta = 0$ . This means that  $V_1^R(\theta_1; \delta)$  is monotonically increasing in  $\theta_1$  for all  $\theta_1 \in [\theta^L, 1]$  if  $\delta$  is lower than a certain threshold  $\hat{\delta}$ . This implies that there is no entrenchment by the Right, which will choose  $\theta_1 = 1$ , when the rents from office are relatively low. However, there exists a level of rents,  $\bar{\delta}$ , such that  $\partial V_1^R(\theta_1; \delta)/\partial \theta_1 < 0$  for all  $\theta_1 \in [\theta^L, 1]$  when  $\delta \geq \bar{\delta}$ . This means that  $V_1^R(\theta_1; \delta)$  is monotonically decreasing in  $\theta_1$  and party  $R$  will choose  $\theta_1^R = \theta^L$ . In other words, high levels of rents may lead the Right to choose the entrenchment strategy, i.e., lower values of  $\theta$  in order to increase its probability of winning future elections at the expense of its constituency. The entrenchment strategy may also be optimal for intermediate values of  $\delta$ . In this case, the third term in (30) is negative but not too high, and the optimal value of  $\theta_1$  for party  $R$  could be interior, i.e.,  $\theta_1^R \in (\theta^L, 1)$ . Finally notice that the negative effect of  $\delta$  on  $\theta_1^R$  can also be shown from the fact that

$$\frac{\partial^2 V_1^R(\theta_1; \delta)}{\partial \theta_1 \partial \delta} = \phi(\eta_1^*(\theta_1)) \eta_1^{*'}(\theta_1) < 0, \quad (31)$$

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<sup>47</sup>The opposite result holds for the probability of the Left  $\sigma_1^P(\theta_1)$  of winning the elections at time  $t = 1$ .

meaning that the objective function of the Right is submodular in  $\theta_1$  and  $\delta$ , and therefore that  $\partial\theta_1^R/\partial\delta \leq 0$ .

#### 11.4.2 Case 1b. $0 < \gamma < a^p/a^r$

Again, as  $\gamma > 0$ , higher levels of  $\theta$  increase the income of the high-skill citizens and aggregate output, so that  $\theta_1 = 1$  maximizes the income of both constituencies. However, as  $a^p - \gamma a^r > 0$ , then  $\eta_1^{*'}(\theta_1) > 0$  and the situation is similar to the baseline model when only the Left has the incentive to choose inefficient values of  $\theta_1$  in order to increase its electoral advantage in the following period.

#### 11.4.3 Case 2. $\gamma < 0$

When  $\gamma$  is negative,  $\theta_1 = \theta^L$  is the level that maximizes the income of the high-skill individuals. Moreover,  $\gamma < 0$  implies that  $a^p - \gamma a^r > 0$  and  $\eta_1^{*'}(\theta_1) > 0$ , so that the probability of the Right of winning the elections at time 1,  $\sigma_1^R(\theta_1)$ , is increasing in  $\theta_1$  (see (28)). This means that the Right may have the incentive to choose high levels of  $\theta_1$ , and in the limit case  $\theta_1 = 1$ , even though this reduces the income of the rich. The expression in (30) contains both positive and negative components. However, when the rents from office  $\delta$  are sufficiently high, the third term in (30) is likely to be so high and positive that  $\partial V_1^R(\theta_1; \delta)/\partial\theta_1 > 0$  for all  $\theta_1 \in [\theta^L, 1]$ . This means that  $V_1^R(\theta_1; \delta)$  is monotonically increasing in  $\theta_1$  and the Right will find optimal the entrenchment strategy by choosing  $\theta_1^R = 1$ . In this respect, it is useful to observe that  $V_1^R(\theta_1; \delta)$  is supermodular in  $\theta_1$  and  $\delta$  as from (31) follows that  $\partial^2 V_1^R(\theta_1; \delta)/\partial\theta_1\partial\delta > 0$ , since  $\eta_1^{*'}(\theta_1) > 0$ , and therefore that  $\theta_1^R$  is nondecreasing in  $\delta$  (i.e.,  $\partial\theta_1^R/\partial\delta \geq 0$ ). This is another case where Right has the incentive to entrench itself by choosing a policy that maximizes its benefits at the expense of its constituency.

As in the baseline model,  $\theta_1 = 1$  is the level of  $\theta$  that maximizes the income of the low-skill producers and the Left has still the incentive to choose low levels of  $\theta$  as this increases its chances of winning future elections and getting office rents.

Finally notice that we can distinguish two cases when  $\gamma < 0$ , depending on whether a fall in  $\theta_1$  raises or lower aggregate output. Hence, when  $-(1-\lambda)a^p/\lambda a^r < \gamma < 0$  (Case 2a in Corollary 2), a reduction of  $\theta_1$  raises the productivity of the rich but it is socially inefficient. Therefore, a “selfish” right-wing party that cares mainly of office rents (i.e., when  $\delta$  is large) may choose for electoral reasons a high level of  $\theta_1$  that harms its own constituency but, nonetheless, it pursues the efficient policy. Conversely, when  $\gamma < -(1-\lambda)a^p/\lambda a^r$  (Case 2b in Corollary 2), a fall in  $\theta_1$  leads to aggregate productivity gains. In this case, the entrenchment by the Right,

i.e. high levels of  $\theta_1$ , is socially inefficient, while the entrenchment by the Left, which chooses low values of  $\theta_1$  is socially efficient. In other words, we obtain the somewhat paradoxical result that greater political rents may now be potentially welfare improving, in the sense that they induce the Left to entrench itself more and raise aggregate output. This case is particularly interesting because a reduction of  $\theta_1$  corresponds to those policies that benefit the rich, increase aggregate output, but have a direct negative effect on the income of the unskilled, such as a trade liberalization in a capital-rich economy or liberal immigration policies.

The following lemma summarizes the main results of this section.

**Lemma 8** *If the level of rents from office  $\delta$  is sufficiently high, then party R may choose the entrenchment strategy when  $\gamma > a^p/a^r$  or  $\gamma < 0$ . In the former case, the income of the rich is maximized at  $\theta_1 = 1$ , the Right chooses  $\theta_1^R < 1$  and entrenchment always produces aggregate productivity losses. In the latter case, the income of the rich is maximized at  $\theta_1 = \theta^L$ , the Right chooses  $\theta_1^R > \theta^L$  and entrenchment produces aggregate productivity gains when  $-(1 - \lambda)a^p/\lambda a^r < \gamma < 0$ . When  $\gamma < -(1 - \lambda)a^p/\lambda a^r$ , the entrenchment strategy by the Left, which chooses  $\theta_1^P < 1$  is socially efficient.*

## 11.5 The Importance of the Theory for Term Limits

According to the standard models of Barro (1973) and Ferejohn (1986) elections allow the citizens to (partially) solve the potential moral hazard problem of incumbent politicians, who can be induced not to appropriate for themselves too much resources by the implicit threat of non being reelected in the future. Persson, Roland and Tabellini (1997) reach essentially the same conclusion in a model featuring a richer description of political institutions.

In these frameworks, a term limit is unambiguously welfare reducing since it forces voters not to reappoint a politician in office *regardless* on its performance. Therefore, under a term limit elections lose part of their efficacy as discipline device, which implies that the implicit contract offered by the voters to incumbent politicians must allow the latter to appropriate greater rents. This result raises the natural question of why many real world constitutions prescribe term limits for elections held either at the national or at the local level.

In this Section, we take a first step toward addressing this puzzle, by extending the baseline model assuming the existence of a constitutionally legislated term limit, which prevents an individual politician, *but not its own party*, in office in the first period to compete for office in the second period. The main result is that a term limit may be beneficial for society (i.e., the

sum of rich and poor citizens) as it reduces the scope for political entrenchment.<sup>48</sup>

Let us now assume that the politicians initially in power are partially altruistic toward their own party, in the sense that their utility in the second period of the game (where they are *never* in office due to the presence of a term limit) is equal to a fraction  $\epsilon \in [0, 1]$  of the rents  $\delta$  potentially appropriated by their party at that point. The parameter  $\epsilon$  can be interpreted in a variety of ways. For example, it can reflect a genuine concern of the politicians for its own party. Alternatively,  $\epsilon$  may capture the degree of “party discipline,” or “party strength” defined as the capacity of a party to align the preferences (and decisions) of its members in office to its own preferences (see Grossman and Helpman, 2008).<sup>49</sup> More generally, this assumption is in the spirit of the observation (e.g., Alesina and Spear, 1988) that political parties are more durable, and have longer horizons, than politicians.

Formally, the lifetime preferences of a politician from party  $J \in \{P, R\}$  under term limits can be represented as follows

$$\mathbf{v}_0^{J,TL} = \mathbb{E}_0 \sum_{t=0}^1 \beta^t v_t^{J,TL},$$

with

$$v_t^{J,TL} = (1 - \tau_t) a_t^j + G_t + (t(\epsilon - 1) + 1) \delta_t,$$

for  $t \in \{0, 1\}$ .

The analysis of the equilibrium in presence of terms limits is straightforward since the objective function of party  $J$  at time  $t = 0$  is the same as in the baseline model, while it contains the term  $\epsilon\delta$  rather than  $\delta$  at time  $t = 1$ . Therefore, the structure of the equilibrium and its comparative statics properties are essentially the same as before. In particular, the objective function of party  $P$  at time  $t = 1$  is submodular in  $\epsilon$ ; by standard monotone comparative statics results this implies that, conditionally on the presence of term limits, greater party discipline (i.e., higher  $\epsilon$ ) leads to a (weakly) higher entrenchment as it induces the politicians to act more in line with the preferences of their own party. In the limit case of  $\epsilon = 1$ , party discipline is so strong that the politician in office at period  $t = 0$  behaves as perfect agent of its own party, maximizing the party’s continuation value, and choosing the same value of  $\theta_1$  that it would

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<sup>48</sup>We do not provide here a complete positive theory of term limits (which is beyond the purpose of this paper) since in our framework term limits will have only beneficial effects for society (i.e., they reduce the scope for entrenchment at zero cost). A general positive theory of term limits should incorporate both the benefits (such as those we emphasize) and the costs (such as those emphasized by the models of Barro, 1973, and of Ferejohn, 1986), and explain how the corresponding trade-off is resolved. See Smart and Sturm (2013) for a dynamic model of political agency where term limits may improve social welfare, but for a different rationale than reducing the scope for political entrenchment.

<sup>49</sup>One way of achieving this goal could be, for instance, to offer to the former incumbent leader a premier position in the party’s apparatus.

choose in absence of term limits (in this case, term limits are irrelevant). In the polar case of  $\epsilon = 0$ , conversely, a term limit is maximally effective since it induces a left-wing politician to act as perfect agent of its own constituency, as in the case were there are no political rents ( $\delta = 0$ ), and therefore to set  $\theta_1^P = 1$ . As already noted, though, entrenchment may still arise in such a case, but it would then also increase the expected welfare of the poor.

We conclude this section by observing that term limits themselves are not necessary a panacea to political moral hazard problems, as the extent to which term limits actually reduce the incentives of incumbent politicians to implement policies of entrenchment depends critically on the degree of party discipline.<sup>50</sup>

## 12 References Appendix B

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<sup>50</sup>It is interesting to notice in this regard that, consistently with our theory, term limits for the Presidency are widely prescribed by Latin American constitutions, and that in Latin America political parties tend to be remarkably weak organizations (see for example Mainwaring and Shugart, 1997).