Conditionality, Compliance, and Domestic Interests: State Capture and EU Accession Policy*

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Abstract

States and international organizations often attempt to influence the behavior of a target government by employing conditionality - i.e., they condition the provision of some set of benefits on changes in the target's policies. Conditionality may give rise to a commitment problem: once the proffered benefits are granted, the target's incentive for continued compliance declines. In this paper, I document a mechanism by which conditionality may induce compliance even after these benefits are distributed. If conditionality alters the composition of domestic interest groups in the target state, it may induce permanent changes in the target government's behavior. I construct a dynamic model of lobbying that demonstrates that conditionality can reduce long-term levels of state capture. And I test the model's predictions using data from the accession of Eastern European countries to the EU.

1 Introduction

Governments and international organizations often employ conditionality - i.e., they tie the provision of a bundle of benefits to the enactment of a given set of policies - to influence the behavior

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of targeted states. The IMF regularly conditions the provision of emergency loans on the adoption of budgetary and monetary reforms. The World Bank has required that governments take explicit steps to address corruption before lending support to development projects. The US's Millennium Challenge Fund requires that countries meet certain institutional requirements before loans are disbursed.

While conditionality may prove an effective tool for influencing policy in the short-term; there is reason to expect non-compliance in the long run.[1] Once the loan is fully disbursed or the development project is completed, the target government's incentive to comply with the terms of the agreement is substantially weakened. For instance, in 2008 the Chadian government abrogated an agreement with the World Bank whereby the government was to devote the revenues generated by a Bank funded gas pipeline to development projects. Instead, funds from the project were syphoned to the Chadian military.[2] Once the project was completed, the Chadian government faced no incentive to comply with the bargain struck with the Bank. Such commitment problems should plague agreements that use conditionality more generally.

Yet conditionality sometimes appears to induce compliance by the target government that continues even after benefits are distributed. For instance, reforms wrought during the EU accession process have persisted in many Eastern European EU member-states (Levitz and Pop-Eleches, 2009). This despite a decline in the EU's ability to enforce compliance once membership is granted (Gray, 2009; Levitz and Pop-Eleches, 2009; Pridham, 2008).

The puzzle of compliance is particularly vividly illustrated by EU accession policy with regards to corruption and *state capture*.[3] To gain admittance to the EU, Eastern European applicant states were required to take a number of steps to address corruption and state capture that was rife during the early to middle 1990s. As shall be documented in greater detail below, entrants

[1] Indeed, there may be reason to suspect non-compliance even in the short term. Studies of IMF conditionality find high levels of non-compliance based on a variety of measures (for a comprehensive overview see Vreeland, 2006). In keeping with the findings of this paper, there is evidence that domestic special interests (Ivanova et al., 2001) affect levels of short-term compliance; as do domestic political institutions such as democracy (Dreher, 2006; Joyce, 2004).

[2] Breaking the Bank, *The Economist*. September 25, 2008. `http://www.economist.com/world/mideast-africa/displaystory.cfm?story_id=12305409`

[3] State capture here is defined as the ability of an organized interest group to determine state policy. For more on state capture in Eastern Europe see Hellman et al. (2000). Stigler (1971) and Peltzman (1976) pioneer theories of regulatory capture. This phenomenon may be thought of as analogous to state capture, but on a narrower scale.

to the EU implemented such reforms during the accession period, in part to gain member-state status. Yet, despite the weakening of EU influence after membership was granted, backsliding on these reforms has been largely absent.

Below, I develop an argument as to why entrants to the EU maintain low levels of state capture following accession. I suggest that these reforms may have given rise to new domestic interest groups, diminishing the power of existing elites. I demonstrate that situations of pervasive state capture, as were common in much of early to mid-1990s Eastern Europe, may be particularly vulnerable to external intervention. In such situations, elites devote costly effort to capturing the state precisely because they stand to loose influence if new interest groups emerge. By conditioning benefits on the implementation of policies likely to promote the emergence of such new interests, external actors such as the EU may be able to affect long-term levels of state capture.

In Section 2 below, I further discuss the puzzle of the persistent effects of conditionality in the context of EU accession. I then discuss the mechanisms through which conditionality may have had a persistent effect on state capture in Eastern Europe in Section 3. Section 4 discusses how this argument relates to the existing literature. In Section 5, I develop a formal model of state capture and conditionality. This model captures the dynamics of lobbying and firm entry and suggests that firms are most likely to engage in costly lobbying in time t if the entry of other firms leads to a loss of influence in time $t + 1$.[4] Section 6 tests several of the empirical implications of this theory. Section 7 concludes.

2 State Capture and the Application Process

The admission process to the EU may be thought of as having employed a form of conditionality, particularly in regards to Eastern European applicant countries (Vachudova, 2005). The Copenhagen Criteria of 1993 required that, before membership could be granted, transitional countries

[4]Throughout the paper, I refer to 'lobbying' as encompassing both licit and illicit efforts to influence government behavior. State capture may result from both forms of lobbying; though corruption only properly refers to illicit efforts. The theoretical model developed below, which is built on the Grossman and Helpman (1994) framework, does not distinguish between licit and illicit lobbying. In this framework, lobbying is modeled in a very reduced form and general manner, and simply reflects the exchange of benefits for influence over the legislative process. The simplified manner in which lobbying is modeled is sufficient to develop theoretical predictions, without generating undue complexity by differentiating between difference forms of influencing the legislature.

had to exhibit (1) stability of democratic institutions and the enforcement of the rule of law and human rights; (2) the existence of a market economy; (3) harmonization with EU law and regulations; and (4) the ability to withstand market competition with EU-based companies (Albi, 2005; Avery and Cameron, 1998; van Oudenaren, 2000). More specific benchmarks were set forth in the *acquis communautaire*. The *acquis* consists of a body of EU law and regulations with which applicant countries had to reach a certain degree of compliance (Vachudova, 2005). The EU was explicit that no room for negotiation over the *acquis* existed. Save for temporary and technical changes, applicant countries had to adopt existing EU legislation of whole-cloth.

Corruption and state capture proved to be some of the major issues Eastern European applicant states had to address to gain admission to the EU.[5] Concern over corruption became widespread in the wake of the privatization of state-owned enterprises in the early 1990s. Following this mass privatization, ownership of productive assets in Eastern Europe had become remarkably concentrated. The bulk of economic activity in many Eastern European economies took place in large firms with 500-1000 employees. Extensive cross-holdings became common in Hungary. Poland promoted the creation of powerful majority ("core") shareholders. Voucher privatization in the Czech Republic concentrated ownership in the hands of former state enterprise managers (Frydman and Rapaczynski, 1994). Such concentration was widely seen as the result of privatization processes designed to benefit a small set of political insiders.

The concentration of economic resources in the hands of a few actors created the potential for these actors to undermine further economic reform. Far from generating interest groups supportive of liberalization, the privatization process created concentrated special interests interested in exploiting their market power. To continue to do so, these interests used political leverage to prevent the further liberalization of markets and the entry of new firms (Frydman and Rapaczynski, 1994; Hellman, 1998; Jackson et al., 2005). These 'oligarchs' were able to exercise such influence in part due to the degree of economic concentration. Concentration diminished barriers to collective action and lessened the effect of potential problems of common agency (Olson, 1971; Grossman and

[5]For instance, the EU Commission, in a strategy paper on enlargement, listed the "fight against corruption" as one of the elements - along with civil rights and human rights - as issues of central concern to the political Copenhagen Criteria (as cited in Vachudova, 2005: 122).

Helpman, 1994). Small bands of oligarchs were often able to collude in the lobbying of Eastern European governments, increasing their influence over policy.[6]

The EU took several measures to address corruption and state capture through the application process. In the Commission's Opinions on applicant states in 1997,[7] the judicial system was mentioned as a target of reform for nearly every applicant state (Avery and Cameron, 1998). In the late 1990s, the European Commission demanded the abolition of the system of patronage used to award civil service positions in the Czech Republic. The Czechs eventually created an independent civil service under the threat of Commission sanctions in 2000 (Vachudova, 2005). More recently, the EU demanded extensive anti-corruption efforts from Romania, Bulgaria, and Croatia as a condition of membership.[8]

The EU thus conditioned membership on the adoption of policies designed to fight corruption and state capture. However, once admission to the EU was granted, the set of sanctions available to punish violations of the Copenhagen criteria or the failure to adopt or enforce the *acquis* diminished. While expulsion from the Union was theoretically possible; the threat of expulsion was generally not credible. Membership status granted accessor states the right to participate in the EU decision making process, which subjects most measures to super-majority or unanimous decision rules (Beetsma and Debrun, 2005; Vachudova, 2005). Even if they could not veto punitive measures directly, new member-states could deter punishment by threatening to induce gridlock on other issue dimensions. Gray (2009: 946) notes that "many have claimed that the EU's only moment of actual leverage is in the accession stage," and finds that the EU membership process has the largest effect on accessor country bond yields *before* membership is granted.[9]

[6]The Russian case, while not directly applicable to EU accession, is particularly instructive. Guriev and Rachinsky (2005) document how oligarchic elites were able to band together to form their own lobbying organization (the RSPP) to influence government actions. Klebnikov (2000) documents the extensive influence wielded by a small band of oligarchic elites in Yeltsin's 1996 election campaign.

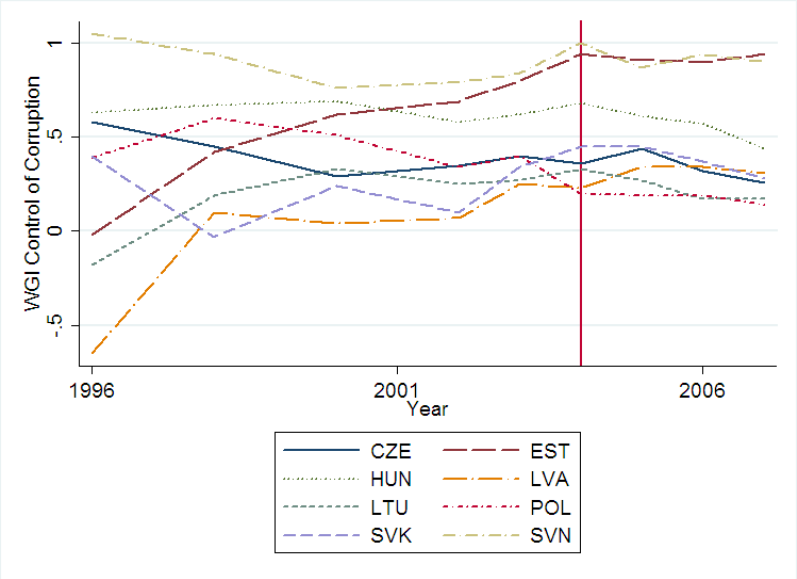
[7]Opinions were issued regarding the progress of each of the new applicants and were subsequently integrated into the Agenda 2000 report. This report would establish the framework for negotiations between Eastern European countries and the EU through 2007.

[8]Cleaning up the Act, *The Economist.* November 20, 2008. `http://www.economist.com/world/europe/displaystory.cfm?story_id=12636216`

[9]EU enforcement in other areas has also been found to be weak. The European Growth and Stability Pact established fiscal policy targets for Economic Monetary Union members, enforceable by fines and other punitive measures. But despite violations of these targets, the EU has been reticent to resort to punitive measures and has instead weakened the requirements imposed on member-states (Annett, 2005; Beetsma and Debrun, 2005; Buti et al., 2003). On related lines, Franzese and Hays (2006) find substantial free riding in active labor market policies, despite

This is not to argue that the EU lost all influence over new member-states at the point of accession. Funds could be withheld in response to some violations. Indeed, several hundred million euros intended for distribution in Bulgaria were frozen in 2008 as a result of that country's lack of progress in tackling corruption.[10] However, the degree of punishment that might have been expected for failing to uphold the conditions of admission into the EU after accession was granted was small relative to the benefits of admission. As Vachudova (2005: 236) notes, "[the new member-states'] bargaining power has increased tremendously." Therefore, one might expect EU accession to produce the same types of comliance problems suffered under other forms of conditionality. Once membership was granted, countries would be predicted to backslide on commitments made during the application process.

Figure 1: WGI Control of Corruption v. Time



WGI measures of the control of corruption plotted against time. Increasing values of the WGI variable indicate greater control of corruption, decreasing values indicate higher levels of corruption. The full scale runs from -2.5 to 2.5. The vertical line indicates the date of accession to the EU. Only members of the 2004 class of EU entrants are plotted.

efforts to coordinate these policies through the European Economic Strategy.

[10] Brussels Busts Bulgaria, *The Economist* July 17, 2008. `http://www.economist.com/world/europe/displaystory.cfm?story_id=11751745`

Figure 1 plots WGI control of corruption measures[11] over time to look for such an effect in the 2004 class of admitted states. Surprisingly, there does not appear to be much evidence of a sharp increase in corruption following EU accession. Indeed, some countries (e.g., Latvia) continue to improve their control of corruption after accession. Others (e.g., Slovakia) experience a slight increase in corruption, as measured by the WGI index. But there is little evidence of a dramatic break with previous trends in any of the time-series. Rather, those countries with the worst initial levels of corruption (e.g., the Baltic states) appear to make large improvements in the 1990s and early-2000s, and to hold steady thereafter. Countries that performed well initially (e.g., Slovenia and Hungary) appear to vary little over time in the prevalence of corruption.

The raw time series plotted in Figure 1 produce similar results to the more systematic analysis of Levitz and Pop-Eleches (2009). In a series of cross-national time-series cross-section regressions, these authors find little evidence of backsliding by the new Eastern European members of the European Union across a variety of measures of democracy and governance - including corruption. Indeed, these countries have continued to improve on their performance on corruption indicators relative to non-member-states; though the rate of improvement has declined slightly since accession.

What then explains the continued compliance of new member-states with EU conditionality? If the threat of punishment has declined, why don't governments in these states resort to earlier - more corrupt - ways of conducting business?

In this paper, I suggest one mechanism by which conditionality may induce long-term compliance and reductions in state capture. Changes in domestic policies brought about by EU conditionality may have led to the emergence of new domestic interests in Eastern European states. More specifically, the temporary reduction of the power of established economic elites resulting from conditionality may have led to the entry of new firms. There is substantial reason to believe that these new firms advocated different policies than those preferred by old elites. The resultant pluralism of interests may have directly led to the decline in the influence of any one group over the government. However, I demonstrate below that the possibility of capture may have been reduced

[11]The World Bank's World Governance Indicators (WGI) describe governments' performance across a variety of dimensions. The WGI measures are constructed from an unobserved components analysis used to assess the common variance in a large number of other sources (Kaufmann et al., 2007). Assigned values range from -2.5 to 2.5. For the control of corruption indicators, higher values indicate lower levels of corruption.

even if de novo firms advocated the same policies as existing elites. Collective action problems in influencing the government may have lessened the influence of established firms even when new entrants fully agreed with their policy aims. Either mechanism would lead to a persistent decline in elite influence. And, under either mechanism, this decline would be expected to be greatest when initial levels of capture were high.

Since some *de novo* firms formed during the application process continued to exist after accession to the EU, the new political economic equilibrium they induced also persisted. Therefore, if the EU application process encouraged the emergence of *de novo* firms, it may have produced long-term shifts in lobbying behavior and policy, despite the short-term nature of the incentives it provided.

3 Application and Domestic Interests

As discussed above, the privatization process following the collapse of communism led to the concentration of economic interests throughout Eastern Europe. The elites that emerged from privatization attempted to buttress their economic position by influencing the political process. Hellman (1998) termed this situation a *partial reform equilibrium.*[12] Elites empowered by the partial liberalization of markets and the privatization of state-owned enterprises used political leverage to delay further liberalization. In essence, established elites captured the state.

Hellman and Schankerman (2000) and Hellman et al. (2000) provide substantial empirical evidence for the existence of state capture. Their data reveal a pattern of discrimination against small firms and new market entrants. Smaller firms and new entrants to the marketplace paid higher taxes than large established firms. They also paid bribes to bureaucratic officials more frequently than their larger competitors. And they received lower levels of state subsidies and benefits. Such discrimination constituted a barrier to entry. Small *de novo* firms were less likely to be able to compete with larger established enterprises when faced with a hostile state. Knowing this, potential challengers were less likely to enter the marketplace while the state employed such discriminatory practices.

[12] In the sample of eventual EU member-states, Hellman classified Estonia, Bulgaria, Latvia, Lithuania, and Romania as trapped in partial reform equilibria. Though, he notes that concentrated influence by 'winners' in the transition from communism was a problem for Eastern European states more broadly.

In the model developed in Section 5 below, I demonstrate that oligarchs involved in a partial reform equilibrium are likely to be particularly vulnerable to a loss of influence driven by *de novo* firm creation. Existing elites are only willing to devote costly effort to influencing the state if they face significant losses should they fail to do so. *Ceteris paribus* existing elites are more likely to engage in state capture if they fear that the entry of new firms will lead to a loss in their ability to influence the government in the future. Partial reform equilibria, therefore, may be particularly vulnerable to external intervention.

The application process for EU membership may be thought of as just such an intervention. If the impetus provided by the EU admission process was sufficient to induce Eastern European governments to reduce barriers to entry, one would expect new firms to enter the marketplace. These firms would constitute a new domestic interest capable of lobbying the government. It is likely that these *de novo* firms were more supportive of economic and political liberalization than were existing elites. Jackson et al. (2005) find, using extensive survey evidence, that in Poland employees of firms created *de novo* after the transition from communism were significantly more supportive of liberal reforms than employees of privatized and state-owned firms. And one might anticipate that small *de novo* firms would be more likely to support such measures as financial market liberalization than were established oligarchic elites.[13]

However, if one is to attempt to draw broader implications from the Eastern European experience, it seems dangerous to assume that new entrants will necessarily be more supportive of liberalization than existing firms. In the formal sections to follow, I demonstrate that the entrance of new firms into the marketplace may reduce the influence of incumbents *even when the interests of new and old firms are perfectly aligned.* The presence of many firms may induce a collective action problem in lobbying the government,[14] causing levels of influence to fall.

Firm entry was particularly likely to cause a long-term decline in elite influence in Eastern European states, since these countries were characterized by extensive state capture. This effect is predicted to be particularly pronounced in those countries Hellman (1998) describes as exhibiting

[13]See Rajan and Zingales (2003) for a more developed exposition of this claim.

[14]On the collective action problem in lobbying see Bombardini (2008), Bombardini and Trebbi (2009), Olson (1971), Pecorino (2001).

a partial reform equilibrium. As noted above, elites are most likely to seek political influence - and thereby limit entry - when they are most vulnerable. This claim follows the logic of the chain-store paradox (Milgrom and Roberts, 1982). If the creation of even a small number of new firms is sufficient to significantly reduce elite influence over the state, existing oligarchs will devote substantial resources to preventing such entry. Failure to do so would leave them vulnerable to the gradual unraveling of their market dominance. Therefore, if one observes dominant firms exerting significant (costly) effort to control the state, one should conclude that these firms are particularly vulnerable to even a temporary interruption in that influence.

4 Related Literature

Several recent studies have examined the evidence for backsliding on EU commitments by new Eastern European member-states to reduce corruption, and have found this evidence mixed or wanting. Levitz and Pop-Eleches (2009) find no evidence of backsliding in areas of corruption and democratic governance from a time-series cross-section (TSCS) analysis run on a panel of post-communist states. Pridham (2008) conducts a qualitative examination of several policy areas - including corruption - in Latvia and Slovakia following accession. He finds mixed evidence for backsliding - in the area of corruption reform in Slovakia has stalled; whereas Latvia continued to progress.

Levitz and Pop-Eleches attribute the lack of backsliding to two causes: (1) the greater trade and aid dependence of the new member-states on other EU members following accession and (2) the changing attitudes of citizens in Eastern European members states as a result of migration flows with and travel to the West. The latter explanation is complementary to that offered in this paper. Changing citizen preferences may have helped to solidify changes brought about during the accession process. Though they are unlikely to explain changes in patterns of lobbying behavior documented in the micro-level empirics in Section 6. The first explanation advanced by Levitz and Pop-Eleches is more problematic, however. The value of trade and aid flows no doubt constituted much of the initial appeal of EU accession - and the threat to deny membership amounted to a threat to deny these future benefits. Once accession took place, threats to trade and aid flows

diminished substantially. The new members' seats on the European Council diminished any danger that these benefits could be suspended (Beetsma and Debrun, 2005; Vachudova, 2005). Therefore, the influence of the EU would be expected to decline, despite the increasing value of these flows.

Evidence of backsliding in other EU commitments is more mixed. New member-states appear to comply with EU directives on state aid (Blauberger, 2009) and show no deficit in the transposition of EU law vis-à-vis other EU member-states (Toshkov, 2008). Falkner and Treib (2008) finds little difference between new and existing member-states in their compliance with EU directives on employment regulation. However, Meyer-Sahling (2008) notes that Hungary has re-politicized its civil service following accession, reneging on EU commitments. And Dimitrova and Toshkov (2009) find that the transposition of EU law - in politically salient areas - is often delayed or thwarted by political opposition. Efforts to dismantle state capture would certainly inspire intense political opposition, implying that EU enforcement mechanisms following accession are insufficient to explain the continued compliance of new member-states. But, levels of compliance remain high in areas (corruption, state aid), where changes in interest group composition would be expected to have the greatest effect, consistent with theoretical expectations.[15]

This paper also relates to a wide literature on economic reform. For instance, Fernandez and Rodrik (1991) suggest that uncertainty over the distribution of the benefits of reform may lead to the preservation of a Pareto inferior status quo (see also Abiad and Mody, 2005). Alesina and Drazen (1991) suggest that conflict over the distribution of costs of reform - coupled with uncertainty over the extent of these costs - could lead to the preservation of the status quo. From these models, one might think of EU conditionality as offering compensation to the 'losers' of reform, thereby diminishing opposition. Once reform is implemented, uncertainty dissipates and there is no incentive for backsliding.

But, these models do not apply well to the case of state capture. First, there is little uncertainty over who bears the cost of reform in this instance. Those profiting from the status quo are precisely those capturing the state. Second, there seems little in EU conditionality directly aimed at benefiting those who suffer from the abolition of state capture. Finally, while these theories

[15] I thank an anonymous reviewer for raising this point.

may be consistent with a lack of backsliding; they do not predict the patterns in lobbying behavior predicted in the model and documented in the micro-level empirics below.

5 Model

To illustrate the intuitions described in Section 3, I construct a formal model of lobbying over entry. To capture the claim that a highly-concentrated economic structure may give rise to a partial reform equilibrium, I introduce problems of both collective action and common agency in lobbying the government, following Gailmard (2009). I also incorporate a simple model of conditionality, in which a non-strategic outside actor offers a payment to the government if barriers to entry are kept below a given level in the first round of a two-round game.[16]

The key findings of the model are as follows: (1) The entry of new firms in the first round may (probabilistically) result in a loss of industry influence in the second round, and (2) This loss of influence is most likely to take place when levels of capture are particularly high in the first round. These results hold even when the policy interests of new entrants and incumbent firms are perfectly aligned - and could be readily extended to instances where this policy agreement does not hold. The model results depend on the existence of a collective action problem in the lobbying process. The existence of such a problem implies that the probability with which firms lobby may decline given entry. Incumbent firms try hardest to discourage entry when this problem is most acute. Thus, in time $t = 1$, it is those countries where firms lobby heavily to raise barriers to entry that are most susceptible to a permanent shift in behavior given *de novo* firm creation.

These findings suggest that if partial reform equilibria exist, they may be particularly fragile. If external intervention leads to a temporary lowering of barriers to entry - relative to partial reform equilibrium levels - and to the entry of new firms, barriers to entry may be permanently reduced.

The model involves four classes of actors: a government (G), an incumbent monopolist (I),

[16]This method of modeling the EU decision process allows me to capture the essence of the nature of the Copenhagen Criteria and the *aquis* without unduly burdening the model with complexity. Mayer and Mourmouras (2005) construct a more developed model of IMF conditionality using a common agency framework in which the IMF acts to maximize the utility of foreign governments. However, in this instance, since the criteria for EU admission were constructed prior to extensive negotiation and were allegedly identical across applicants, the simple form of conditionality used here seems more appropriate. It also allows me to avoid making burdensome assumptions about the EU's utility function.

two potential entrants ($\{E_1, E_2\}$), and a large number of non-strategic consumers. Interactions take place over two rounds. The timing is as follows: (1.1) The incumbent monopolist chooses whether or not to engage in lobbying at some fixed cost k. If it lobbies, it attempts to influence the government's choice of the level of barriers to entry (θ). The government chooses the level of θ. (1.2) Nature draws r, the level of resources available to the potential entrant E_1 from the distribution $F(r)$. (1.3) E_1 determines whether or not to enter. (1.4) All firms in the market engage in Cournot competition. (2.1) Lobbying again takes place as in (1.1), only all firms currently in the marketplace must choose whether or not to engage in lobbying. (2.2) Nature draws a new value of r from $F(r)$ for the potential entrant E_2. (2.3) E_2 determines whether or not to enter the marketplace. (2.4) All firms in the market engage in Cournot competition. The model is solved using backwards induction applying the subgame perfect Nash equilibrium solution concept.

5.1 Market Behavior

I first characterize the market behavior of firms, in which they engage in the final period of each round. Market prices are given by an linear inverse demand function $p(q) = a - bq$ where $q = \sum q_f,\ f \in \{I, E_1, E_2\}$ is the total quantity of production by all firms in the market. a and b are exogenously given parameters, where $b > 0$ measures the (inverse) price-elasticity of demand and $a > 0$ is a constant term. I further assume that production costs are constant with respect to scale, such that total firm costs from production are given by $cq_f,\ 0 < c < a$. Firm profits are therefore given by:

$$q_f(a - c - bq) \tag{1}$$

It therefore follows that, in a symmetric equilibrium, the production of any given firm f is a function of the total number of firms in the marketplace n, such that

$$q_f^* = \frac{a - c}{(n + 1)b} \tag{2}$$

and total production will simply be nq_f^*.

From equation 2, for any generic number of firms in the market, one can derive the profit earned by a given firm f:

$$\Pi_f(n) = \frac{(a-c)^2}{b(n+1)^2} \tag{3}$$

5.2 Entry

To capture the effects of barriers to entry, I assume that firms seeking to enter the market must first pay a cost $\theta \geq 0$, which may be determined by the government. I treat credit markets as incomplete, such that each potential entrant $\{E_1, E_2\}$ only has access to existing resources of value r. Thus, if $r < \theta$ entry cannot take place. r is drawn from a distribution $F(r)$ after the level of θ is set, so that both the government and incumbent firms are uncertain as to the level of θ necessary to prevent entry with certainty. The potential entrant's resources are such that entry can take place with probability $1 - F(\theta)$.

To define the conditions in which $\{E_1, E_2\}$ choose to enter the market under such circumstances, it is necessary to define the utility functions for each firm. Firms derive utility from profits earned in the market $\Pi(n)$. In the round in which it decides whether or not to enter the market, a potential entrant also derives utility from its (randomly determined) prior resource allocation. Therefore, the utility of the potential entrant E is given by:

$$u_{E_t}(\theta_t) = \begin{cases} \frac{(a-c)^2}{b(N+2)^2} + r - \theta_t \text{ given entry} \\ r \text{ otherwise} \end{cases} \tag{4}$$

where N denotes the number of incumbent firms[17] and t denotes the round of play.

For simplicity, I assume that $F(r) \sim U[0, R],\ R > 0$. From expression 4, it is evident that a potential entrant will only choose to enter the market if $\frac{(a-c)^2}{b(N+2)^2} > \theta$. It will only be able to enter the market if $r \geq \theta$. Note that this implies that the probability of entry can simply be described as $1 - F(\theta)$, since - as I demonstrate in Lemma 1 in the Appendix - no incumbent will lobby to raise

[17]Throughout, I treat N as denoting the number of incumbent firms and n as denoting the number of firms in the market. Thus, $n = N$ if entry does not take place. $n = N + 1$ if entry does take place.

barriers such that $\theta > \frac{(a-c)^2}{b(N+2)^2}$.[18]

Incumbent firms f remaining in the market from the prior round derive utility from their market profits:

$$\Pi_f(N) = \begin{cases} \frac{(a-c)^2}{b(N+2)^2} \text{ given entry} \\ \frac{(a-c)^2}{b(N+1)^2} \text{ otherwise} \end{cases} \tag{5}$$

This implies that incumbent firm expected utilities at the beginning of round t are given by:

$$Eu_{f,t}(\beta_{f,t}, \theta_t) = F(\theta_t)[\frac{(a-c)^2}{b(N+1)^2}] + [1 - F(\theta_t)][\frac{(a-c)^2}{b(N+2)^2}] - \beta_{f,t} - K_t \tag{6}$$

where β_f represents the level of bribes paid by firm f to the government, $K \in \{0, k\}$ is a fixed cost which the firm must pay to engage in lobbying,[19] E is the expectation operator, and t denotes the round of the game. Note that the level of θ will be a function of β through the lobbying process (described below). In terms of the informal discussion above, β represents firm efforts to capture the state through lobbying activity.

5.3 Social Welfare

Social welfare in a given round is given by the sum of firm profits and the consumer surplus. The consumer surplus is given by the cumulative difference between the price consumers are willing to bear and the market price, for all quantities produced from zero to the market equilibrium. Denote the equilibrium level of production $q^* = nq_f^*$ and denote the equilibrium level of prices given this production as $p^* = a - bq^*$. Consumer surplus will then be given by:

$$\begin{aligned} S(n) &= \int_0^{q^*} p(q) - p^* dq \\ &= \frac{n^2(a-c)^2}{2b(n+1)^2} \end{aligned} \tag{7}$$

[18] Throughout I assume corner solutions are not reached. The possibility of corner solutions does not change the comparative statics of the model. See appendix for proof.

[19] The assumption of a fixed cost to lobbying is common in the trade literature (see, for instance Bombardini, 2008; Mitra, 1999). One might assume that such costs arise from the need to determine which legislators to bribe and to build up the necessary networks to funnel such bribes.

Since both firm profits and consumer surpluses depend on the number of competitors in the market, social welfare will be a function of barriers to entry θ, which I denote $W(\theta)$. That is to say, expected social welfare is given by the weighted sum of the consumer surplus and producer profits, where weights are given by the probability of entry $1 - F(\theta)$. Using equation 5 for firm profits and equation 7 for the consumer surplus, and substituting $F(\theta) = \frac{\theta}{R}$ yields the following expression:[20]

$$W(\theta_t) = \frac{(N+1)(N+3)(a-c)^2}{2b(N+2)^2} - (\frac{\theta_t}{R})[\frac{(2N+3)(a-c)^2}{2b(N+1)^2(N+2)^2}] \tag{8}$$

5.4 Government Utility

Following Grossman and Helpman (1994), the government seeks to maximize a quasi-linear function of social welfare and bribes. The government is also concerned with benefits stemming from accession to the EU. To capture the conditionality of the EU's offer of membership on government policies, I treat these benefits in round t as a function of θ

$$A(\theta_t) = \begin{cases} A \text{ if } \theta_t \leq \bar{\theta} \text{ and } t = 1 \\ 0 \text{ otherwise} \end{cases} \tag{9}$$

where $A > 0$. Thus, in the first round (and only in the first round), the EU offers the government benefits A if it maintains barriers to entry below a fixed level $\bar{\theta}$. It might be objected that this representation reduces the EU to a non-strategic actor. Moreover, it assumes that the conditionality inherent in EU accession is dependent on policy considerations, rather than on welfare maximization. But, as discussed above, this representation does capture the focus of the *acquis* and of the Copenhagen criteria on (reversible) policies rather than on outcomes. Moreover, this simple representation captures the conditional nature of the benefits of accession, without adding undue complexity to the model or sacrificing much by way of theoretical insight. As shall be discussed in greater detail below, this form of conditionality will lower barriers to entry in the first round, increasing the probability of *de novo* firm creation. However, the incentive for the government to maintain 'good' behavior by keeping barriers low does not exist in the second round - capturing

[20]See appendix for derivation.

the effect of the commitment problem discussed above.

Government utility is therefore given by:

$$u_{g,t}(\beta_t, \theta_t) = W(\theta_t) + V(\beta_t) + A(\theta_t) \tag{10}$$

where $V(\cdot)$ is a function that satisfies the Inada conditions and represents the value the government places on a given level of bribes; and β_t represents the sum total of bribes paid by firms.

This utility representation is best thought of as a reduced form. The value the government places on the social welfare may be induced by a desire to remain in office. The shape of the function $V(\cdot)$ may be thought of as a product of (unmodeled) institutional variation. This simple reduced form allows the model to capture such variation without burdening the model with undue complexity.

5.5 Lobbying in the Final Period

Incumbent firms must make two decisions in the final round. They first must determine whether or not they wish to engage in lobbying - i.e., whether or not they wish to pay the fixed cost k to engage in influencing the government. This decision is subject to a collective action problem such that the probability that lobbying takes place may decline with entry. Then, given that at least one incumbent firm decides to pay this fixed cost, it (they) must set the contribution schedule that determines the level of bribes payed to the government. If lobbying takes place, it follows the framework established by Grossman and Helpman (1994). Firms make take-it-or-leave-it offers to the government, in which a given level of bribes is to be exchanged for a given set of policy concessions. These contracts are assumed to be enforceable. Moreover, they are assumed to be truthful - the marginal increase in bribe payments will exactly equal the marginal gain to the firm from raising barriers to entry.[21]

I characterize lobbying behavior below. In Section 5.5.1, I discuss the case in which entry did not take place in the first round, so that there exists only one incumbent firm in the market. Section 5.5.2 characterizes the case in which entry has taken place, such that two incumbent firms

[21] The construction of the model borrows from Gailmard (2009).

share the market. The results from these two cases are compared in Section 5.5.3. The key result is that while barriers will increase in the two incumbent case relative to the single incumbent case if at least one of the firms lobbies; this may only happen probabilistically. When two firms are in the market, a collective action problem may cause both to only probabilistically engage in lobbying (a mixed-strategy equilibrium). As a result, entry may - with some positive probability - give rise to lower barriers to entry and a reduction in state capture, as discussed informally above.

5.5.1 Lobbying, Absent Entry

I first examine the case in which entry did not take place, meaning there is only one incumbent firm in the market in the final round. This firm will engage in lobbying only if the benefits it reaps from so-doing outweigh the costs. I therefore first characterize the lobbying behavior of the firm conditional on lobbying taking place.

Since the incumbent will offer a truthful contribution schedule, it is first necessary to calculate her utility gain from increasing barriers to entry. To do so, I plug $N = 1$ into equation 6 to derive:[22]

$$\begin{aligned} Eu_f(\beta_f, \theta) &= F(\theta)[\frac{(a-c)^2}{4b}] + [1 - F(\theta)][\frac{(a-c)^2}{9b}] - \beta_f - K \\ &= \frac{(a-c)^2}{9b} + \frac{5\theta(a-c)^2}{36bR} - \beta_f - K \end{aligned}$$

It is also necessary to derive the incentive compatibility constraint of the government. Plugging $N = 1$ into the social welfare function $W(\theta)$, one can derive $W(\theta) = \frac{4(a-c)^2}{9b} - \frac{\theta}{R}(\frac{5(a-c)^2}{72b})$. It therefore follows that social welfare is maximized when $\theta = 0$ and the government will set $\theta = 0$ absent any bribes from the incumbent firm.[23]

The lobbying process will require that the firm offers locally truthful contributions such that it maximizes its utility subject to the government's incentive compatibility constraint $u_g(\beta^*, \theta^*) \geq u_g(0, 0) = \frac{4(a-c)^2}{9b}$. The solution to this optimization problem yields the following equilibrium level

[22] I drop the time subscript below for notational convenience.

[23] Note that $W(\theta)$ is linear and decreasing in θ. Therefore, the government's preferred level of θ absent any bribes will always be a corner solution, i.e., $\theta = 0$.

of contributions and barriers to entry

$$\beta^*_{f,t=2} = V'^{-1}(\frac{1}{2})$$
$$\theta^*_{t=2} = \frac{72bR}{5(a-c)^2} V(V'^{-1}(\frac{1}{2})) \tag{11}$$

where $V'^{-1}(\cdot)$ is the inverse of the derivative of $V(\cdot)$ with respect to β.

Given the characterization of $\beta^*_{f,t=2},\ \theta^*_{t=2}$, it is now possible to determine the conditions under which an incumbent monopolist would engage in lobbying the government in the second round. Since there is only one incumbent firm seeking to influence the government, this characterization is straightforward. The incumbent will engage in lobbying if the benefits from doing so outweigh the costs. This will be true - and the firm will engage in lobbying - if the following inequality holds:[24]

$$2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) \geq k \tag{12}$$

5.5.2 Lobbying, Given Entry

I now examine the case in which there are two incumbent firms in the market - i.e., entry took place in the first round. As shall be demonstrated below, the presence of two incumbent firms induces a collective action problem in lobbying the government. As a result, lobbying may take place with lower probability given entry. The decline in the probability of lobbying is greatest when first round levels of θ are highest. Since EU conditionality in the first round increases the likelihood of firm entry, it may reduce the level of capture in the second round. This effect exists despite the absence of any form of conditionality in the second round and despite the shared interests of new entrants and incumbent firms.

As was the case above, I first characterize firm behavior conditional on lobbying. Plugging

[24] See appendix for derivation.

$N = 2$ into equation 6 yields the following firm utility function:

$$\begin{aligned} Eu_f(\beta_f, \theta) &= F(\theta)[\frac{(a-c)^2}{9b}] + [1 - F(\theta)][\frac{(a-c)^2}{16b}] - \beta_f - K \\ &= \frac{(a-c)^2}{16b} + \frac{7\theta(a-c)^2}{144bR} - \beta_f - K \end{aligned}$$

The government's utility function can be derived by plugging $N = 2$ into the social welfare function $W(\theta)$, which yields $W(\theta) = \frac{15(a-c)^2}{32b} - \frac{7\theta(a-c)^2}{288bR}$. This implies that consumer welfare is maximized when $\theta = 0$, at which point social welfare is given by $\frac{15(a-c)^2}{32b}$.

Following Grossman and Helpman (1994), when contribution schedules are truthful the marginal disutility to the government from raising barriers to entry must be perfectly offset by the sum of firm marginal utilities from raising said barriers multiplied by the government's marginal utility of bribes. Therefore,:

$$\beta^{**}_{t=2} = V'^{-1}(\frac{1}{2L})$$

implying that:

$$\theta^{**}_{t=2} = \frac{288bR}{7(a-c)^2} V(V'^{-1}(\frac{1}{2L})) \tag{13}$$

where $L \in \{0, 1, 2\}$ denotes the number of incumbent firms that choose to lobby in equilibrium.[25]

It remains to be specified when incumbent firms will choose to lobby. If one firm is willing to lobby alone, it must be the case that that firm's utility from lobbying alone is greater than its utility in the event that no lobbying takes place. In other words, each firm must prefer lobbying alone to the certain entry of a third rival firm. This condition will be met if the following inequality holds:

$$F(\theta^{**}_{t=2})[\frac{(a-c)^2}{9b}] + [1 - F(\theta^{**}_{t=2})][\frac{(a-c)^2}{16b}] - \beta^{**}_{f,t=2} - k \geq \frac{(a-c)^2}{16b}$$

plugging in for $\theta^{**}_{t=2}$, $\beta^{**}_{f,t=2}$ with only one firm contributing

$$2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) \geq k \tag{14}$$

[25]Note that the Inada conditions imply that $V'^{-1}(\infty) = 0$ and $V(V'^{-1}(\infty)) = 0$.

The condition expressed in inequality 14 is precisely equivalent to the condition under which lobbying takes place with certainty when only one incumbent firm is in the market (inequality 12).

If both firms lobby, it must be the case that each firm would wish to lobby given that the other firm is already lobbying. Therefore, the following (which is derived from the values of $\beta^{**}_{t=2}$ and $\theta^{**}_{t=2}$ with both one and two firms contributing) must hold:[26]

$$2[V(V'^{-1}(\frac{1}{4})) - V(V'^{-1}(\frac{1}{2}))] - \frac{1}{2}V'^{-1}(\frac{1}{4}) \geq k \tag{15}$$

However, it is possible that inequality 14 holds while inequality 15 does not. The collective action problem may be such that both firms prefer that at least one firm lobby, but neither firm would engage in lobbying given that the other is doing likewise.[27]

Proposition 1. *For a $V(\cdot)$, such that $4[\frac{1}{2}V(V'^{-1}(\frac{1}{4}))-V(V'^{-1}(\frac{1}{2}))] < \frac{1}{2}V'^{-1}(\frac{1}{4})-V'^{-1}(\frac{1}{2})$, lobbying takes with positive probability place given entry iff lobbying takes place with certainty absent entry.*[28]

Proof: *$4[\frac{1}{2}V(V'^{-1}(\frac{1}{4}))-V(V'^{-1}(\frac{1}{2}))] < \frac{1}{2}V'^{-1}(\frac{1}{4})-V'^{-1}(\frac{1}{2})$ implies that the inequality 15 is satisfied iff 14 is satisfied as well. Since, inequality 14 is identical to inequality 12, lobbying takes place with positive probability given entry iff it takes place with certainty absent entry.* □

Thus, the entry of new firms to the market may induce a collective action problem in influencing the government. In such an instance, I posit that both firms play a mixed strategy equilibrium; wherein each will engage in lobbying with positive probability but not with certainty. Behavior in such an equilibrium is characterized by the following proposition:

Proposition 2. *If inequality 14 holds while inequality 15 does not, the probability with which each market participant lobbies $Pr(lobbies)$ is in the $(0, 1)$ interval. The probability that each firm engages*

[26] See appendix for derivation.

[27] It is important to note that the government does *not* have an incentive to alleviate this coordination failure. The government's incentive compatibility constraint is satisfied at equality, and it therefore does not prefer any lobbying outcome to another.

[28] For a $V(\cdot)$ of the form $V(x) = Bx^{\alpha}$ where $B > 0$ and $\alpha \in [0, 1]$, this property will hold if $V(\cdot)$ is sufficiently concave. If $V(\cdot)$ is such that $4[\frac{1}{2}V(V'^{-1}(\frac{1}{4})) - V(V'^{-1}(\frac{1}{2}))] > \frac{1}{2}V'^{-1}(\frac{1}{4}) - V'^{-1}(\frac{1}{2})$, then multiple equilibria arise. A coordination game emerges. Either no firms lobby or both firms will do so. I assume throughout that this concavity property holds. See appendix for further details.

in lobbying is given by:

$$Pr(lobbies) = [2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) - k] \backslash [4V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) - (2V(V'^{-1}(\frac{1}{4})) - \frac{1}{2}V'^{-1}(\frac{1}{4}))] \tag{16}$$

Proof: *See appendix.*

5.5.3 Comparing Lobbying Behavior

The comparison of behavior in the single incumbent to that in the two incumbent case remains to be fully characterized. When only a single incumbent is present in the market, its actions are deterministic. It either does or does not engage in lobbying with certainty. If, however, there are two incumbent firms in the market, each firm may engage in lobbying only probabilistically. Moreover, if inequality 14 holds while inequality 15 does not, lobbying takes place with positive probability in the two-incumbent case if and only if it takes place with certainty in the single-incumbent case. It is therefore possible to state the following proposition:

Proposition 3. *For a $V(\cdot)$, such that $4[\frac{1}{2}V(V'^{-1}(\frac{1}{4})) - V(V'^{-1}(\frac{1}{2}))] < \frac{1}{2}V'^{-1}(\frac{1}{4}) - V'^{-1}(\frac{1}{2})$ the probability with which lobbying takes place is weakly lower given entry than given no entry.*

Proof: *This follows directly from Proposition 1 and Proposition 2. There does not exist an instance in which the incumbent lobbies with positive probability given entry in which she does not lobby with certainty given no entry. Yet there do exist parameter values such that lobbying takes place with certainty absent entry wherein it takes place only probabilistically given entry.* □

This result holds as a result of the collective action problem involved in lobbying the government. Higher levels of industry concentration imply that this problem is easier to resolve, and that each firm is more likely to engage in lobbying.

This does not imply that the level of barriers to entry θ, which may be treated as a proxy for the level of capture, is lower given entry than not. Indeed, this can be shown to be only probabilistically true. Given that at least one firm lobbies in the two-incumbent case, barriers will be strictly higher than in the one-incumbent case.[29] Therefore, levels of capture may fall

[29]Since $V(\cdot)$ is strictly concave, $V'^{-1}(\frac{1}{4}) > V'^{-1}(\frac{1}{2})$. This implies that the equilibrium level of θ is higher in

given firm entry if inequality 14 holds while inequality 15 does not. This will happen if neither firm engages in lobbying in the two-incumbent case, which will occur with probability $(1-Pr(lobbies))^2$. However, as is demonstrated below, $Pr(lobbies)$ is negatively associated with levels of θ in the first round. In words, entry is most likely to cause a reduction of state capture when there exists a partial reform equilibrium in the first round. Thus, EU conditionality is most likely to lead to a permanent reduction in levels of state capture if (1) it leads to firm creation and (2) it applies to states currently caught in a partial reform equilibrium.

5.6 Lobbying in the First Round

As was true in the final round of the game, lobbying follows a Grossman and Helpman framework in the first round. However, since the game is dynamic, all actors must look down the game-tree and calculate the effect of their current actions on their (discounted) expected future utility.

The government, looking forward, expects $\delta[F(\theta_{t=1})[\frac{4(a-c)^2}{9b}]+[1-F(\theta_{t=1})][\frac{15(a-c)^2}{32b}]]$ from lobbying in the second round, where δ is the discount factor. This implies that the government earns expected utility $\delta[\frac{15(a-c)^2}{32b}-\frac{7\theta_{t=1}(a-c)^2}{288bR}]$ from the second round. Its contemporaneous utility is given by the function $\frac{4(a-c)^2}{9b}-\frac{5\theta_{t=1}(a-c)^2}{72bR}$. The government's utility function in the first round is therefore given by:

$$u_{g,t=1}(\beta_{t=1},\theta_{t=1})=\frac{(128+135\delta)(a-c)^2}{288b}-(\frac{\theta_{t=1}}{R})[\frac{(20+7\delta)(a-c)^2}{288b}]+V(\beta_{t=1})+A(\theta_{t=1}) \quad (17)$$

The utility of the incumbent monopolist I as a function of β, θ will depend on whether or not lobbying takes place in the second round. In the Appendix, I demonstrate that when lobbying takes place with positive probability in the second round, the importance of $\theta_{t=1}$ to the incumbent declines as $Pr(lobbies)$ rises. That is to say, as the probability that lobbying takes place in the second round given entry rises, the incentive to raise barriers to entry in the first round declines. The logic of this finding follows that of the chain-store paradox (Milgrom and Roberts, 1982). If firm entry in the first round leads to a loss of influence in the second, the incumbent monopolist is

the two-incumbent case than in the one-incumbent case when both firms lobby. Moreover, $\frac{288bR}{7(a-c)^2}V(V'^{-1}(\frac{1}{2}))>\frac{72bR}{5(a-c)^2}V(V'^{-1}(\frac{1}{2}))$ implying that θ is strictly higher in the two-incumbent case than in the one incumbent case so long as at least one firm is lobbying.

willing to devote great efforts to preventing such entry. Any weakening of its position can give rise to an unraveling of its market dominance.

Since, in the Grossman and Helpman framework, contribution schedules are truthful, I contributes most and barriers to entry are highest when I's utility varies greatly with changes in $\theta_{t=1}$. This is increasingly true as entry is increasingly likely to lead to a loss of influence. This is stated formally in the following proposition:

Proposition 4. *The level of capture (as indexed by $\theta_{t=1}$) given lobbying in the first round is highest when $Pr(lobbies) \in (0,1)$, where $Pr(lobbies)$ is a function of the strictly exogenous parameter k and shape of the function $V(\cdot)$. Moreover, as the probability of lobbying in the second round given entry $Pr(lobbies)$ rises, the level of θ given lobbying in the first round declines monotonically.*

Proof: *I demonstrate in the appendix that $\frac{\partial u_{I,t=1}(\theta_{t=1},\beta_I)}{\partial \theta_{t=1}}$ is greatest when (1) $Pr(lobbies) \in (0,1)$ and (2) given that $Pr(lobbies) \in (0,1)$, $\frac{\partial u_{I,t=1}(\theta_{t=1},\beta_I)}{\partial \theta_{t=1}}$ declines monotonically in $Pr(lobbies)$. From the Grossman Helpman framework, it follows that incumbent contributions are increasing in $\frac{\partial u_{I,t=1}(\theta_{t=1},\beta_I)}{\partial \theta_{t=1}}$ when marginal costs to lobbying are constant.* □

Proposition 4 implies the following: If one observes that a given country's level of state capture is particularly high at a particular point in time, this implies that firms in that country fear a loss of future influence over the government should their market dominance be diluted. If conditionality can be employed to induce this government to lower its barriers to entry, it is likely that these temporary incentives will have a long-term impact on government (and firm) behavior.

5.7 The Effects of Conditionality

The government's incentive compatibility constraint implies that the equilibrium level of barriers in the first round of the game ($\theta_{t=1}$) is weakly declining in A - the benefits of EU entry - and weakly increasing in $\bar{\theta}$ - the threshold for entry. In other words, conditioning some set of benefits (in this case admission to the EU) on the level of barriers to entry leads (weakly) to a reduction in these barriers in $t = 1$. As the value of these benefits and the stringency of these requirements increase, the temporary effect of conditionality on government behavior increases. This conclusion is stated formally below.

Proposition 5. *The probability of firm entry in the first round increases weakly in the benefits of EU entry A and decreases weakly in the minimal level of barriers deemed permissable for EU admission $\bar{\theta}$.*

Proof: *see appendix.*

Conditionality will also affect the willingness of the incumbent monopolist to lobby in the first round. The level of barriers to entry $\theta^*_{t=1}$ is decreasing in A and increasing in $\bar{\theta}$; while the equilibrium level of bribes, conditional on lobbying, β^* remains unchanged. So, the benefits to the incumbent from lobbying decline as a result of conditionality even as the costs remain constant. Thus, the probability of lobbying in the first round is declining in A and increasing in $\bar{\theta}$.

According to the model, conditionality in the first round may increase the probability that barriers are permanently lowered if conditionality is applied to governments that have high *ex ante* levels of capture. That is to say, conditionality increases the probability of entry *in the first round*. When such entry is particularly likely to induce a collective action problem - i.e., when the barriers to entry absent conditionality ($\hat{\theta}_{t=1}$) are particularly high - the effect of conditionality on barriers to entry (and state capture) is likely to be permanent. Conditionality will not affect behavior in countries with low levels of *ex ante* capture in either the first or the second rounds.

5.8 Summary of Conclusions from Model

The central result of this model is the following: Market entry may lead to a reduction in the influence of industry lobbies. The entry of new firms may induce a collective action problem such that the industry as a whole grows less likely to influence the government.

Such permanent effects are particularly likely to exist when the initial influence of the industry is great. This conclusion follows directly from Proposition 4. Incumbent firms that engage in the greatest level of influence peddling are precisely those with the most to fear from market entry. Knowing that the entrance of additional firms will lead to a loss of influence (and thus of profits), these firms engage in extensive efforts to capture the state.

We should therefore witness the following: In states where capture is pervasive, foreign entities must promise very high levels of benefits for reducing barriers to entry (i.e., the value of A must be

large) if firm creation is to be likely. However, given that entry does take place, levels of capture and barriers to entry are likely to permanently fall. In states were capture is less pervasive, foreign entities can induce entry with high probability even with relatively low levels of promised benefits. However, once these benefits are distributed, barriers to entry are likely to return to - or even surpass - initial levels.

Many countries in Eastern Europe in the early to mid-1990s experienced high levels of state capture. Firms engaged in extensive influence peddling in order to maintain their market power. But, the EU offered enormous benefits to entry, thus inducing governments to reduce barriers to entry. Subsequent events seem to suggest that state capture in these states was vulnerable to this EU intervention - particularly in states characterized by a partial reform equilibirium. This behavior is in keeping with the model's predictions. Even limited entry by new firms could cause the partial reform equilibrium to crumble and to give way to extensive liberalization.

It is important to note that these conclusions follow from a model wherein incumbent and *de novo* firms *fully agree over policy*. In this sense, the model presents a particularly hard case in which to find an effect of entry on state capture and government compliance with EU conditionality. Similar conclusions would follow, more directly, if incumbents and new entrants had divergent policy preferences overs some policy dimensions.[30] *De novo* firms may lobby for policies harmful to incumbents' interests - leading directly to a reduction of government capture by incumbents. Moreover, the threat of such behavior by *de novo* would be expected to render coordination problems between incumbent and *de novo* firms more difficult to resolve even over policy dimensions on which they fully agreed. Such policy disagreement seems likely, given existing evidence that new entrants and incumbents diverge over issues of financial openness (Rajan and Zingales, 2003), that employees of new firms in 1990s Poland systematically had more economically liberal policy preferences than those in established firms (Jackson et al., 2005), and that the controllers of new firms come from systematically different backgrounds than those of incumbents (at least in Russia) (Braguinsky, 2007). The knowledge that firm entry would give rise to such a long-term loss of influence would give incumbents a particularly strong incentive to capture the state prior to EU

[30]Incumbent and *de novo* firm lobbying behavior would 'cancel each other out' in the Grossman Helpman framework.

accession. The creation of new firms, therefore, should be expected to give rise to a loss of political power by incumbent firms and to a decline in the probability with which they attempt to bribe the government.

6 Empirics

The model developed above predicts that monopolistic firms that devote extensive effort to capturing the state in time t are particularly vulnerable to a loss of influence in time $t+1$. If these firms lose their monopoly position, they are relatively unlikely to engage in subsequent efforts to capture the state (see Proposition 4). This suggests that a reduction in barriers to entry in captured states may lead to profound changes in their domestic political economy. Such a reduction increases the probability of firm entry and thus leads to the dilution of elite power.

Many Eastern European states exhibited high levels of capture prior to the EU application process. Such capture appears to have been permanently reduced following accession. Judging from Figure 1, permanent improvements were made in those countries in which corruption was most widespread. These stylized facts are consistent with the theory developed above.

Consistency with stylized facts, however, is an inadequate test of a theoretical model. To fully test the theory advanced above, one should subject the claims that - (a) EU conditionality led to a reduction in barriers to entry, (b) that this reduction was greatest in countries in which initial barriers to entry were greatest, and (c) that firm entry led to persistent reductions in barriers to entry and corruption - to empirical scrutiny. In this section, I take several steps in this direction. I examine the effect of the granting of EU applicant and member status on the competition policies of Eastern European states. And I test the claim made by Proposition 3, which predicts that the entry of *de novo* firms into a given industry should reduce the probability that other firms in that industry engage in efforts to capture the state.

To test the effect of EU applicant and member status on competition policy, I make use of the European Bank for Reconstruction and Development's (EBRD's) transition indicators data series,[31] which provides indexes of competition policy between 1989 and 2008. In my test of Proposition 3, I

[31] `http://www.ebrd.com/country/sector/econo/stats/index.htm`

make use of data from the World Bank Enterprise Surveys[32] conducted in the Europe and Central Asia (ECA) region in 2002 and 2005.

In section 6.1, I describe the data used for this analysis. In section 6.2, I describe the empirical models used to analyze the data and the results thereof.

6.1 Data Description

6.1.1 Enterprise Surveys

The World Bank Enterprise Surveys provide firm-level data from a large set of countries. They were first administered in 2002 and continue through the present. The data used in this paper are drawn from two waves of Enterprise Surveys conducted in the ECA region in 2002 and 2005.

The Enterprise Surveys are conducted by private contractors on behalf of the World Bank. Respondents include a variety of managerial staff at surveyed firms. Firms in the 2002 and 2005 ECA region surveys are selected by simple random sampling from a samplespace consisting of the set of registered businesses in a given country in a given year.[33]

The questions asked cover many aspects of the operation of a firm and the obstacles it faces to doing business. Of central interest to this study is the firm's report as to whether or not it engaged in lobbying activity.[34] Proposition 3 predicts that the probability of engaging in such activity should decline as the number of new entrants rises.

[32] `www.enterprisesurveys.org`

[33] see "Notes on Panel Dataset' for the ECA region at `https://www.enterprisesurveys.org/Portal/elibrary.aspx?libid=14`. Registration is required.

[34] The Enterprise Surveys do not specify whether this lobbying is licit or illicit. However, it seems probable that firms that engage in extensive illicit influence peddling will pass off such efforts as 'lobbying' the government. I implicitly assume that the probability that a given firm states that it lobbies is increasing in the level of effort devoted to influencing the government. To the extent that this is not true, or to the extent that firms engaged in illicit attempts to influence the government deny any lobbying activity, my estimates will tend to be biased towards zero. Absent credible information on the level of bribes paid to influence the government by a given firm, these data are the best test of the theory that could be hoped for. This implicit relationship is particularly likely to hold *within* a given country and *within* a given sector, i.e., once country and sector fixed-effects are controlled for. This assumption is further supported by results - available from the author on request - that demonstrate that lobbying is positively associated with a firm's perception of the effectiveness of bribes paid to the legislature.

6.1.2 Transition Indicators

The EBRD's Transition Indicators data series consists of a series of indexes measuring the progress of reform in Eastern European countries across a variety of policy areas. Progress is measured relative to the benchmark of policies in advanced industrial countries and is assessed by the Office of the Chief Economist of the EBRD.

The variable of interest for this analysis is competitionpolicy, the EBRD's index measuring entry restrictions, and anti-monopoly legislation and enforcement. This measure captures barriers to firm entry - the endogenous parameter θ in the model in section 5. The index takes values of 1-4, with a value of 1 indicating no institutions or enforcement of competition regulation and 4 indicating 'significant' enforcement.[35] This measure is, in effect, ordinal.[36] The EBRD data cover 27 countries over a period from 1989-2008. In the empirics below, I use values from the 10 eventual EU member-states reported over this period.

An alternative empirical strategy might measure levels of corruption and capture directly. Changes in the level of state capture are expected to be positively linked to changes in barriers to entry, and both are expected to be negatively related to EU application status, particularly when preexisting levels of capture/barriers to entry are high (Proposition 4). But, international indexes of corruption perceptions lack adequate data coverage to test this proposition. Most such indexes only begin coverage in the mid to late-1990s, either on or after the date at which applicant status is granted.[37] Moreover, many of these indexes are not intended for comparisons over time[38] and perceptions of corruption may be invalid proxies for true underlying levels of corruption during times of dramatic political change, such as the transition from communism. The EBRD measures are thus preferred, as they offer a valid measure of the model parameter θ over the full period since transition.

[35] http://www.ebrd.com/country/sector/econo/stats/timeth.htm

[36] The index takes 8 different values, with all scores between 1 and 4.

[37] The ICRG Corruption Risk index contains panels that extend to earlier periods. However, coverage in Eastern Europe during this period is poor. Only 6 panels contain observations before EU applicant status is granted.

[38] See, for instance, http://www.transparency.org/policy_research/surveys_indices/cpi/2009/methodology

6.2 Empirical Results

6.2.1 The Relation between Applicant and Member Status and Competition Policy

To test the relationship between competition policy and EU applicant[39] and member status, I regress the EBRD's competition policy index on indicators that take the value 1 in the year following the granting of EU applicant and member status. I also interact these terms with the lagged value of competitionpolicy. This interaction tests the claim, advanced in Proposition 4, that capture will decline most as a result of conditionality when initial levels of capture and barriers to entry are high. The model is run on a panel consisting of the 10 Eastern European countries that eventually accede to the EU during the 1989-2008 time period. The model of interest is therefore:

$$\begin{aligned} competitionpolicy_{i,t} = Probit^{-1}(&\lambda competitionpolicy_{i,t-1} + \gamma \Delta EU\ App\ Status_{i,t-1} + \\ &\zeta \Delta EU\ App\ Status_{i,t-1} * competitionpolicy_{i,t-1} + \delta EU\ Mem\ Status_{i,t-1} + \\ &\psi \Delta EU\ Mem\ Status_{i,t-1} * competitionpolicy_{i,t-1} + \mathbf{X_{i,t}}\beta + \zeta I_i + \mathbf{T}\eta + \epsilon_{i,t}) \end{aligned}$$

where i denotes country i, t denotes year t, I_i is a country fixed-effect, and $\mathbf{T}$ controls for a cubic function of time.[40]

It may be argued that competition policy is endogenous to EU applicant and - particularly - to EU member status. Governments that improve most on competition policy measures may be viewed as more likely to attain applicant and member status than countries that witness no such improvement. The lag structure of the model helps to control for this danger. If countries are selected by the EU based on their competition policy status, then one would expect changes in competition *before* rather than *after* applicant and member status is granted.[41] There is, therefore,

[39] Applicant status is coded based on the date that official applications for membership are received by the EU.

[40] Plotting the competition policy index clearly reveals a non-linear time trend. Moreover, Beck et al. (1998) advise controlling for time trends when working with discrete (in their case binary) TSCS data; Carter and Signorino (2007) suggest using a cubic function of time for this purpose. In this instance, $t = 1$ in 1989, $t = 2$, in 1990, etc. I add controls for t, t^2 and t^3 to the regression model. This specification allows for a flexible time trend while avoiding complete and quasi-separation that may result from dummies (Carter and Signorino, 2007). Given the potential incidental parameters problem that arises from estimating fixed-effects in non-linear (and particularly in dynamic non-linear) models (Wooldridge, 2002), the use of a time trend is to be preferred.

[41] Alternative methods to control for such selection effects might employ Heckman selection models or propensity score matching. Given the relative sparseness of panels in this dataset, however, pruning panels based on propensity score matching seems ill-advised. Heckman models are only cleanly identified in the event that variables can be

little reason to suspect that such a data generating process would induce a relationship between current competition policy and dummies that take a value 1 only in the year *after* applicant and member status are granted, particularly after lagged competition policy measures are controlled for.

The use of a lagged dependent variable in a model that also includes country fixed-effects may induce bias in the model estimates. The inclusion of country fixed-effects causes the error structure of the model to become correlated with the model regressors, inducing Nickell bias. The extent of this bias is inversely proportional to the length of the panel T (Hsiao, 2003). Alternatives (e.g., the Anderson-Hsiao estimator) are consistent, but suffer from greater root mean squared error in monte carlo simulations (Beck and Katz, 2009). Beck and Katz (2009) suggest that, in general, the inclusion of a lagged dependent variable and fixed-effects should be preferred in time-series-cross-sectional analyses with $T \geq 20$.

Mine is an unbalanced panel of, at most, 20 time periods. Therefore, one should be concerned with Nickell-bias. To test for this danger, I drop the country fixed-effects and re-estimate the model. The model without fixed-effects will not suffer from Nickell-bias; though, coefficient estimates may be biased if time-invariant country effects are correlated with the regressors. If coefficient estimates differ significantly across the two models, one may conclude that either Nickell-bias or omitted variable bias affects the estimates. Though one cannot conclude which of the models is biased. However, if the estimates are similar across the two models, it is unlikely that either suffers a great deal of bias. Results from both models (both OLS and ordered probit estimates) are reported in Table 1. As the table makes clear, the coefficients on the parameters of interest - indeed on nearly all model parameters - are very similar with and without country fixed-effects.[42]

In addition to the regressors discussed above, I control for GDP *per capita* measured in pur-

found that satisfy an exclusion restriction - i.e., that affect the probability of selection into the EU but do not effect competition policy. Very few measures can credibly meet this constraint - and failure to meet this constraint leads to estimates that are both biased and inefficient. I thus prefer to rely on the models above that may be considered as evidence of an association consistent with theoretical predictions; though not as definitive evidence as a *causal* effect of EU membership policies.

[42]Models that include a lagged-dependent variable will also encounter bias in the presence of residual autocorrelation (Keele and Kelly, 2006). To address this possible issue, I rerun the OLS estimates (unreported) from Table 1 correcting for possible first-order autocorrelation, as recommended by Keele and Kelly (2006). Coefficient estimates of interest are substantively unchanged. (The modified Durbin-Watson statistic is approximately 1.45 in models both with and without fixed-effects.)

chasing power parity terms and for the growth rate of GDP *per capita*, both drawn from the World Bank's World Development Indicators (WDI). These controls are included as it may be anticipated that prevailing economic conditions are associated with both application and entrance to the EU and with competition policy. I also control for population levels, also from the WDI. Several authors, notably Levitz and Pop-Eleches (2009), suggest that dependence on trade and investment may increase compliance with EU regulations both before and after entry to the EU. I therefore add controls for FDI and trade flows,[43] both as a percentage of GDP, drawn from the WDI. And, given the possibility that government ideology may drive both EU application strategies and competition policies, I control for the ideology of the party controlling the executive, drawn from the Database of Political Institutions (Beck et al., 2001). This measure reports ideology as left, right, center or other. I transform this variable into three dummies - left, right, center - other is the excluded category. Coefficient estimates are reported in Table 1 below.

Table 1 presents results from both ordered probit (columns marked OProbit) and (for ease of interpretation) OLS (marked OLS) models. In all models, the coefficient on the lag Δ EU App status (lagged change in applicant status) is positive and significant at the 5 percent level or above. The coefficient on the interaction between this term and lagged competition policy is consistently negative - implying that the effect of EU applicant status is greatest in those countries with the most restrictive competition policies.

The interpretation of interaction terms in nonlinear models is challenging. Such models implicitly assume some level of interaction between all covariates, since the functional forms are not additively separable in the parameters (Ai and Norton, 2003; Berry et al., 2010; Greene, 2010; Nagler, 1991). As a result, a significant coefficient estimate on an interaction term in a nonlinear model is "neither a necessary nor sufficient" condition for establishing an interactive relationship between the covariates of interest and the outcome (Berry et al., 2010: 25). The preferred method to present an interactive effect in a nonlinear model is therefore to graphically represent the relationship between changes in the covariates of interest and the predicted outcomes, holding all other terms fixed at values of substantive interest (Berry et al., 2010; Brambor et al., 2005; Greene,

[43]For this panel of countries, both measures will be highly correlated with levels of trade and FDI flows with the EU.

Table 1: TSCS Estimates of the Relation Between EU Applicant-status and Membership on Competition Policy

	OProbit1	OLS1	OProbit2	OLS2
lagged competition policy	5.745	.548	6.632	.815
	(1.082)***	(.112)***	(1.002)***	(.081)***
lagged Δ EU App. Status	11.334	.989	10.774	1.12
	(2.73)***	(.497)**	(2.905)***	(.564)**
lagged Δ EU App. Status * lagged competition policy	-4.342	-.359	-4.093	-.402
	(1.11)***	(.199)*	(1.136)***	(.223)*
lagged Δ EU Mem Status	5.84	.875	4.343	.98
	(3.496)*	(.547)	(3.535)	(.68)
lagged Δ EU Mem Status * lagged competition policy	-1.64	-.262	-1.196	-.297
	(1.161)	(.172)	(1.188)	(.216)
growth GDP *per capita*	-.063	-.011	-.01	-.004
	(.045)	(.008)	(.034)	(.006)
GDP *per capita*	.0003	.00005	.00002	4.18e-06
	(.0002)	(.00003)	(.00004)	(5.78e-06)
population	-.002	-.0003	2.63e-07	8.37e-07
	(.0009)*	(.0001)***	(.00002)	(3.03e-06)
trade/GDP	-.024	-.002	.001	.001
	(.009)***	(.001)	(.006)	(.001)
FDI/GDP	-.007	.0004	.003	.001
	(.024)	(.003)	(.016)	(.003)
Left Executive	-.243	.02	-.164	.034
	(.322)	(.055)	(.235)	(.036)
Right Executive	-.126	.011	.156	.051
	(.38)	(.063)	(.316)	(.049)
Center Executive	-.887	-.058	-.764	-.073
	(.77)	(.095)	(.508)	(.104)
Cubic Time Polynomial	✓	✓	✓	✓
Country Fixed-Effects	✓	✓		
N	153	153	153	153

Results of ordered probit and OLS regressions of the EBRD's competition policy index against indicators for EU applicant and EU member status. The unit of observation is the country-year. All results cluster standard errors by country and include controls for a cubic function of time. All estimates include country fixed-effects. *** indicates significance at the 1 percent level, ** indicates significance at the 5 percent level, and * indicates significance at the 10 percent level.

2010). These relations are presented graphically in Figure 2. I also present results from an OLS estimate in Table 1 to ease interpretation of the estimates.

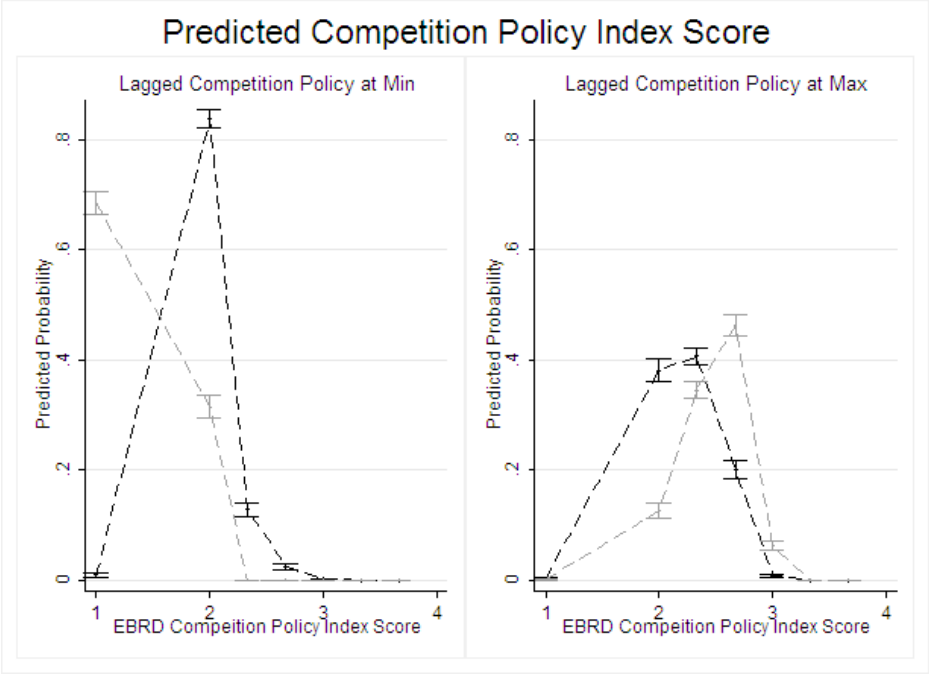
Figure 2 is generated using the CLARIFY software package (Tomz et al., 2001) to make 1000 random draws from the multivariate normal distribution of the coefficient estimates $\hat{\beta} \sim N(\beta, \mathbf{\Sigma})$. These simulated values are then multiplied by regressor values of interest, and passed through the inverse probit function to generate 1000 predicted probabilities for observing given values of the competitionpolicy variable. The 2.5th percentile and the 97.5th percentile of the simulations give 95 percent confidence intervals for the predictions. The graph to the left presents the predicted probabilities of observing different levels of competitionpolicy given that lagged competitionpolicy is set at 1. This is the minimum observed value of the competitionpolicy variable for any state at the time applicant status is granted. Predictions for a state just granted applicant status are presented in black, those for a non-applicant are presented in grey.[44,45] The graph to the right presents the predicted probabilities of observing different levels of the competitionpolicy variable given that lagged values of this term are set to 3 - the maximum observed level of this term for any state at the time applicant status is granted. Figure 2 makes clear the conditional nature of the effect of application status. For a country with a lagged competitionpolicy term of 1, gaining applicant status would increase the predicted probability of boosting the competitionpolicy term to 2 from approximately 0.35 to above 0.8. On the other hand, if the same country had a lagged competitionpolicy term of 3, the predicted probability of observing a current competitionpolicy value of a 2.66 or above is actually somewhat lower given EU applicant status. These findings are strongly consistent with Proposition 4.

The coefficient on lag Δ EU Mem status are consistently positive (and its interaction consistently negative); though they are never significant at conventional levels. Figure 4 in the Appendix presents an analogous graphical presentation of the conditional effect of EU membership. The figure reveals a minor positive association between EU membership and competition policy - though this

[44]Predicted probabilities are generated setting all economic variables to their mean levels in the dataset, setting the year equal to 1998 and the country fixed-effects so that the Czech Republic is the country under observation.

[45]These predicted values are generated for the year following the grant of applicant status. The model would predict greater long term associations, as current changes in competition policy affect competition policy in the next period (thus, long term equilibrium effects are equal to the coefficient on the variable of interest multiplied by the reciprocal of one minus the coefficient on the lagged dependent variable when estimated using OLS).

Figure 2: Predicted EBRD Competition Policy Scores and EU Applicant Status



Predicted probabilities (and 95 percent confidence intervals) of obtaining a given EBRD competition policy score. Predictions are based on OProbit1 from Table 1. Possible EBRD competition policy index scores are reported on the x-axis, predicted probabilities are on the y-axis. Dark values reflect predictions for a country that obtained EU applicant status the preceding year. Light values reflect predictions for a country that did not receive such status. The graph to the left depicts predictions when the level of competition policy was at its most restrictive level (1) observed a year applicant status is granted. The graph to the right depicts predictions when the level of competition policy was at its most liberal level (3) observed a year before applicant status is granted. Predicted probabilities were generated using CLARIFY (Tomz et al., 2001) run from Stata 11.

effect is barely discernable when the lagged competitionpolicy variable is at its maximum value of 3.33 at the time EU membership is granted, and is fairly minor even when the lagged competitionpolicy measure is at its minimum observed value. These results are consistent with existing findings (e.g., Levitz and Pop-Eleches, 2009) that find little evidence of substantial backsliding by accessor states. But they suggest that few additional reforms are made following accession.

The small association between changes in competitionpolicy and EU membership (as opposed to applications for membership) is inconsistent with one possible objection with the empirics thus

far. This objection runs as follows: the EU has both direct enforcement power over competition policy in matters that affect the common market as a whole and passes regulations that are binding on the member-states. If the EBRD measures capture the effect of European Commission actions to regulate competition policy, they are a poor test of the theory. But, if the EBRD measures were reflecting direct EU actions to enforce competition policy, then we would expect a large association between EU member status and competitionpolicy, and little to no association with EU applicant status. The regression models above find the opposite association - the relationship between EU applicant status and competition policy is strong, at least in states with low initial levels of competition policy; while that between EU membership and competition is weak.

It remains possible, however, that EU enforcement powers were sufficient to ensure that reforms made during the application period were not reneged upon. That is, the conditionality implicit in the EU application process caused applicant countries to reduce barriers to entry, and EU enforcement was sufficiently strong to ensure that new member-states did not revert to their previous practices following accession. Firm entry need not have played a role. The empirical specification above cannot rule out this possibility. But, according to this claim, we should not expect to the patterns in micro-level lobbying behavior predicted by the theory advanced by this paper. To the extent that EU enforcement ensures that barriers to entry remain low after membership is granted, membership should have an identical effect on lobbying, decreasing lobbying across firms regardless of prior entry. The model predicts that patterns of lobbying should be conditioned on the extent of firm entry during the accession period. I test these competing claims below.

6.2.2 The Relation between Firm Entry and Lobbying

The theory advanced by this paper claims that conditionality during the EU accession period induced long-term compliance by affecting interest group behavior. More specifically, it claims that existing firms in industries that experience the entry of *de novo* firms during the application period will be less likely to engage in lobbying behavior both before and after EU membership is granted than similar firms in industries that did not experience such entry (Proposition 3). Alternative explanations - for instance the claim that the EU's enforcement powers remain sufficient to induce

compliance even after membership is granted - do not give rise to such claims. While the analysis above is consistent with model predictions, the analysis below serves to test the model mechanisms.

To conduct this test, I examine the probability that a given firm engages in lobbying in 2002 and 2005.[46] I analyze the relationship between a given firm's decision to lobby and the extent of firm entry during the application period using the following empirical model:

$$lobby_{f,i,c} = Probit^{-1}(\gamma Log\ Num.\ de\ novo_{i,c} + \delta de\ novo_{f,i,c} + \psi Log\ Number\ de\ novo_{i,c} * de\ novo_{f,i,c} \\ \zeta Log\ Num\ Preexisting_{i,c} + \mathbf{X_{f,i,c}}\beta_{\mathbf{1}} + \epsilon_{f,i,c})$$

where Log Num. *de novo* measures the natural log of the number of surveyed firms in a given country-industry that began operations *de novo* during country c's EU application period,[47] *de novo* is an indicator variable measuring whether a given firm was started *de novo* during this period, and Log Num. Preexisting is the natural log of the number of surveyed firms that existed prior the EU application period in a given country-industry or that were privatized during this period.[48] Proposition 3 predicts that γ will be negative.

In all regressions, controls are also included for the legal status of the firm (legal status), whether the firm is under domestic or foreign private ownership (domestic private and foreign private), whether or not the firm is an exporter (exporter), and the size of the firm (size).

Table 2 reports the results of this regression run on a sample of firms in EU applicant states in 2002. The sample consists of firms from Bulgaria, the Czech Republic, Estonia, Hungary,

[46]These data are, in some senses, less than ideal to test the theory advanced. Ideally, one would like panel data from 1989 through the present on levels of both licit and illicit lobbying activities. However, such panel data are not (to my knowledge) available at the firm level. And it seems likely that any information beyond the simple $\{yes, no\}$ lobbying question posed by the Enterprise Surveys would elicit significant non- and false responses. I therefore make use of available data and run tests that may offer supportive, if not conclusive, evidence for the theoretical propositions advanced.

[47]This variable is coded based upon the year in which a firm begins operations in a given country, whether or not it is privatized, and the year in which a government gains applicant status to the EU. Since I only have data on the year in which the firm began business, I use the year in which the country was formally afforded applicant status to calculate whether or not it began operations during the application period. If awarded applicant status after the month of June, I round the year up.

[48]Since I am working from a sample of firms - rather than with the full population - it remains open to question whether these measures are sufficiently accurate to capture the variables of interest. Since a simple random sample of registered firms is used, survey results are likely to be representative. However, they are likely to be best suited to making comparisons within countries (since factors affecting sampling - such as firm registration rules - may vary across countries). Thus, I prefer specifications that control for country fixed-effects.

Latvia, Lithuania, Poland, Romania, Slovenia, and Slovakia. In Table 3, I report the results of the same regression run in a sample of EU member-states in 2005 (the same states, bar Bulgaria and Romania).

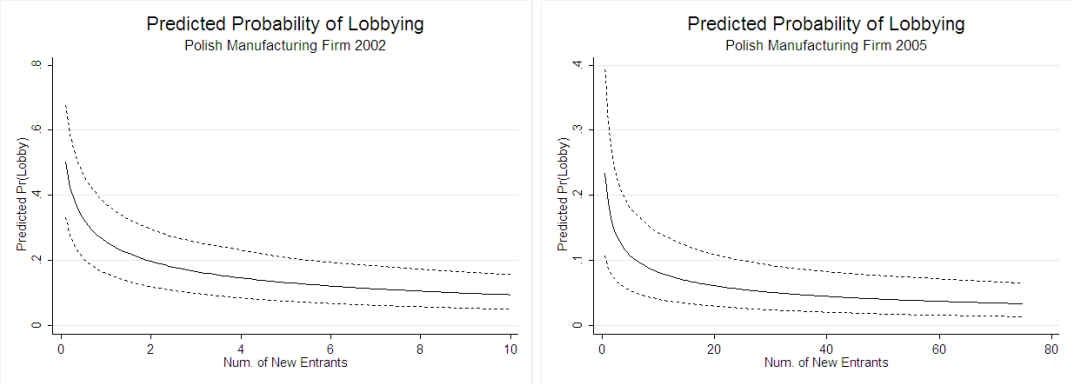
Table 2: Firm Lobbying Regressed Against *de novo* Entry - 2002 EU Applicants

	Model 1	Model 2	Model 3
Log Num. *de novo*	-.165 (.053)***	-.218 (.078)***	-.097 (.107)
Log Num. Preexisting	-.034 (.056)	.103 (.075)	.019 (.079)
de novo	-.012 (.073)	-.115 (.151)	.132 (.159)
Log Num *de novo* * *de novo*	-.1 (.044)**	-.047 (.073)	-.149 (.072)**
legal status	.03 (.027)	.037 (.026)	.038 (.028)
domestic private	-.003 (.001)***	-.003 (.001)**	-.004 (.0008)***
foreign private	-.003 (.001)**	-.003 (.001)**	-.004 (.001)***
exporter	-.117 (.1)	-.018 (.086)	-.168 (.088)*
size	.463 (.039)***	.355 (.056)***	.431 (.05)***
Country Fixed-Effects	✓	✓	
Sector Fixed-Effects	✓		✓
N	2412	2926	2412

Results of a probit regression of probability that a given firm engages in lobbying in 2005 on the reported series of controls. Point estimates are reported and standard errors are in parenthesis. *** indicates significance at the 1 percent level, ** indicates significance at the 5 percent level, and * indicates significance at the 10 percent level. All standard errors are clustered at the country level. The main variable of interest is ln.indust.denovo, the natural log of the number of firms surveyed that were formed *de novo* between application and accession to the EU.

In both sets of regressions, the coefficient on the variable of interest - Log Num. *de novo* - is negative. And, in all cases including country fixed-effects it is significant at the 5 percent level

Figure 3:



Predicted probability of lobbying by an incumbent Polish manufacturing firm, from Model 1 in Table 2. The predictions are based on the average number of preexisting firms in the data, and on the median values of legal status, domestic private ownership, and firm size. (The predictions are based on a domestic firm). The number of new entrants is displayed on the x-axis, and ranges from zero to the largest number of new entrants found in the Polish manufacturing sector (10). 95 percent confidence intervals are represented by the dashed lines. Predicted probabilities were generated using CLARIFY (Tomz et al., 2001) run from Stata 11.

or above.[49] Note that this result stands even after controlling for whether a given firm is *itself* created *de novo* during the accession period and the interaction of this term with Log Num. *de novo*. Thus, one should interpret these findings as indicating that the entry of a new firm into a given country-industry reduces the probability that *other* firms in that country-industry engage in lobbying activities. Increased levels of entry during the EU application process led to reductions in the level of lobbying by established firms both before and after EU accession, as is supportive of Proposition 3 in the model above.

Figure 3 demonstrates the magnitude of the estimated effect of entry on lobbying. Both graphs present the predicted probability that an incumbent firm lobbies - and 95 percent confidence intervals - for a given level of entry.[50] The number of entrants is allowed to vary over observed levels

[49] As it seems probable that both entry and lobbying behavior may vary across countries and across sectors due variables omitted from the regression, controlling for both sets of fixed-effects should be preferred. Moreover, as noted above, the lobby variable is most likely to proxy for variation in illicit activity when country and sector fixed-effects are controlled for.

[50] Estimates are generated setting Log Num. Preexisting to its mean value, legal status, domestic private ownership, and size to median values, for a publicly traded domestic manufacturing firm in Poland.

in the sample. The graph to the left presents estimates from Model 1 in Table 2; whereas the graph to the right presents results from Model 1 in Table 3. Both graphs present evidence that the probability of lobbying falls sharply with firm entry, from roughly 0.5 with no entrants to roughly 0.1 with six entrants in 2002. The probability that a given incumbent lobbies falls from and from 0.25 with no entrants to roughly 0.1 with 10 entrants in 2005. There are an average of 4 incumbent firms *per* industry in 2005, implying that the predicted probability at least one incumbent lobbies declines from .68 to .34 when moving from 0 to 10 entrants.

The cumulative evidence in the preceding section offers substantial support of the claims advanced in this paper. EU application was indeed associated with a decline in barriers to firm entry, which should be expected to lead to an increase in firm creation. The resultant diffusion of ownership reduced levels of lobbying - even by established firms.

7 Conclusion

This paper advances a number of theoretical predictions regarding the effect of EU accession on state capture. It suggests that EU accession creates a commitment problem for applicant countries. In the course of the application process, these countries were required to fulfill a number of requirements with regards to both political and economic policy. These requirements had the effect of reducing the influence of powerful firms over the political process. However, once EU member status was granted, applicant states no longer faced as strong an incentive to maintain these policies. Unless, that is, temporary changes in policy had a long-term effect in the composition of domestic interests. To the extent that the changes in policy required during the application process facilitated the diffusion of firm ownership, the commitment problem inherent in accession was mitigated.

This finding has implications beyond Eastern Europe and the process of EU expansion. It suggests mechanisms by which conditionality may have lasting effects more generally. When outside actors use conditionality to influence policies that have no effect on the composition of domestic interests, it is unlikely that any long-term changes in the behavior of the targeted country will take place. However, when these policies alter the composition of domestic interests in the targeted country, they may achieve a more lasting effect.

Table 3: Firm Lobbying Regressed Against *de novo* Entry - 2005 EU Members

	Model 1	Model 2	Model 3
Log Num. *de novo*	-.221	-.085	-.116
	(.034)***	(.04)**	(.053)**
Log Num. Preexisting	.046	-.087	-.048
	(.042)	(.024)***	(.035)
de novo	-.265	-.303	-.042
	(.126)**	(.149)**	(.188)
Log Num. *de novo* * *de novo*	.024	.04	-.057
	(.045)	(.051)	(.08)
legal status	-.025	-.027	-.006
	(.044)	(.045)	(.053)
domestic private	-.004	-.005	-.004
	(.001)***	(.001)***	(.001)***
foreign private	-.002	-.003	-.003
	(.002)	(.002)	(.002)
exporter	-.143	-.077	-.207
	(.087)	(.084)	(.057)***
size	.364	.328	.372
	(.053)***	(.049)***	(.053)***
Country Fixed-Effects	✓	✓	
Sector Fixed-Effects	✓		✓
N	2991	2991	2991

Results of a probit regression of probability that a given firm engages in lobbying in 2005 on the reported series of controls. Point estimates are reported and standard errors are in parenthesis. *** indicates significance at the 1 percent level, ** indicates significance at the 5 percent level, and * indicates significance at the 10 percent level. All standard errors are clustered at the country level. The main variable of interest is ln.indust.denovo, the natural log of the number of firms surveyed that were formed *de novo* between application and accession to the EU.

Of particular interest is the claim, derived in the formalization in Section 5, that situations of extensive state capture may be particularly vulnerable to external intervention. The model indicates that domestic interests will be particularly active in their attempts to capture the state *if they need to fear a permanent loss of influence.* In such instances, any diffusion of elite control is likely to lead to a precipitous fall in the elites' power.

This result carries optimistic implications for conditionality. It hints that mechanisms employing conditionality may be most successful precisely where they are most needed. It is precisely those situations wherein state capture is most extensive that are most vulnerable to long-term change. Offering benefits conditional on policy changes may help to induce persistent reform.

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A Formal Proofs

Proof that, in Equilibrium, Barriers Never Rise Above Profits

Lemma 1. *In equilibrium, barriers to entry will always be such that* $\theta \leq \frac{(a-c)^2}{b(N+2)^2}$. *That is, barriers to entry will never exceed the profits from entry.*

Proof: *Note that, given the the benefits to entry (expression 4), the probability of entry is zero* $\forall\ \theta > \frac{(a-c)^2}{b(N+2)^2}$. *Since the only benefits to incumbent firms from raising barriers to entry* θ *comes through the decline in the probability of entry, there is no incentive to raise* $\theta > \frac{(a-c)^2}{b(N+2)^2}$.

Derivation of Inequality 12

The following characterizes the conditions necessary for lobbying to take place in the final round in the event that there is a single incumbent monopolist in the market. If the incumbent does not engage in lobbying, the government will set θ at its preferred level $\theta = 0$. Given the distribution of $F(r)$, this level of θ implies that entry will take place with certainty, and that the incumbent will enjoy profits of $\frac{(a-c)^2}{9b}$. Therefore, lobbying will take place if the following inequality holds:

$$F(\theta^*)[\frac{(a-c)^2}{4b}] + [1 - F(\theta^*)][\frac{(a-c)^2}{9b}] - \beta_f^* - k \geq \frac{(a-c)^2}{9b}$$

$$\frac{5\theta^*(a-c)^2}{36bR} \geq \beta_f^* + k$$

$$\text{plugging in for } \theta_{t=2}^*,\ \beta_{f,t=2}^*$$

$$2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) \geq k$$

Derivation of $W(\theta)$

Social welfare is given by the expected value of the consumer surplus and producer profits. From equation 7, the value of the consumer surplus will be $\frac{N^2(a-c)^2}{2b(N+1)^2}$ absent entry and $\frac{(N+1)^2(a-c)^2}{2b(N+2)^2}$ given entry (recalling that $n = N$ absent entry and $n = N+1$ given entry). From equation 3, the sum of producer profits will be $\frac{N(a-c)^2}{b(N+1)^2}$ absent entry and $\frac{(N+1)(a-c)^2}{b(N+2)^2}$ given entry. Thus, $W(\theta)$ is given by:

$$W(\theta) = F(\theta)[\frac{N^2(a-c)^2}{2b(N+1)^2} + \frac{N(a-c)^2}{b(N+1)^2}] + [1-F(\theta)][\frac{(N+1)^2(a-c)^2}{2b(N+2)^2} + \frac{(N+1)(a-c)^2}{b(N+2)^2}]$$
$$= \frac{[(N+1)^2+2(N+1)](a-c)^2}{2b(N+1)^2} + F(\theta)[\frac{(N^2+2N)(a-c)^2}{2b(N+1)^2} - \frac{[(N+1)^2+2(N+1)](a-c)^2}{2b(N+2)^2}]$$

simplifying

$$= \frac{(N+1)(N+3)(a-c)^2}{2b(N+2)} - (\frac{\theta}{R})[\frac{(2N+3)(a-c)^2}{2b(N+1)^2(N+2)^2}]$$

Derivation of the Equilibrium Level of Contributions and Barriers to Entry with Two Incumbent Firms

Following Grossman and Helpman (1994), each firm offers a truthful contribution schedule. Each firm that contributes will therefore set a contribution schedule such that $\frac{\partial u_g(\theta,\beta)}{\partial \theta} = \sum_f \frac{\partial u_g(\theta,\beta)}{\partial \beta} \frac{\frac{\partial u_f(\theta,\beta_f)}{\partial \theta}}{\frac{\partial u_f(\theta,\beta_f)}{\partial \beta_f}}$. Moreover, each lobbying firm maximizes its utility subject to the government's incentive compatibility constraint $u_g(\beta^{**}_{t=2}, \theta^{**}_{t=2}) \geq u_g(0,0)$ implying:

$$-\frac{7(a-c)^2}{288bR} = -V'(\beta)[\frac{7L(a-c)^2}{144bR}]$$
$$V'(\beta) = \frac{1}{2L}$$
$$\beta^{**}_{t=2} = V'^{-1}(\frac{1}{2L})$$

This then implies that:

$$\frac{15(a-c)^2}{32b} - (\frac{\theta}{R})[\frac{7(a-c)^2}{288b} + V(\beta) \geq \frac{15(a-c)^2}{32b}$$
$$V(\beta) = (\frac{\theta}{R})[\frac{7(a-c)^2}{288b}$$
$$\theta^{**}_{t=2} = \frac{288bR}{7(a-c)^2} V(V'^{-1}(\frac{1}{2L}))$$

Derivation of Inequality 15

For each firm to lobby with certainty in the two-incumbent case, it must be true that each firm prefers to lobby knowing that the other firm will lobby as well. The level of barriers to entry when two firms contribute which, with some abuse of notation, I here denote $\theta^{**}_{t=2,L=2}$ must be sufficiently large relative to that when only one firm contributes $\theta^{**}_{t=2,L=1}$ that it compensates for each firms' cost of lobbying $\beta^{**}_{f,t=2,L=2} + k$. Substituting these values from identity 13 yields the following:

$$F(\theta^{**}_{t=2,L=2})[\frac{(a-c)^2}{9b}] + [1 - F(\theta^{**}_{t=2,L=2})][\frac{(a-c)^2}{16b}] - \beta^{**}_{f,t=2,L=2} - k \geq F(\theta^{**}_{t=2,L=1})[\frac{(a-c)^2}{9b}] + [1 - F(\theta^{**}_{t=2,L=1})][\frac{(a-c)^2}{16b}]$$

$$2[V(V'^{-1}(\frac{1}{4})) - V(V'^{-1}(\frac{1}{2}))] - \frac{1}{2}V'^{-1}(\frac{1}{4}) \geq k$$

Proof of Proposition 2

If lobbying takes place with certainty absent entry, but does not take place with certainty given entry, it must be the case that inequality 12 holds while inequality 15 does not. By substitution, it must be the case that $4[\frac{1}{2}V(V'^{-1}(\frac{1}{4})) - V(V'^{-1}(\frac{1}{2}))] < \frac{1}{2}V'^{-1}(\frac{1}{4}) - V'^{-1}(\frac{1}{2})$. If this inequality holds, each firm will lobby with positive probability $Pr(lobbies) \in (0, 1)$. In such a mixed strategy equilibrium, the expected utility of each firm from engaging in lobbying must equal that from not engaging in lobbying. Denote the utility to firm f of engaging in lobbying while firm $\neg f$ is also engaged in lobbying as $u_f(\theta^{**}_{t=2,L=2}, \beta^{**}_{f,t=2,L=2}, k)$. Then:

$$u_f(\theta^{**}_{t=2,L=2}, \beta^{**}_{f,t=2,L=2}, k) = F(\theta^{**}_{t=2,L=2})[\frac{(a-c)^2}{9b}] + [1 - F(\theta^{**}_{t=2,L=2})][\frac{(a-c)^2}{16b}] - \beta^{**}_{f,t=2,L=2} - k$$

substituting from identity 13 yields

$$= 2V(V'^{-1}(\frac{1}{4})) + \frac{(a-c)^2}{16b} - \frac{1}{2}V'^{-1}(\frac{1}{4}) - k$$

Denote the utility to firm f of engaging in lobbying while firm $\neg f$ does not as $u_f(\theta^{**}_{t=2,L=1}, \beta^{**}_{f,t=2,L=1}, k)$.

Then:

$$u_f(\theta^{**}_{t=2,L=1}, \beta^{**}_{f,t=2,L=1}, k) = F(\theta^{**}_{t=2,L=1})[\frac{(a-c)^2}{9b}] + [1 - F(\theta^{**}_{t=2,L=1})][\frac{(a-c)^2}{16b}] - \beta^{**}_{f,t=2,L=1} - k$$

substituting from identity 13 yields

$$= 2V(V'^{-1}(\frac{1}{2})) + \frac{(a-c)^2}{16b} - V'^{-1}(\frac{1}{2}) - k$$

The utility to firm f from engaging in lobbying will therefore be the weighted sum of the two identities above, where the weights are given by the probability firm $\neg f$ engages in lobbying $Pr(lobbies)$. This will be given by the following expression:

$$(1 - Pr(lobbies))[2V(V'^{-1}(\frac{1}{2})) + \frac{(a-c)^2}{16b} - V'^{-1}(\frac{1}{2}) - k] +$$
$$Pr(lobbies)[2V(V'^{-1}(\frac{1}{4})) + \frac{(a-c)^2}{16b} - \frac{1}{2}V'^{-1}(\frac{1}{4}) - k]$$

If firm f does not engage in lobbying, barriers to entry will be set at $\theta^{**}_{t=2,L=1}$ in the event that firm $\neg f$ engages in lobbying and at $\theta = 0$ in the event that firm $\neg f$ does not engage in lobbying. In the latter case, entry will take place with certainty. Firm f does not incur any cost from the lobbying process. Therefore, her utility will be given by the weighted sum

$$Pr(lobbies)[F(\theta^{**}_{t=2,L=1})[\frac{(a-c)^2}{9b}] + [1 - F(\theta^{**}_{t=2,L=1})][\frac{(a-c)^2}{16b}]] + (1 - Pr(lobbies))[\frac{(a-c)^2}{16b}]$$
$$= \frac{(a-c)^2}{16b} + Pr(lobbies)[2V(V'^{-1}(\frac{1}{2}))]$$

Setting firm f's expected utility from lobbying equal to that from not lobbying yields the following exression:

$$2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) - k = Pr(lobbies)[4V(V'^{-1}(\frac{1}{2})) - 2V(V'^{-1}(\frac{1}{4})) + \frac{1}{2}V'^{-1}(\frac{1}{4}) - V'^{-1}(\frac{1}{2})]]$$

Solving for the equilibrium value of $Pr(lobbies)$ yields:

$$Pr(lobbies) = [2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) - k] \backslash [4V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) - (2V(V'^{-1}(\frac{1}{4})) - \frac{1}{2}V'^{-1}(\frac{1}{4}))]$$

Note that if inequality 14 holds and inequality 15 does not, then $Pr(lobbies) \in (0, 1)$.

Incumbent Utility in the First Period of the Game

If lobbying is certain not to take place in the second round of the game - i.e., if inequality 12 does not hold - then entry will take place with certainty in the second round. The incumbent monopolist's utility in the first round therefore only depends on whether or not entry will take place in the first round. Such entry will occur with probability $1 - F(\theta_{t=1})$ and is expressed by the following:

$$\begin{aligned} u_{I,t=1}(\theta_{t=1}, \beta_{I,t=1}) &= F(\theta_{t=1})[\frac{(a-c)^2}{4b} + \frac{\delta(a-c)^2}{9b}] + [1 - F(\theta_{t=1})][\frac{(a-c)^2}{9b} + \frac{\delta(a-c)^2}{16b}] - \beta_{I,t=1} - K_{t=1} \\ &= \frac{(16+9\delta)(a-c)^2}{144b} + (\frac{\theta_{t=1}}{R})[\frac{(20+7\delta)(a-c)^2}{144b}] - \beta_{I,t=1} - K_{t=1} \end{aligned}$$

For notational simplicity, denote this value ω.

The expression for I's utility if lobbying takes place with positive probability in the final round is somewhat more complicated. From Proposition 3, it follows that if lobbying takes place with positive probability in the second round, it takes place with certainty if the first challenger does not enter (i.e., with probability $F(\theta_{t=1})$). This implies that the level of contributions and of barriers to entry in the second round will be as described identity 11 above with probability $F(\theta_{t=1})$. In the event that entry does take place in the first round, lobbying will take place with positive probability in the second. Assume that $Pr(lobbies) \in (0, 1)$. It can then be shown that the incumbent monopolist's expected utility from the second round given entry will be $\frac{(a-c)^2}{16b} + Pr(lobbies)[2V(V'^{-1}(\frac{1}{2}))]$. Then I's first round utility is given by the weighted sum of these two terms plus her contempora-

neous utility:

$$u_{I,t=1}(\theta_{t=1},\beta_I) = F(\theta_{t=1})\{\frac{(a-c)^2}{4b} + \delta[\frac{(a-c)^2}{9b} + 2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) - k]\} +$$
$$[1-F(\theta_{t=1})]\{\frac{(a-c)^2}{9b} + \delta[\frac{(a-c)^2}{16b} + Pr(lobbies)(2V(V'^{-1}(\frac{1}{2})))]\} - \beta_{I,1} - k$$

Simplifying:

$$u_{I,t=1}(\theta_{t=1},\beta_I) = \omega + \delta Pr(lobbies)(2V(V'^{-1}(\frac{1}{2}))) - \beta_I - K$$
$$+\delta(\frac{\theta_{t=1}}{R})\{2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) - k - Pr(lobbies)[2V(V'^{-1}(\frac{1}{2}))]\}$$

Note that (1) $\frac{\partial u_{I,t=1}(\theta_{t=1},\beta_I)}{\partial \theta_{t=1}}$ declines as $Pr(lobbies)$ rises and (2) that for sufficiently low values of $Pr(lobbies)$, $\frac{\partial u_{I,t=1}(\theta_{t=1},\beta_I)}{\partial \theta_{t=1}}$ is greater given that $Pr(lobbies) \in (0,1)$ than when lobbying does not take place in the first round (as in the above).

If $Pr(lobbies) = 1$ - i.e., inequalities 14 and 15 both hold - then the expression for the incumbent monopolist's utility is still different. The incumbent monopolist enjoys expected utility given by the expression $\frac{(a-c)^2}{16b} + 2V(V'^{-1}(\frac{1}{4})) - \frac{1}{2}V'^{-1}(\frac{1}{4}) - k > \frac{(a-c)^2}{16b} + Pr(lobbies)[2V(V'^{-1}(\frac{1}{2}))]$ in the second round given entry in the first. With probability $1 - F(\theta_{t=1})$ entry takes place and both members of the duopoly lobby in the second round. Then the expression for the incumbent monopolist's first round utility will be given by:

$$u_{I,t=1}(\theta_{t=1},\beta_I) = \omega + \delta[2V(V'^{-1}(\frac{1}{4})) - \frac{1}{2}V'^{-1}(\frac{1}{4}) - k] - \beta_I - K$$
$$-\delta(\frac{\theta_{t=1}}{R})\{2[V(V'^{-1}(\frac{1}{4})) - V(V'^{-1}(\frac{1}{2}))] + V'^{-1}(\frac{1}{2}) - \frac{1}{2}V'^{-1}(\frac{1}{4})\}$$

Given that inequality 15 holds, the expression $2V(V'^{-1}(\frac{1}{4})) - 2V(V'^{-1}(\frac{1}{2})) + V'^{-1}(\frac{1}{2}) - \frac{1}{2}V'^{-1}(\frac{1}{4})$ is strictly greater than zero. Therefore, $\frac{\partial u_{I,t=1}(\theta_{t=1},\beta_I)}{\partial \theta_{t=1}}$ is strictly lower in this instance than when $Pr(lobbies) \in (0,1)$.

It therefore follows that the incumbent monopolist's utility varies most strongly with $\theta_{t=1}$ when $Pr(lobbies) \in (0,1)$ and when $Pr(lobbies) << 1$.

Proof of Proposition 5

The government's incentive compatibility constraint requires that $W(\theta^*_{t=1}) + V(\theta^*_{t=1}) + A(\theta^*_{t=1}) \geq W(0) + V(0) + A(0)$. Denote the solution to the equilibrium level of $\theta_{t=1}$ when $A = 0$ (i.e., when conditionality is not applied) as $\hat{\theta}_{t=1}$. If $\hat{\theta}_{t=1} \leq \bar{\theta}$, then $\theta^*_{t=1} = \hat{\theta}_{t=1}$. The equilibrium level of barriers is unaffected by conditionality. If $\hat{\theta}_{t=1} > \bar{\theta}_{t=1}$, then the equilibrium level of barriers to entry will be affected by EU conditionality and the government's incentive compatibility constraint. To meet the government's incentive compatibility constraint, the incumbent monopolist must set a contribution schedule that allows for a strictly lower level of barriers (θ) in exchange for the equilibrium level of bribes $\beta^*_{t=1}$. More precisely, $\theta^*_{t=1} = \max\{\hat{\theta}_{t=1} - A(\frac{188bR}{(20+7\delta)(a-c)^2}); \bar{\theta}\}$. To see this, note that $W(\theta) = \frac{(128+135\delta)(a-c)^2}{288b} - \frac{\theta_{t=1}}{R}[\frac{(20+7\delta)(a-c)^2}{288b}]$ from expression 17. Therefore, the government's incentive compatibility constraint implies that, if $\hat{\theta}_{t=1} > \bar{\theta}_{t=1}$, $V(\beta^*_{t=1}) \geq \frac{\theta_{t=1}}{R}[\frac{(20+7\delta)(a-c)^2}{288b}] - A$. Satisfying this constraint implies that $\theta^*_{t=1} = \max\{\hat{\theta}_{t=1} - A(\frac{188bR}{(20+7\delta)(a-c)^2}); \bar{\theta}\}$. This expression is weakly decreasing in A. This quantity is weakly increasing in $\bar{\theta}$. And the range of parameters for which $\theta^*_{t=1} > \bar{\theta}$ is decreasing in $\bar{\theta}$.

The Concavity of $V(\cdot)$

For $V(x) = Bx^\alpha$, computational solutions reveal that the inequality expressed in Proposition 1, i.e., $4[V(\frac{1}{2}V'^{-1}(\frac{1}{4})) - V(V'^{-1}(\frac{1}{2}))] < \frac{1}{2}V'^{-1}(\frac{1}{4}) - V'^{-1}(\frac{1}{2})$ will be satisfied for values of $\alpha \lessapprox 0.556$. If this property is not satisfied, firms may lobby given entry when they would not absent entry. More precisely, when inequality 15 is satisfied while inequality 14 is not, there exist two equilibria - one wherein both firms lobby one wherein neither firm lobbies.

Corner Solutions

Assume that $\frac{72bR}{5(a-c)^2}V(V'^{-1}(\frac{1}{2})) > \frac{(a-c)^2}{9b}$, and $2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) \geq k$. Then, absent entry in the first round, the incumbent firm will lobby with probability one such that $\theta = \frac{(a-c)^2}{9b}$ and entry in the second round is deterred with probability 1. Now compare this case to the case given entry in the first round. Note that, since $\theta^*_{t=2} = \frac{72bR}{5(a-c)^2}V(V'^{-1}(\frac{1}{2})) < \theta^{**}_{t=2} = \frac{288bR}{7(a-c)^2}V(V'^{-1}(\frac{1}{2L}))$ with $L = 1$, and the necessary level of θ to deter entry declines to $\frac{(a-c)^2}{16b}$, if a corner solution is

reached in the first round then it is reached by a single firm lobbying in the second round. This will induce a public goods game where the probability each firm lobbies in a mixed strategy equilibrium is given by: $Pr(lobbies) = [\frac{7(a-c)^2}{144b} - V^{-1}(\frac{7(a-c)^2}{288b}) - k]/[\frac{7(a-c)^2}{144b} - \frac{1}{2}V^{-1}(\frac{7(a-c)^2}{288b})] \in (0,1)$.[51] Thus the comparative statics of the model continue to hold.

Assume now that $\frac{288bR}{7(a-c)^2}V(V'^{-1}(\frac{1}{2})) > \frac{(a-c)^2}{16b}$ and $\frac{72bR}{5(a-c)^2}V(V'^{-1}(\frac{1}{2})) < \frac{(a-c)^2}{9b}$ and $2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) \geq k$. Thus, a corner solution is reached with a single firm lobbying given entry, but is not reached absent entry. The equilibrium is exactly as above, such that absent entry lobbying takes place with probability 1, and given entry each incumbent lobbies with probability $Pr(lobbies) = [\frac{7(a-c)^2}{144b} - V^{-1}(\frac{7(a-c)^2}{288b}) - k]/[\frac{7(a-c)^2}{144b} - \frac{1}{2}V^{-1}(\frac{7(a-c)^2}{288b})] \in (0,1)$.

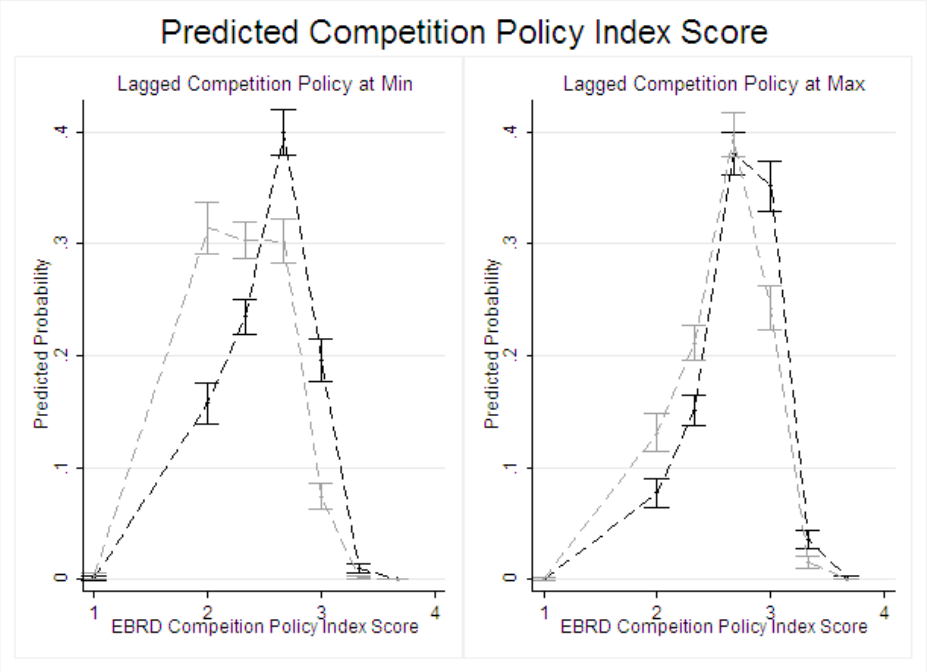
Assume now that $\frac{288bR}{7(a-c)^2}V(V'^{-1}(\frac{1}{2})) < \frac{(a-c)^2}{16b}$, but $\frac{288bR}{7(a-c)^2}V(V'^{-1}(\frac{1}{4})) > \frac{(a-c)^2}{16b}$. Assume further $2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) \geq k$ and $\frac{7(a-c)^2}{144b} - 2V(V'^{-1}(\frac{1}{2})) - \frac{1}{2}V^{-1}(\frac{7(a-c)^2}{288b}) < k$. Absent entry, lobbying is described as above. Given entry, if both firms lobby, a corner solution will be reached. However, each incumbent firm would prefer not to lobby, given that the other incumbent firm chooses to lobby. In this instance, a mixed-strategy equilibrium is reached wherein each firm lobbies with probability $Pr(lobbies) = [2V(V'^{-1}(\frac{1}{2})) - \frac{1}{2}V'^{-1}(\frac{1}{2}) - k]/[4V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) + \frac{1}{2}V^{-1}(\frac{7(a-c)^2}{288b}) - \frac{7(a-c)^2}{144b}] \in (0,1)$. Thus the comparative statics of the model hold.

If $\frac{288bR}{7(a-c)^2}V(V'^{-1}(\frac{1}{2})) < \frac{(a-c)^2}{16b}$, but $\frac{288bR}{7(a-c)^2}V(V'^{-1}(\frac{1}{4})) > \frac{(a-c)^2}{16b}$ and $2V(V'^{-1}(\frac{1}{2})) - V'^{-1}(\frac{1}{2}) \geq k$ and $\frac{7(a-c)^2}{144b} - 2V(V'^{-1}(\frac{1}{2})) - \frac{1}{2}V^{-1}(\frac{7(a-c)^2}{288b}) \geq k$, incumbent firm(s) lobby with probability 1 absent or given entry.

[51] Derivation available on request.

B Figures

Figure 4: Predicted EBRD Competition Policy Scores and EU Member Status



Predicted probabilities (and 95 percent confidence intervals) of obtaining a given EBRD competition policy score. Predictions are based on OProbit1 from Table 1. Possible EBRD competition policy index scores are reported on the x-axis, predicted probabilities are on the y-axis. Dark values reflect predictions for a country that obtained EU member status the preceding year. Light values reflect predictions for a country that did not receive such status. The graph to the left depicts predictions when the level of competition policy was at its most restrictive level (2.67) observed a year member status is granted. The graph to the right depicts predictions when the level of competition policy was at its most liberal level (3.33) observed a year before member status is granted. Predicted probabilities were generated using CLARIFY (Tomz et al., 2001) run from Stata 11.