Mergers, Lobbying, and Elections: Is there a "Curse of Bigness"?*

Matteo Broso† and Tommaso Valletti‡

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Abstract

We study the impact of market concentration on elections and lobbying in a political agency model with adverse selection and moral hazard. Two incumbent firms can lobby a politician (P) to prevent a pro-competitive reform. P's type determines whether they care about bribes or not. A representative voter tries to infer P's type monitoring the policymaking process. We investigate the welfare implications of a merger between the two firms. In equilibrium, the merger increases firms' incentives to lobby and their ability to influence politics. This additional political power reduces the chances that the pro-competitive reform is approved, hurting consumers; but it allows the voter to defeat a corruptible P with higher probability. Thus, it improves the voter's screening and mitigates adverse selection. We discuss how this new trade-off interacts with traditional competition considerations in the merger's assessment.

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†University of Turin and Collegio Carlo Alberto.
‡Imperial College London and CEPR.

1 Introduction

Market concentration entails market power costs and potential efficiency benefits. Following consolidation, like after a merger or an acquisition, firms can become more efficient. Due to synergies, economies of scale, or economies of scope, they might produce at lower costs. Cost efficiencies may then translate into lower consumer prices. However, consolidation can harm consumers as market power may reduce output and increase prices. This trade-off is first pointed out in Williamson [1968], and lies at the core of merger control.

The *consumer welfare standard*, which is the current dominant perspective in antitrust enforcement, follows this logic and posits that mergers should be approved if and only if efficiencies are large enough to compensate for the increase in consumer prices due to higher market power, holding market structure constant.

This approach has been criticized for being too narrow by the Neo-Brandeisian antitrust movement (Wörsdörfer [2023]). Following the legacy of Associate Justice of the US Supreme Court Louis Brandeis, critics are concerned about the wider risks that market concentration poses for political freedom and democracy.[1] In this view, antitrust should not only contrast market power but also prevent excessively large corporations from influencing democratic institutions to the detriment of citizens. This is Brandeis' "Curse of Bigness", according to which industrial concentration not only affects consumers directly through market power but also indirectly through politics. Empirical research supports this concern, finding that market concentration increases firms' lobbying expenditures in the US (Cowgill et al. [2024], Moshary and Slattery [2024]). Recent empirical evidence also shows that lobbying expenditures and market concentration have both been increasing over time and across industries.[2]

From a welfare perspective, however, it is not obvious that size is "bad" *per se*. Economists champion efficiencies, and it is not straightforward why size should result in additional political influence and consumer harm, as well as how antitrust should react to the political consequences of market power.

In this paper, we study how market concentration induced by a merger affects

[1] See here for an overview of the Neo-Brandeisians' critiques to the consumer welfare standard. The debate around the consumer welfare standard goes back at least to Bork [1978], and has been revamped by Khan [2016], Wu [2018], Shapiro [2019], and Tirole [2022], among others.

[2] See here, here, and here for evidence about firms' lobbying activity in the US and the EU. The literature on industrial concentration trends, and its causes and consequences, is an active area of ongoing research. See, e.g., Grullon et al. [2019], Philippon [2019], De Loecker et al. [2020], Benkard et al. [2021], Kwon et al. [2024].

firms' political power and how this impacts a merger's welfare assessment. We build a political agency model with regulation, mergers, and lobbying. As the market becomes more concentrated, firms have more political power, and lobbying activity increases. Our model reveals a new trade-off associated with market concentration. On the one hand, this additional political power is bad as it is used to lobby politicians to implement policies that protect large incumbents in the market, hurting consumers. On the other hand, policies are observed and this allows voters to screen politicians, thereby mitigating problems of adverse selection of policymakers. Our model captures how this trade-off interacts with traditional price and efficiency effects in a merger's assessment.

We consider an industry producing three differentiated goods. Goods 1 and 2 are produced by two incumbent firms with market power. Good 3 is produced by a competitive fringe.

An incumbent politician decides whether to approve a pro-competitive market reform or not. The reform determines the extent of the competitive pressure faced by the two incumbent firms: if approved, it makes the fringe more aggressive. The reform can be seen as the elimination of a barrier to entry that protects incumbent firms' profits by keeping good 3's price artificially high. The reform benefits the consumer, and it is bad for the two incumbent firms.

The two incumbent firms can lobby the politician to persuade them not to implement the reform (*quid pro quo lobbying*, Grossman and Helpman [1994]). The politician can be of two types: Good or Bad. If the politician is Good, they are un-corruptible. They do not care about bribes and always implement the reform in the consumer's interest. If the politician is Bad, they care about bribes and re-election. As it is usual in political agency models, the Bad politician faces a tension between behaving well to try to win re-election and accepting bribes and giving up the office with some probability.

A representative voter chooses whether to re-elect the politician or not. The objective of the voter is to elect a Good politician. However, they do not observe the politician's type. They try to infer the type by imperfectly monitoring the political process. Imperfect monitoring creates an incentive for moral hazard. Imperfect information creates a problem of adverse selection of politicians.

We show that this game may have two types of equilibria: Pooling and Separating. In a Pooling equilibrium, both types of P implement the pro-competitive reform. However, this equilibrium is inefficient from the voter's perspective as it prevents learning. With some probability, the voter re-elects a corruptible

incumbent. Adverse selection bites. In a Separating equilibrium, the Bad politician does not implement the pro-competitive reform in exchange for bribes. The consumer suffers from higher prices, but the voter is able to infer the politician's type. Adverse selection is mitigated.

Before playing the lobbying game, the two firms may merge. The merger has efficiency benefits, as it reduces firms' marginal costs, but also market power costs. Additionally, if the merger takes place, firms internalize higher benefits from protection and, therefore, have more incentives to lobby. It may be the case that firms have incentives to lobby *only* if the merger is approved. Then, the merger can change the nature of the political equilibrium, from Pooling to Separating.

Within this setting, we then address our main policy question: Which mergers are welfare improving? Should antitrust authorities account for the political architecture of market power? To put it differently, should a merger's assessment consider only market effects of market power, following the consumer welfare standard, or should it extend to non-market effects as well? To answer this question, we introduce an additional player: an antitrust authority that decides whether to approve the merger or not before firms play the lobbying game. The authority cares about consumers and voters, and its optimal behavior depends on the nature of the political equilibrium. We show that three possible cases arise.

First, suppose that the equilibrium is always Pooling, no matter if the merger is allowed or not. All politicians behave in the same way and approve the pro-competitive reform. There is no screening of P. With some probability, the voter re-elects the Bad politician, but the authority cannot do anything to prevent this. Then, the authority approves only mergers that are efficient enough to decrease prices. Mergers have no political effects, and the consumer welfare standard is optimal.

Second, suppose instead that the equilibrium is always Separating, no matter if the merger is allowed or not. As in the previous case, the merger has no political effects, and the voter's payoff does not depend on the merger's approval. In either case, the voter successfully screens P. However, with some probability, nature draws a Bad politician, and the reform is not implemented. Then, a higher level of efficiencies is required (in expectations) for the merger to be pro-competitive compared to the previous case. For this reason, the consumer welfare standard is too lenient.

Finally, suppose that the equilibrium is Separating if and only if the merger is approved. It is the merger that gives the two firms the ability to influence P. Then, the merger can increase prices not only because it increases market power, but also because it increases political power, which causes the failure of the pro-competitive reform. However, the voter would like the merger to be approved, as this allows them to defeat a corrupt politician. The authority's optimal merger policy depends on the voter's benefits from screening politicians' types.

In this third case, if the value of screening is low, the separating equilibrium is very inefficient as it induces the Bad politician to accept bribes in exchange for limiting competition, thereby hurting the consumer. Then, the merger would need to be very efficient to be approved. The authority may reject pro-competitive mergers (mergers that decrease prices) because in the resulting Pooling equilibrium, there would never be lobbying, the pro-competitive reform would always be approved, and prices would drop even further.

The higher the value of screening, the greater the price increase that the authority can tolerate to make the voter learn the politician's type. If the value of screening is high enough, the authority may even approve anti-competitive mergers (mergers that increase prices) to make the voter learn the politician's type and defeat a corrupt one. Committing to the consumer welfare standard can now result in both type I and type II errors.[3]

In the Appendix, we test the robustness of our results. We explore different bargaining settings, we explore a dynamic model with endogenous bribes and office values for politicians, and extend our findings to a broad class of supermodular market games.

However, our model relies on some key assumptions which are worth discussing. First, we assume lobbying is a *quid-pro-quo* exchange, where politicians grant favors to firms in return for private benefits, such as monetary bribes, non-monetary perks, or job offers after their term. In this regard, we do not consider the case of informational lobbying, whereby politicians gain information from

[3]In the baseline model, we assume that the value of screening is exogenous. In the Appendix, we endogenize it in a two-period model. In this dynamic model, the voter wants to avoid appointing Bad politicians because, in the last period, they always fail to pass the pro-competitive reform in exchange for bribes. In this model, one may want to approve anti-competitive mergers if and only if Bad politicians could harm consumers beyond the market's partial equilibrium (e.g., corruption, extraction of public resources, etc.). In the absence of these out-of-market externalities, the consumer welfare standard is always too lenient.

interacting with firms.[4]

Second, we adopt a partial equilibrium approach. While we acknowledge that voting and competition are complex and general equilibrium phenomena, we believe that our simple model of a single industry can still shed light on the incentives of politicians, voters, and firms in settings where large corporations can use influence to obtain favors from politics. For example, telecommunications is an industry where there have been several mergers among large operators with market power. As documented by Faccio and Zingales [2022], telecoms is also an industry where lobbying is common, as are political connections. In line with one of our key modeling assumptions, they show that when incumbent firms are politically connected, regulation does not favor competition, and prices are higher. This example fits with our model, where incumbent firms lobby politicians to block pro-competitive reforms. We show that firms have stronger incentives to lobby after a merger.

We contribute to two main streams of literature. The first is the literature at the intersection of industrial organization and the political economy of regulated markets. In a recent theoretical paper, Callander et al. [2022] show that politicians have an incentive to protect firms from competition and raise barriers. However, their incentive is not perfectly aligned with the incumbent firms. Politicians strategically do not protect firms too much; otherwise, firms would stop demanding protection. The same authors show that a liberalization policy can be effective or not depending on the *ex-ante* market structure (Callander et al. [2023]). Recent empirical work by Akcigit et al. [2023] shows that, as firms increase in size, they tend to rely more on non-market strategies, such as political connections, to maintain a dominant position. Akcigit and Ates [2023] document the lack of "creative destruction" in the modern US economy, pointing to regulation and weak antitrust enforcement among the different potential explanations. Kang [2016] structurally estimates a rent-seeking lobbying game, where interest groups lobby politicians to obtain favorable regulations. She finds that lobbying has a small effect on a policy's probability of approval. However, since policies are, on average, very valuable for firms, average private returns from lobbying expenditures are substantial.

Our two most closely related papers are Cowgill et al. [2024] and Moshary

[4]For models of informational lobbying, see Schnakenberg [2017], Awad and Minaudier [2025], and Besanko and Spulber [1993] for an application to antitrust. Bombardini and Trebbi [2020] review the empirical literature, distinguishing between *quid-pro-quo* and informational lobbying.

and Slattery [2024], which focus empirically on the impact of mergers on lobbying, finding that mergers increase lobbying activity. Our main contribution is to provide the first (to the best of our knowledge) welfare analysis of mergers that takes into account the political economy effects of market concentration.

The second is the literature about political agency with adverse selection and moral hazard. Seminal papers in this literature are Fearon [1999], Coate and Morris [1995], Maskin and Tirole [2004], and Banks and Sundaram [1998].[5] The key insight of this literature is that voters and politicians can be seen as principals and agents, respectively. Then, imperfect information generates agency problems such as adverse selection of politicians and moral hazard. We contribute to this literature by linking electoral accountability with market concentration.

The rest of the paper is organized as follows. In Section 2, we illustrate our model setup. In Section 3, we characterize the equilibrium of the model. Mergers and their welfare properties are considered in Section 4. Finally, Section 5 concludes. Proofs and extensions are relegated to the Appendix.

2 Model

We present a simple model of mergers and lobbying. In the Appendix, we extend the model in several directions to test the robustness of the results and explore further implications.

The model intends to capture market and non-market aspects of competition, and for this reason, it has two main blocks that interact with each other: a political economy block and a competition block. In the first one, two firms lobby a politician who can make a decision that impacts their profitability via a market mechanism, and a representative voter appoints the politician. In the second one, these firms compete against each other in the market, as affected by the politician's decision. Firms may merge or not before playing the lobbying game and the competition game. Our goal is to perform a welfare assessment of the merger decision by considering both channels. With this in mind, we now detail every component of the model.

[5] For more recent contributions, see Wolton [2019], Duggan and Martinelli [2020], Blumenthal [2023], Sasso and Morelli [2021], among many others. For political agency papers related to the topic of money in politics and *quid-pro-quo* lobbying, see Bils et al. [2021] and Daley and Snowberg [2011]. See also Schnakenberg and Turner [2023] for a recent survey of this literature.

Players We consider a market with three differentiated goods $i \in \{1,2,3\}$. Goods $1,2$ are produced by two incumbent firms with market power. These are the firms that can eventually lobby. A competitive fringe sells good 3, and they do not lobby.[6] A representative consumer buys the three goods. At the beginning of the game, the two firms $(1,2)$ can merge or not. We say that $m = 1$ if the merger occurs, and $m = 0$ otherwise. The merger is exogenous but always profitable for the two firms. In Section 4, we allow a benevolent antitrust authority to decide upon the merger approval.

There is an incumbent politician (P). P can implement a pro-competitive reform that decreases the price of the fringe good p_3, for instance, by making entry into the market by the competitive fringe easier. Incumbent firms can lobby P trying to avoid that. P has a type $\theta_P \in \{\text{Good}, \text{Bad}\}$. If P is Good, they are not interested in lobbying money, such as bribes. If P is Bad, they care about bribes. A representative voter chooses whether to re-elect P or replace them with a challenger. The challenger type is denoted by $\theta_C \in \{\text{Good}, \text{Bad}\}$.

Policy The price of the fringe good $p_3(a)$ depends on a pro-competitive reform a. We say that the reform is implemented by P if $a = 1$ and it is not implemented if $a = 0$. We assume that $p_3(1) < p_3(0)$. Without loss of generality, let $p_3(1) = 0$ and $p_3(0) = \eta$, with $\eta > 0$.[7]

There are various interpretations for a. For instance, firms $1,2$ may be two domestic firms competing against a fringe of foreign goods whose prices depend on the level of import tariffs. Alternatively, firms $1,2$ may describe two private firms (e.g., hospitals, schools, or pharmacies) competing with a fringe of public providers whose number and/or quality is affected by political decisions.[8] As a further example, consider the case of entry regulation. Politicians can restrict entry in many markets (e.g., retail, or ride-sharing), thereby (indirectly) controlling prices. All these examples share a crucial feature of our parsimonious model. Politicians can take actions that influence the degree of competition

[6] This assumption is based on the idea that lobbying from the fringe might require coordination or the payment of a fixed cost that is possibly too high for very small players. If the fringe captures competition from imports, foreign firms may not have access to domestic politicians.

[7] For the sake of simplicity, we assume that the price of the fringe good is a function of a only. This assumption is not consequential for our results, as we would obtain analogous results in a model where good 3 is also sold by a firm with market power. Our results depend on two assumptions: (i) p_3 depends on a; (ii) the seller of good 3 cannot lobby. See Appendix B, for a generalization of our main results to a more general supermodular game.

[8] This example may be particularly relevant given the recent wave of mergers between US hospitals. See Gowrisankaran et al. [2015] and Prager and Schmitt [2021], among others.

firms face in the market and, therefore, their market rents, and firms can lobby politicians to shape those rents. In the context of this tension, we will study how a merger between the two firms affects lobbying and, in turn, welfare.

We discuss the details of the lobbying and merger processes in the following paragraphs.

Timing and Actions The timing of the game runs as follows.

Stage 1 Nature draws θ_P, θ_C.

Stage 2 P chooses whether to implement the reform ($a = 1$) or not ($a = 0$) by committing to a mechanism $a\,(l_1, l_2)$.

Stage 3 Firms observe the mechanism and choose whether to lobby ($l_i = 1$) or not ($l_i = 0$). The reform a is implemented.

Stage 4 Firms observe $p_3\,(a)$ and simultaneously set prices p_1, p_2. The consumer observes prices and chooses a consumption plan d_1, d_2, d_3.

Stage 5 The voter chooses whether to re-elect P ($r = 1$) or not ($r = 0$). Payoffs are realized.[9]

In the baseline model, we make some assumptions to keep the model as simple as possible to convey our intuition. We assume that lobbying is binary and that P can commit to a TIOLI offer for the two firms. In the Appendix, we generalize the model to different bargaining and competition structures.[10]

Payoffs The representative consumer has a quadratic utility function *à la* Singh and Vives [1984]:

$$u\,(d_1, d_2, d_3) = d_1 + d_2 + d_3 - \frac{1}{2}\left(d_1^2 + d_2^2 + d_3^2\right) - \gamma\,(d_1 d_2 + d_2 d_3 + d_1 d_3)\ . \quad (2.1)$$

The parameter $\gamma \in (0, 1)$ captures the degree of product differentiation.[11] If $\gamma = 0$, the three products are independent, and the two incumbent firms act

[9] At the end of Stage 5, $\theta^*(r)$ is revealed to the voter.

[10] In our reduced-form approach, we assume that either the politician (in the baseline model) or the two firms (in the Appendix) have commitment power. While this assumption simplifies the analysis, it could be relaxed in a dynamic model where reputation, for example, might serve as a commitment device.

[11] Assume that the consumer has a quasi-linear utility function, where (2.1) is the non-linear part. Then, the demand for goods 1, 2, 3 does not depend on income, and a partial equilibrium analysis is justified (Singh and Vives [1984], Motta [2004], Choné and Linnemer [2020]). In Appendix B, we show that our results generalize to a whole class of games with strategic complements.

as separate monopolists. If $\gamma = 1$, goods are perfect substitutes, and Bertrand competition brings profits down to zero. In either limiting case, firms would never lobby as the reform a does not impact their profits. Hence, we study the case when $0 < \gamma < 1$, that is, products are imperfect substitutes (Amir et al. [2017]).

The voter cares about electing a Good politician. Let $\theta^*(r)$ be the type of politician winning the election. Then,

$$\theta^*(r) = \begin{cases} \theta_P & \text{if } r = 1 \\ \theta_C & \text{if } r = 0\,. \end{cases} \tag{2.2}$$

The voter's payoff is:

$$v(r) = \begin{cases} -\phi & \text{if } \theta^*(r) = \text{Bad} \\ 0 & \text{if } \theta^*(r) = \text{Good}\,, \end{cases} \tag{2.3}$$

where $\phi > 0$ captures the benefits associated with screening. A possible interpretation for ϕ is as follows. Suppose that a Bad politician is re-elected. While in office, a corruptible politician may adopt policies that appeal to specific interest groups (perhaps in exchange for bribes) rather than voters. In this context, ϕ represents the cost of such actions to the voters in present-value terms.[12]

The profits of firms $i \in \{1, 2\}$ are:

$$\pi_i(p_i, d_i, l_i) = d_i\left[p_i - c\left(m\mu + (1-m)\right)\right] - tl_i\,, \tag{2.4}$$

where d_i is the quantity sold by firm i, $c > 0$ is the (symmetric) marginal cost, $\mu \leq 1$ captures the efficiencies activated by the merger, and $t > 0$ is the value of the bribe.

The parameter t captures how costly it is for firms to engage in lobbying. A possible interpretation is that t is a proxy for the stringency of the lobbying

[12]The assumption of exogenous ϕ is the simplest way of capturing the value of screening by the voter. However, the same intuition could arise endogenously following standard dynamic political agency models in finite horizon where Bad politicians always extract public resources for themselves during the last period of office. In Appendix C, we consider this case explicitly.

legislation (Schnakenberg and Turner [2019]).[13]

We assume that the merger can generate merger-specific efficiencies from the joint production of goods 1, 2. We model this by assuming that if the merger goes ahead ($m = 1$), marginal costs are μc, where $\mu \leq 1$. If $m = 1$, the merged entity chooses prices p_1, p_2 and lobbying efforts l_1, l_2 to maximize the joint sum of profits from selling the two goods. Notice that this framework allows for a meaningful welfare assessment, as a merger entails a trade-off: market power always increases, but there may be a countervailing force if efficiencies are large enough (Williamson [1968]). In Section 3, we solve the model taking m as given. In Section 4, we perform a welfare assessment of the merger.

The Good politician P is a behavioral type. They always implement the reform: $a = 1$. One interpretation of this assumption is that they are ethical agents who care about decreasing prices, as they maximize the welfare of consumers that are also voters. The Bad P's payoff is:

$$U_{\text{Bad}}(r, l_1, l_2) = rV + (l_1 + l_2)\, t \ , \tag{2.5}$$

where $V > 0$ captures the value of the office, if re-elected, and t $(l_1 + l_2)$ is the total amount of bribes received from firms. In our model, *quid-pro-quo* lobbying takes the forms of bribes. In reality, there are various possible interpretations for t: revolving doors, bribes, campaign contributions, informational benefits, etc. In the remainder, we simply refer to bribes as a shorthand for all these alternatives but we do not take a position on the legality of lobbying or bribery.[14] See Bombardini and Trebbi [2025] for a review of the various channels of political influence of large corporations.

Information Structure The voter does not observe politicians' types θ_P, θ_C. Let $q \in [0, 1]$ be the voter's prior belief that j = Good, where $j \in \{\theta_P, \theta_C\}$. We assume that m is common knowledge: everyone knows whether the merger occurred or not.

[13] For instance, in the US, the lobbying legislation is more permissive than in the EU. Our interpretation suggests that the parameter t would be lower in the US than in the EU, as firms would have to pay lower costs to lobby, other things equal. The assumption of exogenous lobbying costs is convenient for illustrating the intuition behind our results. However, this assumption is not consequential for our results. In Appendix C, we allow for endogenous transfers.

[14] In our *quid-pro-quo* setting, when an agreement is reached, the bribe t is transferred one-for-one from firms to politicians. If this transfer provides a non-monetary benefit of value t for politicians, the cost to firms may be αt, where $\alpha < 1$ or $\alpha \geq 1$. For simplicity and without loss of generality, we assume $\alpha = 1$.

With probability $x \in (0, 1]$, the voter observes the action a. There are two cases. The first case is $x = 1$. In this case, the voter and the consumer can be thought of as the same player. This player's payoff would be given by the sum of (2.1) and (2.3). In fact, if $x = 1$, the voter and the consumer have the same information.

The second case arises when $x < 1$. In this case, there is imperfect monitoring. Voters cannot always hold politicians accountable upon observing market outcomes (Blumenthal [2023]). Formally, the voter and the consumer are two different players. There are at least two possible reasons. First, consumers and voters may posses different information. Suppose that x captures the industry's relevance from the voter's perspective. For instance, the voter may not be directly interested in the consumption of goods $1, 2, 3$, but still be interested in learning θ_P. When x is low, market issues are not very salient for the voter, and politicians can exploit this lack of monitoring to their advantage. Second, voters and consumers may coincide, but prices might not be perfectly informative. Imagine that prices are informative only with probability x. With probability $1 - x$, the consumer/voter thinks that prices are pure noise.[15] Also in this case, P can use ambiguity at their advantage.

In general, $x \in (0, 1]$ generates a moral hazard problem from the P's side. The extent of moral hazard determines how likely the politician can accept bribes and still get re-elected. Only in the limiting case when $x = 0$, the voter does never observe P's action, and the Bad politician does not trade off re-election and bribes.

We now present the joint political-market equilibrium of our model for a given market structure m. Then, we study how a merger affects the nature of the such equilibrium.

[15]Indeed, in many real-world examples, prices can be "high" not because of a lack of competition but because of macroeconomic shocks or external factors. Therefore, if consumers (voters) observe high prices, they may be uncertain about the causes behind such prices. For instance, during the 2022-2023 inflation wave, there was an intense debate on the causes of such inflation, with some experts attributing them mainly to "external factors," such as the War in Ukraine or the Covid 19 Pandemic; and others pointing to companies' opportunistic behaviors ("greedflation"). This imperfect information makes prices not (fully) informative and hence generates imperfect monitoring from the point of view of consumers and a problem of moral hazard from the politicians' perspectives. Despite being formally more complicated, a model that features this intuition would be qualitatively equivalent to the one we propose here.

3 Results

Our solution concept is Perfect Bayesian Equilibrium (equilibrium henceforth) in pure strategies. A strategies–belief pair is an equilibrium if and only if:

1. Each player's strategy maximizes their expected payoff given all the other players' strategies and beliefs;

2. For any observation of P's action, the voter's belief is updated via Bayes' Rule, and their action is optimal given the equilibrium beliefs.

In the following Subsections, we take the merger m to be exogenous, and we study the impact of the merger on prices, lobbying, and elections. In Section 4, we study how these effects interplay with each other in the welfare analysis of the merger.

3.1 Preliminary Results

Let us start from the election stage (Stage 5). Let $\hat{q}$ denote the voter's updated belief that θ_P = Good. Let us assume that, in case of indifference, the voter chooses to re-elect the incumbent.[16] The voter's optimal re-election rule is:

$$r^* = \begin{cases} 1 & \text{if } \hat{q} \geq q \\ 0 & \text{otherwise .} \end{cases} \tag{3.1}$$

If the Bad P chooses $a = 0$ and the voter observes it, then $\hat{q} = 0$. Therefore, they are re-elected with probability $1 - x$. If they choose $a = 1$, they are re-elected with probability 1. P then faces a trade-off between behaving well today and ensuring re-election tomorrow, or accepting bribes and giving up the office (with some probability).

Let us now consider the market stage. In Stage 4, firms set prices anticipating the consumer's demand functions. The representative consumer's demands for the three goods $i, j, k \in \{1, 2, 3\}$, $i \neq j \neq k$ are:

$$d_i = \frac{1 - \gamma - p_i(\gamma + 1) + \gamma(p_j + p_k)}{(1 - \gamma)(2\gamma + 1)} . \tag{3.2}$$

[16] Our findings remain qualitatively unchanged under any change of the tie-breaking rule where there is a strictly positive probability that the incumbent is re-elected (for a similar discussion, see Blumenthal [2023]).

We obtain (3.2) by simply maximizing (2.1) given prices. As $\gamma > 0$, the demand for good i increases in the price of goods j, k.

In Appendix A.1, we obtain subgame equilibrium prices as a function of p_3 and market structure, with and without the merger m. We omit computations from the main text, and all the expressions are reported in the Appendix. The important results from Appendix A.1 are as follows. First, for any market structure m, equilibrium prices increase in p_3 (and thus decrease in a). This result stems from prices' strategic complementarity. Second, equilibrium profits of firms 1, 2 decrease in a, as they face a stronger fringe. Finally, we compare prices with and without the merger. Unsurprisingly, the merger decreases prices if and only if efficiencies are high enough, that is, if μ is low enough. If the reform is not implemented ($a = 0$), higher efficiency (lower μ) is required for the merger to be pro-competitive. This result will play a key role in the merger's welfare assessment. When the merger induces P to adopt the non-competitive policy ($a = 0$), a higher level of efficiency must be achieved by the merger to be pro-competitive. This is an instance when the merger can increase prices not only through market power but also through political power.

3.2 Lobbying Equilibrium

We now consider the lobbying game (Stage 2 and Stage 3). For all m, there are two possible types of equilibria: Pooling and Separating. In a Pooling equilibrium, both types of P implement the reform. The consumer enjoys lower prices, but the voter does not learn P's type and, with some probability, re-elects the Bad P. In a Separating equilibrium, the Bad P does not implement the reform and both firms lobby. With probability x the voter observes the action, and learns P's type.

We first show how a Separating equilibrium looks like, and then we discuss conditions under which such an equilibrium exists. In a Separating equilibrium, the Bad P commits to the mechanism $a^*(1,1) = 0$ and both firms choose $l_i^* = 1$. Suppose that P does not offer protection, then no firm wants to lobby. In the same way, if neither firm lobbies, P ensures re-election by pooling. Then, any (possibly) optimal contract implies protection in exchange for some lobbying.

We are left to consider the alternative mechanism $a^*(1,0) = 0$. We show that this cannot be optimal for P. In fact, P knows that if $l_i = 1$ is incentive compatible (IC) for firm i, $l_j = 1$ is also IC for firm j. Therefore, the contract $a^*(1,0) = 0$ is strictly dominated. If P can "sell" protection ($a = 0$) for $2t$, there is no reason

to give out a 50% discount and accept a price of t. This result depends on the fact that P has the power of commitment to the offer. In Appendix C, we show that if firms can commit to the offer, there is an equilibrium where only one firm lobbies.[17]

When is a Separating equilibrium possible? Let $p^m(a)$ be the vector of equilibrium prices as a function of a and m. For $a = 0$ to be individually rational (IR) for the Bad P, it must be that:

$$(1-x)V + 2t \geq V \ . \tag{3.3}$$

P knows they can ensure re-election by pooling ($a = 1$), which yields a payoff of V. By separating, P gets bribes ($2t$) but wins the office only with probability $1 - x$. P trades off tomorrow's re-election chances with today's bribes.

Paying bribes must be incentive-compatible (IC) for firms.[18] Let

$$\Delta\pi(m) = \begin{cases} \pi_i\left(p^{m=0}(0)\right) - \pi_i\left(p^{m=0}(1)\right) & \text{if } m = 0 \\ \frac{1}{2}\left[\sum_i \pi_i\left(p^{m=1}(0)\right) - \sum_i \pi_i\left(p^{m=1}(1)\right)\right] & \text{if } m = 1 \end{cases} \tag{3.4}$$

be the return for firms from protection as a function of m. We derive the expressions of $\Delta\pi(m)$ in Appendix A.2. Firms' IC is:

$$t \leq \Delta\pi(m) \ . \tag{3.5}$$

Combining P's IR and firms' IC, we obtain the following result.

[17] The mechanism $a^*(1,1) = 0$ also solves the coordination problem for firms as they both know they need to lobby to induce $a = 0$. When firms offer the contract and $m = 0$, there is a coordination problem arising from the multiplicity of equilibria.

[18] In Appendix C.2, we consider a two-period model and we show that firms do not have incentives to give up bribing in the first period to induce the re-election of a Bad P in the second period. As the discount factor is always smaller or equal than 1, firms' returns from bribing tomorrow cannot be higher than returns from bribing today. For this to be the case, it must be that the size of market rents for the firms that P controls via the policy a increases over time.

Proposition 1. *In a Pooling equilibrium, both P's types implement the pro-competitive reform ($a^* = 1$). In a Separating equilibrium, a Bad P does not implement the reform ($a^* = 0$), and both firms lobby ($l_1^* = l_2^* = 1$). Moreover,*

(i) For all $m \in \{0, 1\}$, the equilibrium is Separating if and only if

$$\frac{xV}{2} \leq t \leq \Delta\pi(m) \ .$$

In a Separating equilibrium, the voter learns P's type with probability x. Otherwise, the equilibrium is Pooling, and the voter does never learn P's type.

(ii) The merger increases firms' incentives to lobby:

$$\Delta\pi(1) \geq \Delta\pi(0) \, .$$

Figure 3.1 shows the findings of Proposition 1. First, a Separating equilibrium exists if and only if the cost of lobbying t is neither too high nor too low.[19] If t is too low, bribes are not sufficiently valuable, and the Bad P prefers to ensure re-election by pooling. If t is too high, lobbying is not worth it for firms.

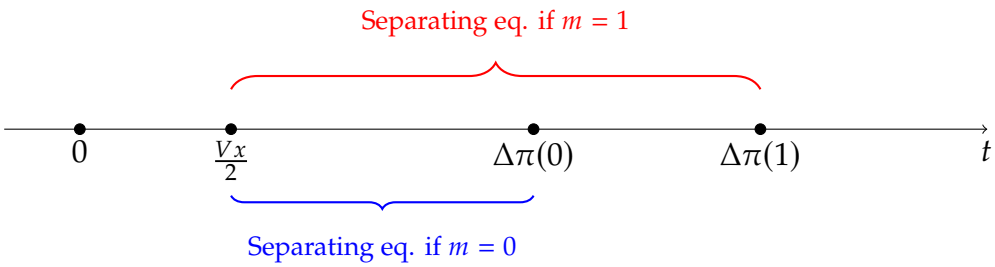
Second, a merger increases firms' incentives to lobby as it increases the returns from protection. The intuition is simple. Lobbying to fend off competition from the fringe is valuable, as it can increase rents to firms 1, 2. Without a merger, however, these rents are partly dissipated by the rivalry between 1, 2. With a merger, this dissipation is muted, and therefore merging firms are willing to pay more for protection. In Appendix B, we generalize this intuition to a more general setting.[20]

The increase in lobbying after a merger is not driven by the public good nature of lobbying, as in Moshary and Slattery [2024], or by economies of scale. In our model, by muting price competition, the merger creates additional rents that trigger firms' incentives to lobby. This result follows a similar intuition to the one in Cowgill et al. [2024]. As a consequence, even if firms maximize the total sum of profits in the lobbying game, as would happen if firms exert influence via industry trade associations, our result would still go through. In our model, the merger increases firms' incentives to lobby because prices (and

[19] In Appendix C, we show the conditions for the existence of a Separating equilibrium when t is endogenous.

[20] In particular, we show that Proposition 1-(ii) follows from the supermodularity of the Bertrand game. Therefore, it does not require any specific assumption on the demand or the profit functions, and it easily extends to any supermodular game with spillovers.

Figure 3.1: Existence of Separating Equilibrium



not lobbying efforts) are set non-cooperatively.

We now discuss the comparative statics of the upper and lower bounds in Figure 3.1. The lower bound $\frac{Vx}{2}$ does not depend on market structure. The merger does not impact the politician's incentives to accept the bribes. This lower bound increases as x and V increase. When x is low, moral hazard bites: the Bad P knows that by separating, they can enjoy bribes and still be re-elected with a relatively high probability. Therefore, the interval for t that supports a Separating equilibrium decreases in x. On the contrary, as V increases, holding the office is more valuable, and the Bad P has a higher incentive to ensure re-election by pooling.

From the firm's perspective, the merger increases the incentives to lobby. The upper bound $\Delta\pi(1)$ decreases in μ. The more efficient the merger, the higher the incentives to lobby, as the the returns internalized from protection are higher. In the same way, for all m, $\Delta\pi(m)$ is also increasing in η. The higher the threat from the fringe, the higher the incentives to lobby.

Equilibrium Uniqueness The equilibrium described in Proposition 1 is unique among the class of equilibria in pure strategies. Uniqueness is guaranteed by our assumption on the tie-breaking rule for the voter in Stage 5 and by the following refinement. Whenever there are multiple equilibria in the lobbying game (Stage 2-Stage 3), we select the voter-preferred equilibrium.

The only potential multiplicity of equilibria arises when t equals either the lower or the upper bounds of the interval supporting separation in Proposition 1. For a given m, inside the interval, the Separating equilibrium is unique as the equilibrium mechanism is dominant for the Bad P. Outside the interval, Separating is either not IC for firms or not IR for P. Hence, the unique equilibrium is Pooling. At the boundaries of the interval, either the two firms or the politician

are indifferent between their actions. Given our refinement, we always select the Separating equilibrium over a possible Pooling one.[21]

4 Merger Assessment

We now provide a welfare assessment of the merger. That is, we compare players' welfare if $m = 1$ and $m = 0$. Our model captures the market and non-market effects of the merger, via prices and lobbying respectively. As shown above, a merger increases firms' lobbying activity and their ability to influence policymaking. On the one hand, this political power is bad for the consumer as it further increases prices on top of the usual market power effect. On the other hand, the additional political power is good for the voter when it allows them to learn about P's type. We now discuss how this new trade-off interplays with the traditional price effects in the merger's assessment.

To this end, we introduce an additional player: a benevolent antitrust authority. At the beginning of the game (before Stage 1), the competition authority decides whether to approve the merger ($m = 1$) or not ($m = 0$) by maximizing the sum of consumers' and voters' payoffs. Therefore, from now on, the market structure m is endogenous. The two firms notify a merger application, and the authority decides whether to approve the merger or not.[22] Let us recall that if $x = 1$, we can think of the voter and the consumer as a unique player. If $x < 1$, the two players are distinct as they possess different information.[23] This objective function of the antitrust authority is based on the impact on citizens (consumers and voters) and does not take into account firms or the politician. In this regard, our authority's mandate goes beyond what competition authorities usually do. Their remit is typically to maximize the welfare of the consumers in the market affected by the transaction, which goes under the name of *consumer welfare standard*, as we anticipated in the Introduction. It is important to remark that we are not claiming that competition authorities *do* or *should* start to consider the direct impact of mergers on elections and lobbying. Our results

[21] In this way, we also rule out possible equilibria in mixed strategies. In the market game (Stage 4), the equilibrium is unique by the strict concavity of payoffs.

[22] The merger is always profitable. Hence, the merger application is optimal for the two firms.

[23] In a more realistic setting, there are multiple consumers and voters. If the sets of consumers and voters are disjoint or perfectly overlapped, a welfare function that sums voters' and consumers' payoffs implies no bias due to the double-counting of players. However, if only some consumers were also voters, this welfare measure would double-count the overlapping players. However, our results are qualitatively robust to players' re-weighting in the welfare function.

only illustrate the broader welfare implications of merger policy and allow us to contribute to the debate on what antitrust authority *could* do. At the end of this Section, we provide a possible way to interpret our findings in practice.[24]

Notice that we also assume that firms cannot lobby the antitrust authority. Specifically, firms 1, 2 cannot lobby to get the merger approved. This simplifying assumption is based on the empirical findings of Cowgill et al. [2024]. They find that merging firms in the US do spend considerable lobbying money but mostly in the Congress. They also do not find anticipatory effects before the approval date of a merger, suggesting that the main targets of lobbying money are not antitrust enforcers.[25] Moreover, the objective of our model is to analyze how market concentration shapes firms' ability to influence politics and how this affects optimal merger control. To this end, the benevolent competition authority is introduced as a rhetorical device to conduct a welfare analysis rather than an actual player of the game. We do not model the political pressure faced by competition authorities in reality, as this is beyond the scope of our paper. However, this is a natural avenue for further research on the broad topic of the political economy of competition policy.[26]

We start by writing down the authority's payoff across the different equilibria. We suppose that the authority does not observe θ_P. Thus, they do not know what type of P will be at play, but they know what kind of equilibrium will occur and, therefore, how different types of P would behave. We assume that the authority shares the prior beliefs of the voter about P's type. Let $W(m)$ denote the authority's payoff as a function of market structure. Let also $d^*(p^m(p_3))$ be the vector of demands. In a Pooling equilibrium,

$$W_{Pool}(m) = u\left(d^*\left(p^m(0)\right)\right) + (1-q)\left(-\phi\right) \ . \tag{4.1}$$

In a Pooling equilibrium, the consumer always enjoys lower prices, but the voter always re-elects P. Then, with probability $1-q$, the voter re-elects a Bad P and pays the penalty $-\phi$.

[24] See Motta [2004] for a discussion about antitrust authorities' mandates and, in particular, for an introduction to the debate around the consumer welfare standard. Currently, in both the US and in the EU, competition authorities follow, albeit with some differences, a consumer welfare standard.

[25] This is possibly due to the fact that most mergers fall below screening thresholds for merger notification and, therefore, are not vetted by the antitrust enforcers.

[26] See Motta and Ruta [2012] for a political economy model of mergers affecting international markets, in which firms can lobby and governments can influence antitrust authorities.

In a Separating equilibrium,

$$\begin{aligned} W_{Sep}(m) &= q\left[u\left(d^*\left(p^m(0)\right)\right)\right] + \\ &(1-q)\left[u\left(d^*\left(p^m(\eta)\right)\right) + (1-x)\left(-\phi\right) + x(1-q)\left(-\phi\right)\right] . \end{aligned} \tag{4.2}$$

With probability q, P is Good, and the consumer enjoys lower prices. It does not matter if the voter observes a or not; in either case, the voter re-elects the incumbent and pays no penalty. With probability $1-q$, P is Bad, and the reform is not implemented. In this case, with probability x, the voter observes $a^* = 0$, and the Bad P is defeated. The newly elected politician is Bad with probability $1-q$. With probability $1-x$, the action is not observed, and the Bad P is re-elected. We show the expressions of (4.1) and (4.2) in Appendix A.3.

Lobbying comes at the cost of corruption and high prices today, but it increases the probability that Bad politicians are defeated tomorrow. In particular, in a Pooling equilibrium, the voter appoints a Bad politician with probability $1-q$. In a Separating equilibrium, a Bad P is appointed with probability

$$(1-q)\left[(1-x) + x(1-q)\right] < 1-q . \tag{4.3}$$

Therefore, the voter always prefers a Separating equilibrium over a Pooling equilibrium. The opposite is true for the consumer. The authority needs to trade off these two effects as well as to anticipate the effect of their decision on the likelihood that lobbying will occur in equilibrium.

Let us define two thresholds for μ, corresponding to the different levels of efficiencies required for prices to decrease after a merger, and as a function of the policy a:

$$\begin{aligned} &\overline{\mu}(0) : \mu \leq \overline{\mu}(0) \Rightarrow p^{m=1}(0) < p^{m=0}(0) \\ &\overline{\mu}(\eta) : \mu \leq \overline{\mu}(\eta) \Rightarrow p^{m=1}(\eta) < p^{m=0}(\eta) . \end{aligned} \tag{4.4}$$

Intuitively, when the pro-competitive reform is not approved, the merger must be more efficient to decrease prices, that is, $\overline{\mu}(\eta) < \overline{\mu}(0)$.[27] A traditional competition authority, assuming that politicians are not corrupt and considering only price effects, would approve the merger if and only if $\mu \leq \overline{\mu}(0)$. We refer to this

[27] See Appendix A.1 for the expressions of (4.4).

approach as the consumer welfare standard.[28]

To describe the decision of the authority and how that compares with the consumer welfare standard, we distinguish three cases corresponding to the different regions in Figure 3.1.

(*a*) $t \in \left[0, \frac{Vx}{2}\right)$ or $t > \Delta\pi(1)$. For any m, the equilibrium is always Pooling. Political effects do not matter: there is no lobbying, and the Bad P is always re-elected with probability $1-q$. All P types approve the reform: $a^* = 1$. Thus, the authority approves the merger if and only if $\mu \leq \overline{\mu}(0)$. In this case, the consumer welfare standard is optimal.

(*b*) $t \in \left[\frac{Vx}{2}, \Delta\pi(0)\right]$. For any m, the equilibrium is always Separating. As in the previous case, the probability of election of a Bad politician does not depend on m. The authority approves the merger if and only if μ is low enough for prices to decrease. However, with probability $1-q$, a Bad P is in office, and the reform is not implemented ($a^* = 0$). The optimal standard to be adopted would be $\overline{\mu}(\eta)$. Therefore, the authority's optimal merger policy is stricter than a consumer welfare standard that ignores lobbying that does happen. The critical threshold, $\hat{\mu}$, is such that $\hat{\mu} \in [\overline{\mu}(\eta), \overline{\mu}(0)]$.[29] Clearly, $\hat{\mu} \to \overline{\mu}(\eta)$ if $q \to 0$ and $\hat{\mu} \to \overline{\mu}(0)$ if $q \to 1$.

(*c*) $t \in (\Delta\pi(0), \Delta\pi(1)]$. In this case, there is a Separating equilibrium if the merger is approved ($m = 1$) and a Pooling equilibrium if the merger is not approved ($m = 0$). If $m = 0$, the consumer enjoys lower prices (the reform is always implemented), but the voter does not learn about P's type. If $m = 1$, with probability $1-q$, the consumer faces higher prices in the market, but the voter learns P's type (with probability x), thereby defeating the corrupt politician. The authority faces a trade-off between

[28] Competition authorities typically take merger control decisions without considering dynamic effects on market structure, such as merger waves. For example, in a situation when two mergers occur consecutively in the same market and are notified at close but different dates, the European Commission must adopt the so-called priority rule. This means the Commission must vet the first notified transaction as if the second transaction would *not* occur (even if they know that it will), freezing market structure at the date of the first notification. Similarly in our model, a traditional competition authority focused on the consumer welfare standard would ignore the dynamic effects on market structure (i.e., the block of pro-competitive reforms) caused by the increased political power firms gain through mergers. See Nocke and Whinston [2010] for a dynamic model of merger review and a discussion on the optimality of a static consumer welfare standard approach.

[29] To see this, suppose $\hat{\mu} > \overline{\mu}(0)$. Then, if $\mu \in (\overline{\mu}(0), \hat{\mu})$, the merger increases prices with probability 1 but it is accepted, which cannot be optimal for the authority. Analogously, say $\hat{\mu} < \overline{\mu}(0)$. Then, if $\mu \in (\hat{\mu}, \overline{\mu}(0))$, the merger decreases prices with probability 1, but it is rejected, which cannot be optimal for the authority.

having the Good reform today and being able to screen P types tomorrow. This new trade-off augments the problem of the authority, otherwise only trying to balance market power and efficiencies. The authority approves the merger if and only if $\mu \leq \tilde{\mu}$, but potentially $\tilde{\mu} < \overline{\mu}(0)$ or $\tilde{\mu} > \overline{\mu}(0)$. In particular, $\tilde{\mu} > \overline{\mu}(0)$ when ϕ is high enough; and $\tilde{\mu} < \overline{\mu}(0)$ when ϕ is low enough.[30] In this case, the consumer welfare standard can be either too strict or too weak, depending on the benefits of separation ϕ.

When ϕ is low, the merger must be very efficient ($\tilde{\mu} < \overline{\mu}(0)$) to be approved. The intuition is simple. Suppose that the authority commits to approve the merger whenever $\mu \leq \overline{\mu}(0)$. With probability $1-q$, P is Bad, and the merger gives firms enough power to influence P's behavior. As a result, if $\mu \in (\tilde{\mu}, \overline{\mu}(0))$, prices increase (in expectations) after the merger because of firms' political power rather than market power. The voter's benefits from separating P types do not offset the loss in consumer utility. It can also be the case that $\tilde{\mu} < \overline{\mu}(\eta)$.[31] Efficiencies must be high enough not only to decrease prices, but also to compensate for the fact that, if the merger were not allowed, the consumer would always enjoy the pro-competitive reform, no matter the type of P.

As ϕ increases, welfare in the Separating equilibrium increases. The authority starts to trade off more of today consumer surplus to allow the voter to defeat the corrupt politician tomorrow. When ϕ is high enough, the authority can even allow mergers that increase prices ($\tilde{\mu} > \overline{\mu}(0)$), as the increase in the voter's payoff fully compensates for the decrease in the consumer's utility.[32]

The following Proposition summarizes the results of this Section.

Proposition 2. *The authority allows the merger ($m^* = 1$) if and only if $\mu \leq \mu^*$, where*

$$\mu^* = \begin{cases} \overline{\mu}(\eta) & \text{if } t \in \left[0, \frac{Vx}{2}\right) \text{ or } t > \Delta\pi(1) \\ \hat{\mu} & \text{if } t \in \left[\frac{Vx}{2}, \Delta\pi(0)\right] \\ \tilde{\mu} & \text{if } t \in (\Delta\pi(0), \Delta\pi(1)], \end{cases}$$

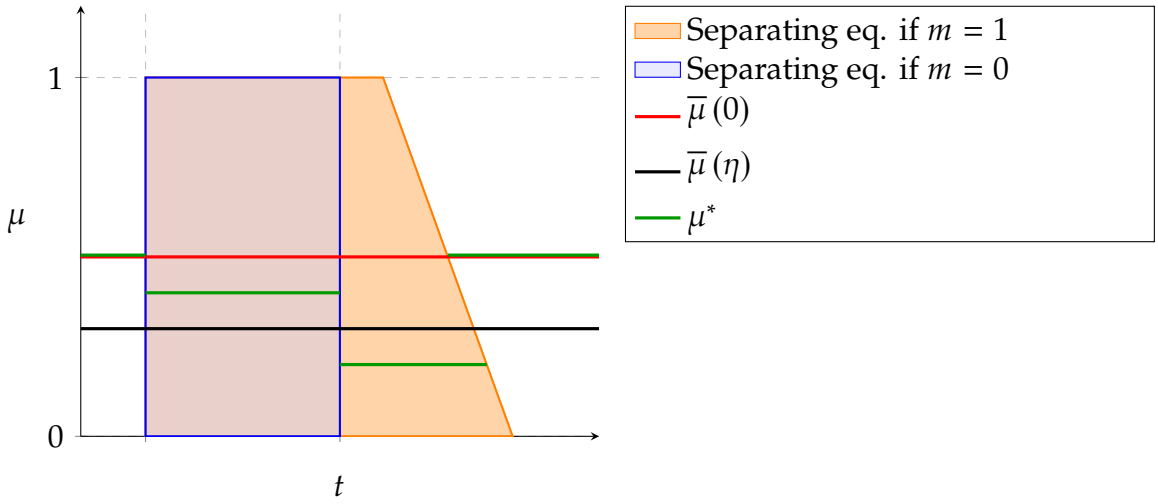
$\hat{\mu} \in [\overline{\mu}(\eta), \overline{\mu}(0)]$, and $\tilde{\mu} \gtreqless \overline{\mu}(0)$ depending on ϕ.

[30] We show this formally in Appendix A.3 and A.4.

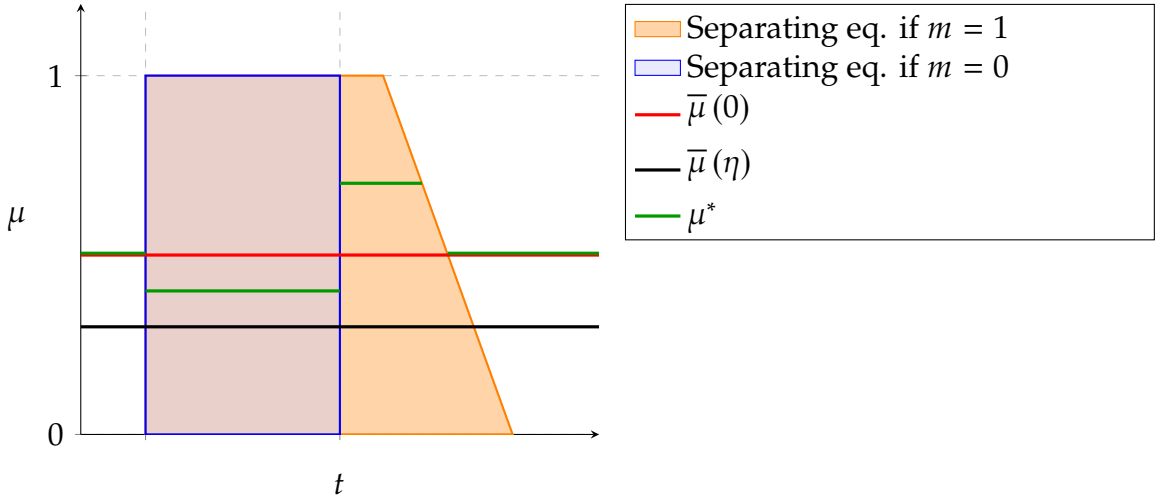
[31] See Appendix A.3 and A.4.

[32] At the end of this Section and in Appendix C.2, we discuss conditions under which this can be the case in practice.

Figure 4.1: Panel a). Merger policy when ϕ is low



Panel b). Merger policy when ϕ is high



Proposition 2 captures the key insights of our model.[33] We summarize the results with the help of Figure 4.1, which draws the efficiency thresholds in various regions as a function of the level of bribes and ϕ. Figure 4.1-panel a) corresponds to the case of low ϕ. Figure 4.1-panel b) corresponds to the case of high ϕ. The optimal merger policy coincides with the consumer welfare standard when the equilibrium does not exhibit lobbying, that is, when the equilibrium is Pooling for all m (white region).

The optimal merger policy is stricter than the consumer welfare standard when the equilibrium exhibits lobbying, but the merger does not induce the voter's learning, that is, when the equilibrium is Separating for all m (blue

[33]The expressions for the different thresholds in Proposition 2 are reported in Appendix A.3.

region). In the same way, the optimal policy is stricter than the consumer welfare standard when the merger induces a Separating equilibrium, but the benefits from the voter's learning do not offset the increase in prices (orange region in Figure 4.1-panel a)). When, instead, the merger can induce learning, and benefits from the voter's learning are high enough (orange region in Figure 4.1-panel b)), the optimal merger policy can be more lenient than what the consumer welfare standard would suggest.

Discussion We have shown that the traditional consumer welfare standard can be sub-optimal when political effects enter the picture. We now briefly recap the intuition behind this result and later discuss its implications for competition policy in practice.

In our model, a politician decides whether to approve a pro-competitive reform or not. The reform benefits consumers, but it is detrimental to firms' profits. Firms can pay a bribe to the politician to prevent the approval of the reform. Before playing the lobbying game, the two firms can merge. The merger increases incentives to lobby. If the two firms do not merge, preventing the pro-competitive reform is less profitable, as some of the rents are dissipated by price competition. Then, if the merger is allowed, lobbying activity increases. Because of firms' additional political power, the pro-competitive reform is less likely to be approved, but the voter's ability to screen politicians improves. Bad politicians accept firms' bribes and, therefore, are defeated with a higher probability. This trade-off complements the conventional wisdom according to which only price effects matter for merger control.

The traditional consumer welfare standard is too weak whenever the voter's benefits from screening politicians do not offset the loss in consumer surplus. We distinguish two cases. First, it can be the case that the equilibrium exhibits lobbying regardless of the merger approval. In this case, the consumer welfare standard fails because - with some probability - a corrupt politician is in office, and the pro-competitive reform does not pass. When the reform is not approved, the optimal merger policy is stricter than the consumer welfare standard, as a higher level of efficiencies is required for prices to decrease. In this first case, the failure of the consumer welfare standard is not related to firms' additional political power, but rather to the assumption that politicians always behave in the consumers' interests. A stricter antitrust standard is needed in this case to compensate for the probability that Bad politicians do not approve market reforms.

The second case is more interesting. This arises when the equilibrium exhibits lobbying only if the merger is approved. The consumer welfare standard falls short as the merger allows firms to influence the Bad politicians and induce them to block the pro-competitive reform. It may also be optimal to reject mergers that are pro-competitive, that is, mergers that are efficient enough to decrease prices regardless of the approval of the reform (Figure 4.1).[34] This happens because, if the merger were rejected, (expected) prices would be even lower as the pro-consumer reform would always be approved (and firms would still be competing against each other). In a sense, a very strict standard is optimal in this case (that is, very high efficiencies are required for a merger approval) because the antitrust enforcer anticipates that it is precisely the merger approval that will trigger lobbying and then block pro-competitive reforms.

As the benefits from screening politicians increase, the welfare performance of the lobbying equilibrium improves. The merger makes firms lobby in equilibrium. Then, the voter can defeat corrupt politicians with a higher probability. This effect is positive for welfare. When the benefits of screening are large enough, one might accept a bigger increase in prices after the merger to let voters remove Bad politicians. Potentially, the consumer welfare standard can be too strict.

When, in practice, can this be the case? One may want to approve anti-competitive mergers and bear the cost of bribery today in order to avoid re-electing Bad politicians tomorrow. Three conditions then need to be satisfied. First, the voters' time discount factor should not be too low. Second, there must be welfare gains from avoiding regulations detrimental to consumers/voters in *other* parts or sectors of the economy. Suppose instead that the only regulation that corrupt politicians can implement to the detriment of consumers/voters is the one limiting the extent of competition within the narrowly defined market (i.e., the policy a). Then, it can never be optimal to suffer the policy for sure today in order to avoid it happening with some probability tomorrow.[35] Third, legislating tomorrow on these other regulations should not be too appealing for Bad politicians. Otherwise, they may prefer staying in power today, and the Separating equilibrium would disappear. If instead there are no out-of-market externalities, then the consumer welfare standard is always too lenient in our model.

[34] Our results go through even if one identifies the consumer welfare standard with $\mu < \bar{\mu}(\eta)$.
[35] We show this formally in Section C.2 in a two-period model.

Implications for Lobbying Regulation Our model shows that the stringencies of the lobbying and merger regulations can be complements or substitutes from a social welfare perspective, depending on the extent of the benefits from screening. Suppose that the lobbying legislation is strict; that is, the cost of lobbying is high enough that firms lobby if and only if the merger is approved. When benefits from screening are low, merger policy and lobbying regulation are complements. The optimal merger policy should be strict as the lobbying equilibrium is inefficient for consumers/voters. The additional political power firms unlock due to the merger is used to corrupt the incumbent politician and prevent the approval of the pro-competitive reform. The improved screening of politicians does not compensate for this negative effect. In contrast, when screening is efficient, lobbying is good for welfare and the merger policy can be weak to allow mergers that induce the voter's learning, which has a high social value: The optimal merger policy and lobbying regulation are substitutes.

Implications for Competition Policy Should antitrust authorities consider non-market dimensions too in their analysis? A simple answer is that they do have the statutory powers, in a merger investigation, to request internal documents and reports from the merging parties. These could well include information referring to lobbying activities. If evidence of lobbying efforts is found in this discovery phase, then the competition authority could use it in its decision, and subject the transaction to a close scrutiny.

However, we do not think this is feasible in practice in many instances. Tirole [2022] warns about the risks associated with mission creep. He argues that expanding authorities' mandates to social and political goals, albeit possibly desirable, can be challenging from an organizational point of view. Mission creep can increase political interference, compromise authorities' independence, and decrease accountability. Expanding agencies' goals can decrease focus, making it difficult to measure and assess their performance. Our model is silent on these dimensions, as we assume the antitrust authority to be benevolent and not subject to agency problems. While this is a natural avenue for future research, we can however offer some implications for competition policy.

Policy has several dimensions of uncertainty that are not captured by our model but are very relevant in reality. Two important dimensions, in particular, are related to the burden of proof and the standard of proof. The standard of proof is the degree to which a party must prove its case to succeed. The burden of proof, or the onus, is the requirement to satisfy that standard. Our results can

then be re-interpreted from this perspective. In the current system, the burden of proof for efficiencies falls on to the firms, as they have far better information than the enforcer about technology. This is very reasonable. It is when it comes to the standard of proof that our considerations kick in. A strict optimal merger policy can be interpreted as a situation where the standard of proof required for efficiencies is very high. The strictest case arises when there is a structural presumption that a merger is bad, and this cannot be rebutted by any efficiency claim. Antitrust authorities can retain a consumer-centric mandate, even in a world with political dimensions. However, a strict merger policy might be needed to account for the fact that mergers can decrease consumer welfare not only through market power effects but also through political ones. Our model then provides conditions that support the strengthening of a system of (rebuttable) structural presumptions in merger assessment. This is in line with the spirit of the recent 2023 revision of the US merger guidelines.[36]

5 Concluding Remarks

Zingales [2017] calls our attention to the risk of a "Medici vicious circle", in which economic and political power reinforce each other. Large firms can influence the rules of the game they play in the market. Society can anticipate this process by designing institutions and empowering them with legal tools: how should they account for the linkage between economic and political power?

In this paper, we consider how antitrust enforcement should react to the presence of political power, by joining a simple model of mergers from industrial organization with a political economy model of firms lobbying for regulation. Our model highlights a new trade-off associated with mergers. Mergers increase firms' political influence. On the one hand, this additional political power is bad for consumers as it reduces the level of competition politicians implement in the market. On the other hand, political power allows voters to screen politicians and punish corrupt ones. We also investigate how this trade-off interacts with traditional competition considerations in a merger's assessment. This allows us to contribute to the debate on the appropriateness of the consumer welfare standard in antitrust, and we discuss how our results largely lend support to a system of rebuttable structural presumptions.

Our findings come from a very stylized model, though they are robust to

[36] Source: Department of Justice. See Lancieri and Valletti [2024].

changes in consumers' utility function and in the bargaining model between firms and politicians. Further research could extend our framework to different models of lobbying and voting. Exploring these connections will provide further insights for a deeper analysis of the relationship between market power and political power.

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Appendix

A Proofs and Derivations of the Baseline Model

The solution of the model can be replicated by downloading the attached Mathematica code.

A.1 Equilibrium Prices

Suppose the two firms have not merged ($m = 0$). Profits are as follows:

$$\pi_i\left(p_i, p_j, p_3\right) = \frac{(p_i - c)(1 - \gamma - p_i(\gamma + 1) + (\gamma(p_j + p_3)))}{(1 - \gamma)(2\gamma + 1)} . \tag{A.1}$$

The FOCs imply:

$$\begin{aligned} &\frac{\partial \pi_i\left(p_i, p_j, p_3\right)}{\partial p_i} = \frac{1 + c - 2p_i + \gamma(c - 2p_i + p_j + p_3 - 1)}{1 - 2\gamma^2 + \gamma} = 0 \Rightarrow \\ &p_i\left(p_j, p_3\right) = \frac{\gamma(c + p_j + p_3 - 1) + c + 1}{2(\gamma + 1)} . \end{aligned} \tag{A.2}$$

Intersecting firms' best response functions, we get:

$$p_i^{m=0}\left(p_3\right) = \frac{\gamma\left(c + p_3 - 1\right) + c + 1}{\gamma + 2} . \tag{A.3}$$

It is easy to see that (A.3) is increasing in $p_3\,(a)$. Substituting (A.3) into demand functions and profits, we get:

$$\begin{aligned} d_i\left(p_i^{m=0}\left(p_3\right), p_j^{m=0}\left(p_3\right), p_3\right) &= \frac{(\gamma + 1)(1 - c - \gamma + \gamma p_3)}{(1 - \gamma)(\gamma + 2)(2\gamma + 1)} \\ \pi_i\left(p_i^{m=0}\left(p_3\right), p_j^{m=0}\left(p_3\right), p_3\right) &= \frac{(\gamma + 1)(1 - c - \gamma + \gamma p_3)^2}{(1 - \gamma)(\gamma + 2)^2(2\gamma + 1)} , \end{aligned} \tag{A.4}$$

with

$$\begin{aligned}
&\frac{\partial d_i\left(p_i^{m=0}(p_3), p_j^{m=0}(p_3), p_3\right)}{\partial p_3} > 0\,, \\
&\frac{\partial \pi_i\left(p_i^{m=0}(p_3), p_j^{m=0}(p_3), p_3\right)}{\partial p_3} > 0\,.
\end{aligned} \tag{A.5}$$

Therefore, profits of firm i increase in p_3 via two channels. First, an increase in the price of good 3 increases the demand of good i. Second, the higher the price of good 3, the milder the competition, and the higher the price that firm i can set.

If the merger is approved ($m = 1$), the merged firm solves:

$$\max_{p_1, p_2 \geq 0} \pi_1(p_1, p_2, p_3) + \pi_2(p_2, p_1, p_3)\,. \tag{A.6}$$

By FOCs, optimal prices are:

$$p_i^{m=1}(p_3) = \frac{1}{2}(c\mu + \gamma(p_3 - 1) + 1)\,, \tag{A.7}$$

with

$$\begin{aligned}
&x_i\left(p_i^{m=1}(p_3), p_j^{m=1}(p_3), p_3\right) = \frac{c\mu + \gamma - \gamma p_3 - 1}{4\gamma^2 - 2\gamma - 2}\,, \\
&\pi_1\left(p_1^{m=1}(p_3), p_2^{m=1}(p_3), p_3\right) + \pi_2\left(p_2^{m=1}(p_3), p_1^{m=1}(p_3), p_3\right) = \\
&\frac{(c\mu + \gamma + \gamma(-p_3) - 1)^2}{2(1-\gamma)(2\gamma+1)}\,.
\end{aligned} \tag{A.8}$$

The comparative statics of (A.8) is analogous to (A.5).

We now compare prices (A.3), (A.7). The merger decreases prices if and only efficiencies are high enough:

$$p_i^{m=1}(p_3) < p_i^{m=0}(p_3) \Leftrightarrow \mu < \frac{2c(\gamma+1) - \gamma(1 - \gamma + \gamma p_3)}{c(\gamma+2)} := \overline{\mu}(p_3)\,. \tag{A.9}$$

A.2 Returns from Protection

If $m = 0$, firms' return from protection is:

$$\begin{aligned}&\Delta\pi_i(0) = \\ &\pi_i\left(p_i^{m=0}(\eta), p_j^{m=0}(\eta), \eta\right) - \pi_i\left(p_i^{m=0}(0), p_j^{m=0}(0), 0\right) = \\ &\frac{\gamma(\gamma+1)\eta(2(c-1)-\gamma(\eta-2))}{(1-\gamma)(\gamma+2)^2(2\gamma+1)}.\end{aligned} \tag{A.10}$$

If $m = 1$, firms' return from protection is:

$$\begin{aligned}&\Delta\pi_i(1) = \\ &\pi_i\left(p_i^{m=1}(\eta), p_j^{m=1}(\eta), \eta\right) - \pi_i\left(p_i^{m=1}(0), p_j^{m=1}(0), 0\right) = \\ &\frac{\gamma\eta(\gamma(\eta-2)-2c\mu+2)}{4(1-2\gamma^2+\gamma)}.\end{aligned} \tag{A.11}$$

It is easy to see that $\Delta\pi(1) > \Delta\pi(0) \geq 0$ always.

A.3 Merger Policy

We start by writing down the authority's payoff across the different equilibria. Let $m = 0$. In a Pooling equilibrium :

$$\begin{aligned}&W_{Pool}(0) = \\ &\frac{1}{4}\left(c^2 - 2c - 4(1-q)\phi + 3\right) + \\ &+ \frac{\gamma\left(6\gamma^3 + c^2\left(2\gamma^2+7\gamma+7\right)\gamma + 7\gamma^2 + c\left(-4\gamma^3-6\gamma^2+2\gamma+8\right) - 5\gamma - 8\right)}{4(1-\gamma)(\gamma+2)^2(2\gamma+1)}.\end{aligned} \tag{A.12}$$

Let $m = 1$. In a Pooling equilibrium :

$$\begin{aligned}&W_{Pool}(1) = \\ &\frac{1}{4}\left(c^2\mu^2 - 2c\mu + 4(q-1)\phi + 3\right) - \frac{\gamma\left(\gamma\left(-2c^2\mu^2+4c\mu-3\right) + c^2\mu^2 - 4c\mu + 3\right)}{4(1-\gamma)(2\gamma+1)}.\end{aligned} \tag{A.13}$$

Let $m = 0$. In a Separating equilibrium :

$$W_{Sep}(0) = A\eta^2 + B\eta + C \ , \tag{A.14}$$

where

$$\begin{aligned}
C &= \\
&\frac{2c^2(\gamma+1)^2 + 4c(\gamma-1)(\gamma+1)^2 + (\gamma-1)\left(-7\gamma^2 - 14\gamma + (\gamma+2)^2(2\gamma+1)q - 6\right)}{2(1-\gamma)(\gamma+2)^2(2\gamma+1)} + \\
&+ \frac{q}{2} - (q-1)\phi(qx-1) \ ; \\
A &= \\
&\frac{\left(4 - \gamma\left(3\gamma^2 + \gamma - 8\right)\right)(1-q)}{2(1-\gamma)(\gamma+2)^2(2\gamma+1)} \ ; \\
B &= \\
&\frac{\eta\left(4c\gamma(\gamma+1)^2(q-1) - 2(\gamma-1)(5\gamma(\gamma+2)+4)(q-1)\right)}{2(1-\gamma)(\gamma+2)^2(2\gamma+1)} \ .
\end{aligned} \tag{A.15}$$

Let $m = 1$. In a Separating equilibrium :

$$W_{Sep}(1) = D\mu^2 + E\mu + F \ , \tag{A.16}$$

where

$$\begin{aligned}
F &= \\
&\frac{\gamma(\gamma(q+2) - 2q - 1)}{4(1-\gamma)(2\gamma+1)} + \frac{(1-\eta)(1-q)\left(3\gamma^2(\eta-1) - 2\gamma\eta - 2\eta + 2\right)}{4(1-\gamma)(2\gamma+1)} + \\
&+ \frac{1}{4}\left(\mu^2 - 2\mu - 4(1-q)\phi(1-qx) + 2q + 1\right) \ ; \\
D &= \\
&\frac{\left(2\gamma^2 - \gamma - (1-c)(1+c)\right)}{4(1-\gamma)(2\gamma+1)} ; \\
E &= \\
&- \frac{\left(4\gamma^2 + 2c\gamma\eta - 2(c+1)\gamma - 2c\gamma\eta q - 2(1-c)\right)}{4(1-\gamma)(2\gamma+1)} \ .
\end{aligned} \tag{A.17}$$

We now obtain the critical thresholds $\tilde{\mu}, \overline{\mu}(0), \hat{\mu}, \overline{\mu}(\eta)$. These thresholds are obtained from finding the admissable roots of a quadratic equation in μ. Specifically, for all $h, l \in \{Sep, Pool\}$, we solve

$$W_k(1) - W_l(0) = W\mu^2 + S\mu + T \ , \tag{A.18}$$

where W, S, T are constant in μ and $W > 0$ always. Findings are reported next.

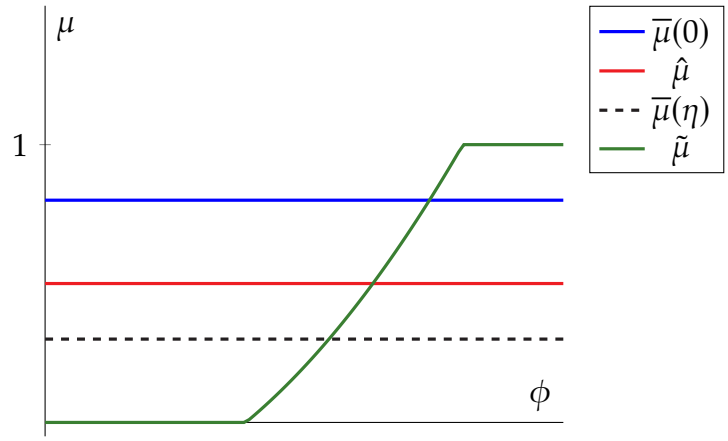
$$\begin{aligned}
&\mu \leq \hat{\mu} \Rightarrow W_{Sep}(1) \geq W_{Sep}(0) \ \text{, where} \\
&\hat{\mu} = \\
&\frac{(\gamma+2)(1-\gamma+\gamma\eta(1-q)) - \sqrt{G\eta^2 + H\eta + I}}{c(\gamma+2)} \ \text{and} \\
&G = \gamma^2(1-q)\left(4(\gamma+1)^2 - (\gamma+2)^2 q\right) \\
&H = 8\gamma(\gamma+1)^2(1-q)(1-c-\gamma) \\
&I = 4(\gamma+1)^2(c+\gamma-1)^2 \ ;
\end{aligned} \tag{A.19}$$

$$\begin{aligned}
&\mu \leq \tilde{\mu} \Rightarrow W_{Sep}(1) \geq W_{Pool}(0) \ \text{, where} \\
&\tilde{\mu} = \\
&\frac{(\gamma+2)(1-\gamma+\gamma\eta(1-q)) - \sqrt{L\gamma^4 + M\gamma^3 + N\gamma^2 + Q\gamma + R}}{c(\gamma+2)} \ \text{and} \\
&L = (1-q)(8qx\phi - \eta(8-\eta(q-4))) + 4 \\
&M = 8c - 2(1-q)\left(\eta(\eta(2q-7)+14) - 14qx\phi\right) \\
&N = 4c(c+2) - 2(1-q)\left(\eta(\eta(2q-3)+6) - 6qx\phi\right) - 8 \\
&Q = 8((c-1)c - 2(1-q)((\eta-2)\eta + 2qx\phi)) \\
&R = 4(c-2)c - 8(1-q)((\eta-2)\eta + 2qx\phi) + 4 \ ;
\end{aligned} \tag{A.20}$$

$$\begin{aligned}
&\mu \leq \overline{\mu}(0) \Rightarrow W_{Pool}(1) \geq W_{Pool}(0) \ \text{, where} \\
&\overline{\mu}(0) = \frac{2c(\gamma+1) + (\gamma-1)\gamma}{c(\gamma+2)} \ .
\end{aligned} \tag{A.21}$$

Additional details are available in the attached Mathematica code. In Figure A.1, we plot the different thresholds as a function of ϕ.

Figure A.1: Thresholds $\tilde{\mu}, \overline{\mu}(0), \hat{\mu}, \overline{\mu}(\eta)$ as a function of ϕ



A.4 Proof that $\mu^* \gtreqless \bar{\mu}(0)$ (when ϕ is high) and $\mu^* < \bar{\mu}(\eta)$ (when ϕ is low)

The authority approves the merger if and only if:

$$\begin{aligned} & W_{Sep}(1) - W_{Pool}(0) \geq 0 = \\ & q\left[u\left(d^*\left(p^{m=1}(0)\right)\right)\right] + \\ & (1-q)\left[u\left(d^*\left(p^{m=1}(\eta)\right)\right) + (1-x)(-\phi) + x(1-q)(-\phi)\right] + \\ & -u\left(d^*\left(p^{m=0}(0)\right)\right) - (1-q)(-\phi) \geq 0\,. \end{aligned} \tag{A.22}$$

Let us define $s(\phi)$ as the expected benefit for the voter in the Separating equilibrium :

$$s(\phi) = -\phi \Delta P(\theta^* = \text{Bad})\ , \tag{A.23}$$

where

$$\begin{aligned} & \Delta P(\theta^* = \text{Bad}) = \\ & [(1-q)(x(1-q) + (1-x))] - (1-q) = \\ & -(1-q)qx \leq 0 \end{aligned} \tag{A.24}$$

is the difference in the probability of election of a Bad P between the two equilibria. Since $s(\phi) \geq 0$ always, the voter prefers the Separating equilibrium. Moreover, $s' > 0$ and $s(0) = 0$.

Now, we rewrite (A.22) as follows:

$$W_{Sep}(1) - W_{Pool}(0) \geq 0 =$$
$$\left[qu\left(d^*\left(p^{m=1}(0)\right)\right) + (1-q)\,u\left(d^*\left(p^{m=1}(\eta)\right)\right) - u\left(d^*\left(p^{m=0}(0)\right)\right)\right] + s(\phi) \geq 0 \tag{A.25}$$

(A.25) allows us to isolate the effects of the merger on the consumer's and the voter's payoffs.

Let us assume $\phi = 0$ and consider the consumer's perspective. If the merger is approved, the reform is implemented with probability q, while if the merger is not approved, the reform is implemented with probability 1. Therefore, a very high level of efficiencies (lower μ) is needed for the merger to be pro-competitive. In particular, if $\phi = 0$, $\tilde{\mu} < \overline{\mu}(0)$ necessarily.

We can see this by contradiction. Assume $\phi = 0$ and $\tilde{\mu} \geq \overline{\mu}(0)$. For the merger to be pro-competitive, it must decrease prices. Then,

$$\begin{aligned} &\mu \in [\overline{\mu}(0), \tilde{\mu}) \Rightarrow \\ &q p_i^{m=1}(0) + (1-q)\, p_i^{m=1}(\eta) \leq p_i^{m=0}(0) \Rightarrow \\ &p_i^{m=1}(0) < p_i^{m=0}(0). \end{aligned} \tag{A.26}$$

which contradicts (4.4). In words, if $\mu \in (\overline{\mu}(0), \tilde{\mu})$ and the merger is pro-competitive when the reform is implemented with probability < 1, then it must also be pro-competitive when the reform is implemented with probability 1, which we know it is not the case. Finally, since (A.25) is increasing in ϕ, then also $\tilde{\mu}$ increases in ϕ.[37]

By the same logic, one can see that $\tilde{\mu}$ can be lower than $\overline{\mu}(\eta)$. To see this, consider the extreme case than $q = 0$ (all politicians are Bad) and $\phi = 0$. The authority approves the merger if and only if

$$\begin{aligned} &u\left(d^*\left(p^{m=1}(\eta)\right)\right) > u\left(d^*\left(p^{m=0}(0)\right)\right) \Rightarrow \\ &p^{m=1}(\eta) < p^{m=0}(0)\ . \end{aligned} \tag{A.27}$$

Recall that

$$\mu \leq \overline{\mu}(\eta) \Rightarrow p^{m=1}(\eta) < p^{m=0}(\eta)\ . \tag{A.28}$$

[37] Suppose $\phi \to \infty$, then even if the merger does not bring efficiencies ($\mu = 1$), it is implemented. By monotonicity, it exists some $\tilde{\phi} < \infty$ such that $\tilde{\mu} = \overline{\mu}(0)$.

Since

$$p^{m=0}(0) < p^{m=0}(\eta) \ , \tag{A.29}$$

a higher level of efficiencies is required for (A.27) to hold:

$$\tilde{\mu} < \overline{\mu}(\eta) \ . \tag{A.30}$$

We show next some numerical examples of the relationship between $\tilde{\mu}$, $\overline{\mu}(\eta)$ $\overline{\mu}(0)$, $\hat{\mu}$, and we comment on some limiting cases.

Table A.1 shows that as we increase ϕ, $\tilde{\mu}$ becomes larger than $\overline{\mu}(0)$.

Table A.2 shows that when $q = 1$ (all politicians are Good), the optimal merger policy always coincides with the consumer welfare standard $\overline{\mu}(0)$.

Table A.3 shows that when $q = 0$ (all politicians are Bad), $\hat{\mu} = \overline{\mu}(\eta)$. In this case, $\tilde{\mu} = 0$. No merger is approved when allowing the merger creates a Separating equilibrium, as this Separating equilibrium is very inefficient from the voter's perspective.

ϕ	$\tilde{\mu}$	$\overline{\mu}(0)$	$\hat{\mu}$	$\overline{\mu}(\eta)$
0.3	0	0.366667	0.222818	0.116667
0.5	0	0.366667	0.222818	0.116667
0.8	0.134601	0.366667	0.222818	0.116667
1	0.951899	0.366667	0.222818	0.116667

Table A.1: Optimal merger policy when $\eta = 0.3; \gamma = 0.5; x = 0.5; q = 0.5; c = 0.12$

ϕ	$\tilde{\mu}$	$\overline{\mu}(0)$	$\hat{\mu}$	$\overline{\mu}(\eta)$
0.3	0.366667	0.366667	0.366667	0.116667
0.5	0.366667	0.366667	0.366667	0.116667
0.8	0.366667	0.366667	0.366667	0.116667
1	0.366667	0.366667	0.366667	0.116667

Table A.2: Optimal merger policy when $\eta = 0.3; \gamma = 0.5; x = 0.5; q = 1; c = 0.12$

ϕ	$\tilde{\mu}$	$\overline{\mu}(0)$	$\hat{\mu}$	$\overline{\mu}(\eta)$
0.3	0	0.366667	0.116667	0.116667
0.5	0	0.366667	0.116667	0.116667
0.8	0	0.366667	0.116667	0.116667
1	0	0.366667	0.116667	0.116667

Table A.3: Optimal merger policy when $\eta = 0.3; \gamma = 0.5; x = 0.5; q = 0; c = 0.12$

B Generalization of Proposition 1

In this Section, we show that Proposition 1 follows from the supermodularity of the Bertrand game, and so it easily extends to any supermodular game. The concepts used in this Section are standard and come from Milgrom and Shannon [1994], Topkis [1998], and Levin [2003].

Let us define the following game. Let $i \in \{1,2\}$ index the two firms. Each firm's action is $a_i \in A_i$, where A_i is the action space, which we assume to be a compact set. Let $\pi_i\left(a_i, a_j, a\right)$ be the payoff of firm i, where $a \in \{0,1\}$ is the politician's action, which we interpret as in the baseline model, so that $\pi_i\left(a_i, a_j, a\right)$ is decreasing in a. Assume P chooses a before firms choose their actions. Then, we can interpret a as a parameter. We assume that $\pi_i\left(a_i, a_j, a\right)$ is continuous.

If $m = 1$, firms' choose a_i, a_j cooperatively. If $m = 0$, they choose a_i, a_j simultaneously and independently. Our aim is to show that each firm's marginal benefit from reducing a increases after a merger ($m = 1$).

Before introducing the notion of supermodularity, we define two additional elements. First, for expositional convenience, let us introduce the following notation: $\bar{a} = -a$, so that $\pi_i\left(a_i, a_j, \bar{a}\right)$ increases in $\bar{a}$. Second, we introduce the property of Increasing Differences (ID). A function $f\left(x,t\right)$ satisfies ID in (x,t) if and only if, for all $x \in X$, $t \in T$, where X, T are two (partially) ordered sets, such that $x' \geq x, t' \geq t$, the following property holds:

$$f\left(x',t'\right) - f\left(x,t'\right) \geq f\left(x',t\right) - f\left(x,t\right) \ . \tag{B.1}$$

Condition (B.1) implies that the marginal value from increasing x is higher when t is higher.

We assume that the game described above is a supermodular game with positive spillovers indexed in $\bar{a}$ (Levin [2003]), that is,

(*a*) For all i, j, the function $\pi_i\left(a_i, a_j, \bar{a}\right)$ satisfies ID in $\left(a_i, a_j\right)$;

(*b*) For all i, the function $\pi_i\left(a_i, a_j, \bar{a}\right)$ satisfies ID in $(a_i, \bar{a})$;

(*c*) For all i, j, the function $\pi_i\left(a_i, a_j, \bar{a}\right)$ increases in a_j.

Let us define $\left(a_i^{m=1}, a_j^{m=1}\right)$ as the optimal actions for the two firms if $m = 1$.[38] If $m = 0$, by the supermodularity of the game, there is at least one Nash

[38] These maximizers exist by the continuity of payoff functions and the compactness of action spaces.

Equilibrium in pure strategies. Let $\left(a_i^{m=0}, a_j^{m=0}\right)$ be the Nash Equilibrium actions of the game if $m = 0$.[39]

By (c):

$$\left(a_i^{m=1}, a_j^{m=1}\right) \geq \left(a_i^{m=0}, a_j^{m=0}\right) , \tag{B.2}$$

which implies:

$$\forall \bar{a}, \pi_i \left(a_i^{m=1}, a_j^{m=1}, \bar{a} = 0\right) - \pi_i \left(a_i^{m=0}, a_j^{m=0}, \bar{a} = 0\right) \geq 0. \tag{B.3}$$

Because of pair-wise ID between any pair of its arguments, the function π_i is supermodular.[40] Therefore, increasing both actions a_i, a_j has an higher marginal return when $\bar{a}$ is higher:

$$\begin{aligned} &\pi_i \left(a_i^{m=1}, a_j^{m=1}, \bar{a} = 0\right) - \pi_i \left(a_i^{m=0}, a_j^{m=0}, \bar{a} = 0\right) \geq \\ &\pi_i \left(a_i^{m=1}, a_j^{m=1}, \bar{a} = -1\right) - \pi_i \left(a_i^{m=0}, a_j^{m=0}, \bar{a} = -1\right) \end{aligned} \tag{B.4}$$

and by the symmetry of ID:

$$\begin{aligned} &\pi_i \left(a_i^{m=1}, a_j^{m=1}, \bar{a} = 0\right) - \pi_i \left(a_i^{m=1}, a_j^{m=1}, \bar{a} = -1\right) \geq \\ &\pi_i \left(a_i^{m=0}, a_j^{m=0}, \bar{a} = 0\right) - \pi_i \left(a_i^{m=0}, a_j^{m=0}, \bar{a} = -1\right) \geq 0 \end{aligned} . \tag{B.5}$$

Intuitively, because of a merger, firms set actions cooperatively and take positive spillovers into account. Then, they choose higher actions. If the marginal value of increasing actions a_i, a_j increases as a $\bar{a}$ increases (a decreases), then, by symmetry, the marginal value of increasing $\bar{a}$ (decreasing a) increases when actions are higher.

Note that the Bertrand game is a supermodular game. The Cournot duopoly is a supermodular game if one player's strategy set is given the reverse of its usual order (Levin [2003]). For more examples, see Levin [2003]. Note also that this proof does not require any assumption on the degree, concavity, or differentiability of demand and profit functions. If a_i, a_j are interpreted as prices, then (B.5) implies

$$\forall i \ , a_i^{m=1}(\bar{a} = 0) - a_i^{m=0}(\bar{a} = 0) > a_i^{m=1}(\bar{a} = -1) - a_i^{m=0}(\bar{a} = -1) \ , \tag{B.6}$$

[39] In case of a multiplicity of equilibria, we select, without loss of generality, the Pareto undominated equilibrium, which exists by (c) (Levin [2003]).

[40] To apply the properties of supermodular functions, we need to impose the assumption that the set $A_i \times A_j \times \{0, 1\}$ is a lattice.

which indicates that the welfare analysis performed in Section 4 would easily extend to this more general model.[41]

If the sign of (B.5) is inverted, then a merger decreases firms' incentives to lobby. We have shown that this can never be the case if the market interaction is a game with spillovers and supermodular payoffs.

C Extensions

In the main text, we presented a simple model highlighting the political effects of mergers and how these effects interplay with market power considerations in a merger's assessment. We now extend the model to discuss the robustness of our findings. In particular, we first consider an alternative bargaining structure where firms offer a mechanism to P. Then, we consider an alternative model setup with two periods and endogenous t, ϕ, and V.

C.1 Firms Offer the Mechanism

Let us consider a modified version of the timing introduced in Section 2. In Stage 2, both firms submit a TIOLI offer to P: $l_i(a) \in \{0, 1\}$. If $m = 1$, the two (merged) firms coordinate their offers. If $m = 0$, the two firms submit their offers simultaneously and independently. In Stage 3, P observes both offers and decides on the implementation of the reform.

How does this alternative bargaining structure affect the nature of the lobbying equilibrium? Suppose $m = 1$. Suppose further that

$$(1 - x)V + t \geq V \Rightarrow t \geq Vx \,. \tag{C.1}$$

Condition (C.1) implies that a single bribe of value t is sufficient to make $a = 0$ IC for P. In the baseline model, even if (C.1) holds, P requires the payment of two bribes for a total amount of $2t$ to set $a = 0$ because they have the power to commit to that, and of course, $2t > t$. In this model, if (C.1) holds, the optimal mechanism for the merged firms is:

$$\begin{cases} l_i^*(0) = 1 \\ l_j^*(0) = 0 \,. \end{cases} \tag{C.2}$$

[41] We can see this by looking at Appendix A.4, where we derive the properties of the optimal merger policy relying only on the impact of a and m on prices.

Since the merged firms know that P is willing to set $a = 0$ in exchange for t, there is no incentive to offer more and pay $2t$. In this case, only one firm lobbies, and P does not implement the policy. This equilibrium exists if and only if $t \in [Vx, \Delta\pi(1)]$. If $t \in \left[\frac{Vx}{2}, Vx\right)$, the merged firms know that they need to pay a total of $2t$ in order to make $a = 0$ IC for P, as in the baseline model.

Now, suppose that $m = 0$. As in the previous case, if $t \in \left[\frac{Vx}{2}, Vx\right)$, both firms lobby in equilibrium. When $t \in [Vx, \Delta\pi(0)]$, there exist two equilibria in pure strategies. In the first equilibrium, firm i commits to the offer $l_i^*(0) = 1$ and firm j commits to $l_i^*(0) = 0$, and P chooses $a^* = 0$. In the second equilibrium, firm j lobbies, and firm i does not.[42]

The multiplicity of equilibria generates a coordination problem between the two firms. To illustrate this, let us consider the following profile of mixed strategies. Suppose that firm 1 makes the offer $l_1(0) = 1$ with probability $k \in (0, 1)$ and commits not to lobby with probability $1 - k$. Let $\tilde{l}_1$ denote this mixed strategy. If firm 2 makes the offer $l_2(0) = 1$, its expected payoff is:

$$\mathbb{E}\left[l_2(0) = 1, \tilde{l}_1\right] = \pi_2\left(p^{m=0}(\eta)\right) - t \ . \tag{C.3}$$

If firm 2 commits to $l_2 = 0$, its expected payoff is:

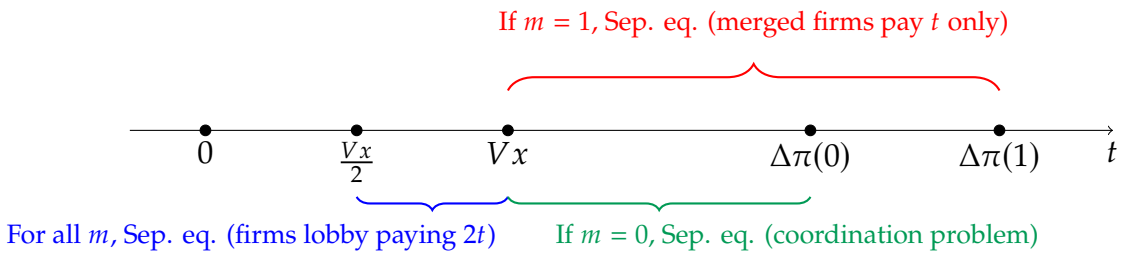
$$\mathbb{E}\left[l_2 = 0, \tilde{l}_1\right] = k\left(\pi_2\left(p^{m=0}(\eta)\right)\right) + (1-k)\,\pi_2\left(p^{m=0}(0)\right) \ . \tag{C.4}$$

It follows that if $k = \frac{\Delta\pi(0)-t}{\Delta\pi(0)} := k^*$, there exists an equilibrium in mixed strategies where both firms lobby with probability k^*. In this equilibrium, with probability $(1-k^*)^2$, neither firm lobbies and P does not implement the policy. This coordination failure arises from the incentive to free-ride on the competitor's lobbying effort.

There are two main takeaways from this robustness check. First, for all m, when firms have the power of commitment on the offer to P, there exist equilibria where only one bribe worth t is paid. Firms can extract more surplus from P, as they can get protection ($a = 0$) at a lower price (t rather than $2t$). However, if the two firms do not merge ($m = 0$), the potential multiplicity of equilibria generates a coordination problem. The merger solves the coordination problem. Second, we have shown that our main results are robust to this alternative bargaining structure. Figure C.1 summarizes the results of this Section. By comparing

[42] There is no equilibrium where both firms lobby because, given that firm i is lobbying, firm j does not want to lobby.

Figure C.1: Existence of Separating Equilibrium when firms have commitment power



Figures C.1 and 3.1, we can see that this alternative bargaining structure does not affect the likelihood that lobbying emerges in equilibrium, but only the extent of lobbying. The welfare analysis of the merger is also analogous to the baseline model.

C.2 Endogenous t, ϕ, V in a Two-Period Model

In this Section, we introduce two key novelties. First, the political game is repeated twice, as in most political agency models. This allows us to endogenize the cost for consumers to re-elect a Bad P and the value of the office for a Bad P. Second, we allow P to specify t as part of the contract. We show that the main results of the baseline model extend to this more general setup. For the sake of simplicity, we assume perfect monitoring ($x = 1$). Then, we can think of the consumer and the voter as the same player.

The timing is as follows. With a slight abuse of notation, we refer to the time between Stage 1′ and Stage 5′ as the First Period and to the time between Stage 6′ and Stage 8′ as the Second Period. As in the baseline model, firms $1, 2$ merge if $m = 1$, and do not merge if $m = 0$.

Stage 1′ Nature draws θ_P, θ_C.

Stage 2′ P commits to a mechanism $a\,(l_1, l_2, t)$.

Stage 3′ Firms observe the mechanism and choose whether to lobby ($l_i = 1$) or not ($l_i = 0$). The reform a is implemented.

Stage 4′ Firms observe $p_3\,(a)$ and simultaneously set prices p_1, p_2. The consumer observes prices and chooses a consumption plan d_1, d_2, d_3. First-period

payoffs are realized.[43]

Stage 5′ The consumer chooses whether to re-elect P ($r = 1$) or not ($r = 0$).

Stage 6′ The elected politician (with type θ^*) commits to a mechanism $a'\left(l_1', l_2', t'\right)$.

Stage 7′ Firms observe the mechanism and choose whether to lobby ($l_i' = 1$) or not ($l_i' = 0$). The second-period reform a' is implemented.

Stage 8′ Firms observe $p_3\left(a'\right)$ and simultaneously set prices p_1', p_2'. The consumer observes prices and chooses a consumption plan d_1', d_2', d_3'. Second-period payoffs are realized.

During the first period, players discount the future at a common discount factor $\delta \in (0, 1)$. The parameter δ can be interpreted as the exogenous probability that the game ends before the second period.

The consumer's lifetime utility is then:

$$u\left(d_1, d_2, d_3\right) + \delta\left[u\left(d_1', d_2', d_3'\right) - s\right] , \tag{C.5}$$

where $u\left(d_1, d_2, d_3\right)$ is defined as in (2.1) and

$$s = \begin{cases} \phi' & \text{if } \theta^* = \text{Bad} \\ 0 & \text{otherwise} , \end{cases} \tag{C.6}$$

for some $\phi' \geq 0$. The parameter ϕ' captures the consumer's anticipated cost from appointing a Bad P, in addition to the market's partial equilibrium effects. If $\phi' = 0$, the consumer only cares about their utility within the market. If $\phi' > 0$, re-electing a Bad PM has a negative effect beyond the market. The lifetime payoff for a Bad P is:

$$V' + t\left(l_1 + l_2\right) + r\delta\left(V' + t'\left(l_1' + l_2'\right)\right) . \tag{C.7}$$

In this case, $V' \geq 0$ may be seen as the value of re-election, on top of bribes. For instance, V' may be the politician's salary.[44] As in the baseline model, the Good P has a behavioral type and always implements the policy. Firms' lifetime profits are:

$$\pi_i\left(p_i, d_i, l_i\right) + \delta\left(\pi_i\left(p_i', d_i', l_i'\right)\right) , \tag{C.8}$$

[43] This assumption is not consequential. We would obtain analogous results by assuming that payoffs are realized at the end of the game.

[44] In the baseline model, we assume that V is already expressed in present-value terms.

where $\pi_i(p_i, d_i, l_i)$ is defined as in (2.4). To characterize the equilibrium, we proceed by Backward Induction.

Second Period Let us start from Stage 8′. This stage is analogous to the baseline model. The consumer's consumption plan is as in (3.2). Equilibrium prices are as in Appendix A.1. Let us now consider the lobbying equilibrium (Stage 6′, Stage 7′). Suppose that a Good P is in office. Then, they always implement the policy. Suppose that a Bad P is in office. Their optimal contract is:

$$a'^*\left(l_1' = l_2' = 1, t'^* = \Delta\pi(m)\right) = 0\,. \tag{C.9}$$

A Bad P commits not to implement the policy $a' = 0$ if and only if both firms lobby. It is optimal for them to set the price of lobbying so as to extract all the surplus from the two firms: $t'^* = \Delta\pi(m)$. Since the game ends at the end of the period, a Bad P has no re-election incentives, and they never implement the pro-competitive reform. Firms are indifferent between lobbying or not, and, as in the baseline model, we assume that the tie is broken in favor of lobbying.[45]

First Period Let us start from the voting stage (Stage 5′). If the consumer appoints a Bad P, the reform is never implemented, and they also bear a penalty $-\phi'$. If the consumer appoints a Good P, the reform is always implemented. Hence, the re-election rule described in Section 3.1 is optimal. The consumer re-elects the incumbent P if and only if $\hat{q} \geq q$, where $\hat{q}$ is the posterior belief that $\theta_P = \text{Good}$.

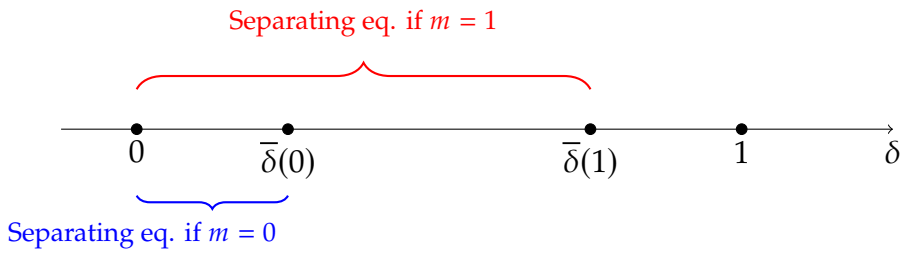
In Stage 4′, the equilibrium is analogous to the second period, and to the baseline model.[46] We now turn our attention to the first-period lobbying equilibrium (Stage 2′-Stage 3′). A Good P always implements the pro-competitive reform. A Bad P faces a trade-off between accepting bribes today or ensuring re-election and bribes tomorrow. The solution of this trade-off depends on the discount factor δ.

The optimal contract is analogous to (C.9). This contract is IC for the two firms. In particular, as $\delta < 1$, firms have no incentives to give up protection

[45] If that was not the case, the optimal contract for P would be such that $t'^* = \Delta\pi(m) - \epsilon$, with $\epsilon \to 0_+$.

[46] Firms and the consumer have no incentives to change their market behavior to induce changes in the election stage. The two firms have no price strategy that may change the consumer/voter's beliefs. The consumer's payoff is additive-separable across the two periods, so their maximization problem can be seen as two separate ones.

Figure C.2: Existence of Separating Equilibrium with endogenous t, ϕ, V.



today ($a = 0$) to induce the re-election of the Bad P and gain protection tomorrow ($a' = 0$). However, for this to be IR for P, it must be that:

$$2\Delta\pi(m) \geq \delta\left(2\Delta\pi(m) + V'\right) . \tag{C.10}$$

Accepting bribes today must be better than winning the office and getting bribes tomorrow. Unsurprisingly, this is optimal for P if and only if they are impatient enough. The IR constraint (C.10) implies:

$$\delta \leq \frac{2\Delta\pi(m)}{2\Delta\pi(m) + V'} := \overline{\delta}(m). \tag{C.11}$$

As in the baseline model, if (C.10) is not satisfied, the equilibrium is Pooling: both Ps types implement the policy and firms do not lobby. If instead (C.10) holds, the equilibrium is Separating. This more general model produces a result equivalent to Proposition 1. The merger increases the likelihood that lobbying emerges in equilibrium as $\overline{\delta}(1) > \overline{\delta}(0)$. If $m = 1$, firms have more incentives to lobby, and a Bad P can ask for higher bribes. Since bribes today are more valuable than bribes tomorrow, the merger increases lobbying in the first period. Figure C.2 illustrates this finding.

Merger Assessment We now briefly discuss the welfare analysis of the merger. In particular, we show that if there are no benefits from separation other than those coming from the market ($\phi' = 0$), the optimal merger policy from the consumer's perspective is always stricter than the consumer welfare standard ($\mu^* \leq \overline{\mu}(0)$).

To see this, suppose by contradiction that $\mu^* > \overline{\mu}(0)$. Given the intuition presented in the main text, this is possible if and only if the benefits from separation are high enough. In this two-period model, we can micro-found

these benefits. Benefits from separation come from the fact that, in the second period, the anti-competitive policy ($a' = 0$) is approved with a low probability: $(1-q)^2$ in a Separating equilibrium and $1-q$ in a Pooling one. However, this comes at the cost of having the same policy with probability $1-q$ in the first period (versus a zero probability in the Pooling equilibrium). Since the value of today is always higher than the value of tomorrow ($\delta < 1$), then this cannot be optimal. On the contrary, if $\phi' > 0$, it can be the case that $\mu^* \geq \overline{\mu}(0)$ when ϕ' is high enough. The intuition is analogous to the baseline model.

There are three main takeaways from this extension. First, a two-period model with endogenous ϕ, V, and t displays the same intuitions of the simple baseline model presented in Section 2: the merger increases lobbying. Second, when P is allowed to specify t as part of the mechanism, the optimal contract is such that all the surplus from trade is extracted from the two firms. P chooses the highest possible t so that firms are indifferent between lobbying or not. Third, the optimal merger policy may be less strict than the consumer welfare standard if and only if there are benefits from screening other than those coming from the narrowly defined market, for example, if corruptible politicians can implement regulations detrimental to consumers/voters in other parts of the economy (out-of-market externalities).