Curses or Blessings:

How Low Asset Mobility Helps Foreign Firms Gain Government Support

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Abstract

Low asset mobility is often seen as undermining the bargaining power of investors. This article advances an alternative view that emphasizes the positive effects of low asset mobility. I argue that governments prefer foreign firms with immobile assets because their commitment to stay is always more credible. I present a formal model to illustrate three crucial theoretical mechanisms: 1) the inverse credible commitment problem, 2) political concerns associated with firm performance, and 3) the intensity of competition for investments. I substantiate the theoretical predictions using data from China. Leveraging a policy change in enterprise income taxes in 2008, I use a difference in differences design to show that foreign firms with lower asset mobility are less likely to become targets of local governments' predatory behaviors.

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1 Introduction

A large body of studies argue that asset mobility is a fundamental constraint on states' extractive behavior, as domestic investors with mobile assets are less easily exploited by states (Bates and Lien, 1985; Boix, 2003; Acemoglu and Robinson, 2006). The same insight has been used to explore the interaction between foreign investors and their host countries. Most notably, the "obsolescing bargain" model (Vernon, 1971) argues that the *ex post* immobility of investments renders foreign investors susceptible to expropriation. Its logic can be well-summarized by Caves (1996):

> *Once the MNE (multinational enterprise) sinks the investment, the government maximizes national welfare by expropriating the property without compensation and capturing all of the rents.*

Scholars have made significant progress on understanding how different factors affect the severity of the "obsolescing bargain" problem. For example, domestic political institutions (Henisz, 2000; Jensen, 2003; Li and Resnick, 2003; Jensen, 2008a; Beazer and Blake, 2018), international institutions (Büthe and Milner, 2008; Jandhyala, Henisz, and Mansfield, 2011; Allee and Peinhardt, 2011; Perlman and Sykes, 2017), supply chain networks (Kobrin, 1987; Johns and Wellhausen, 2015), and investors' nationality (Wellhausen, 2014) all play a significant role in empowering foreign investors to better protect their assets.

Immobile assets are generally viewed as a liability for foreign investors: asset immobility undermines foreign firms' bargaining power and worsens government treatment. For example, Kobrin (1987) argues: "...large amounts of capital, once sunk, are relatively immobile (assuming asset specificity) and may have hostage value, increasing the bargaining power of the host country." I put forward an alternative view of asset mobility. The arguments of "obsolescing bargain" theory are predicated on two basic assumptions: 1) host governments are predatory, and 2) because host governments are predatory, they will always expropriate foreign assets unless deterred by mobile foreign investors' threat of exit. In this paper, I review and modify these assumptions to study 1) how asset mobility alters government calculations when the government is not predatory, and 2) what will happen if foreign firms, after receiving a lower level of expropriation, cannot credibly

commit to staying?

I argue that low asset mobility helps foreign firms obtain better government treatment precisely because they are less likely to move their assets. My theory identifies three theoretical conditions under which low asset mobility gives foreign firms an advantage when competing for government support: 1) the presence of an inverse credible commitment problem: foreign firms' inability to commit to staying after receiving preferential treatment; 2) governments' political concerns associated with firm performance; and 3) the fierce competition for investments under globalization.

When a government allocates policy packages among firms it chooses not only between more or less expropriation, but also between supporting or exploiting the firm.[1,2] There is no reason to assume that host governments will only be predatory when interacting with foreign investors, as foreign firms, who often are more productive (Melitz, 2003; Helpman, 2006; Bernard et al., 2007), also bring numerous economic benefits to host economies and scholars have documented cases in which host governments actively defend foreign firms' interests for political reasons (Chen, 2018).

However, offering support to foreign firms involves significant risks as firms can always take offers from other governments and move their assets elsewhere. Firms face what I term the "inverse credible commitment problem," whereby a firm usually cannot credibly commit to staying in a locality after receiving any policy package.[3] This problem is prevalent and particularly salient in the interaction between foreign firms and host governments, as foreign firms are much more mobile than their domestic counterparts. Hence, host governments are unlikely to offer preferential treatment to firms who are very mobile.

The concern of firms leaving after receiving a policy package is also relevant to predatory governments. Predatory governments are willing to offer policy concessions to firms

[1]Policy packages can be broadly understood as any policies that have an impact on firm performance, including but not limited to tax rates, land prices, and industrial regulation.

[2]I use the word "expropriation" to describe both blatant asset confiscation (Kobrin, 1984) and more discreet measures of exploitation, such as taxation and contract renegotiations (Wellhausen, 2014; Wright and Zhu, 2018; Pond and Zafeiridou, 2020).

[3]The "credible commitment problem" in the literature of foreign direct investments is often used to describe the problem that host governments cannot promise to uphold any *ex ante* deals made with foreign investors after the investment is sunk.

because they believe the firms will stay upon receiving them. However, if firms cannot make a strong enough commitment, predatory governments will be unwilling to offer policy concessions. Predatory governments are always better off giving policy concessions to firms that are more likely to stay after receiving them. If the predatory government believes that offering concession is futile, its best strategy is to extract more. Therefore, the bargaining between a predatory government and foreign investors is one in which neither of the two parties can make a credible commitment. At one extreme, if foreign investors cannot move their assets, a predatory government will expropriate them. At the other extreme, if foreign investors can move without any cost, governments will also expropriate as offering concessions is futile. Whether the credible commitment problem or the inverse credible commitment problem dominates depends on the level of competition for investments. When the competition level is low, the inverse credible commitment problem is less relevant, but the risk of expropriation becomes high; when the competition level is high, the inverse credible commitment problem becomes more severe as intense competition makes it less costly for all foreign investors to move.

Therefore, the relationship between asset mobility and government treatment is not monotonic. In many cases, low asset mobility helps foreign firms to obtain a better deal with host governments. My theory puts forward a new perspective on the politics of foreign direct investments (FDI) and adds to our knowledge of asset mobility. While, in principle, also applicable to domestic firms, my theory focuses on foreign firms because 1) the credible commitment problem and inverse credible commitment problem are both more salient when governments negotiate with foreign firms, and 2) domestic firms have more means to protect their assets or seek political influence, which often downplays the effects of asset mobility (Kim, 2017; Truex, 2014; Xu, 2020).

Empirically, I substantiate my theoretical predictions using firm-level data from China. China is one of the largest recipients of FDI in the world. Nevertheless, the Chinese government is powerful and unconstrained. According to existing theories, the Chinese government is likely to act in a predatory manner against foreign firms with low asset mobility. Hence, the Chinese context should be a hard case for testing my theory. However, my theoretical arguments apply beyond China and the underlying logic is relevant

to both developing and developed countries.

Although my theory provides clear predictions, identifying the causal effects of asset mobility is challenging. It is infeasible to randomize asset mobility at the firm level, which poses significant hurdles for making causal claims. To partially address reverse causality and selection issues, I utilize a sharp change in China's national enterprise income tax law. On January 1, 2008, China enacted a new enterprise income law, which stipulated that all firms operating in China, domestic or foreign, should be subject to an income tax rate of 25%. Before 2008, the tax laws governing foreign firms were different from the laws governing domestic firms. Foreign firms enjoyed various tax rebates and exemptions, but domestic firms did not have access to such preferential policies. The new enterprise income tax law aimed to harmonize the two tax systems. However, initial ambiguities in the new tax law caused disputes between foreign firms and local governments as to whether firms qualified for tax incentives. This sweeping policy change creates a unique opportunity to test my theory. Because of the new law's initial ambiguity, local governments in China could break agreements and exploit foreign firms at a much lower cost. In such an environment, where local governments are less constrained by existing rules, we expect the effect of asset mobility to be more clearly identifiable. If asset mobility serves as a fundamental constraint on local governments' exploitation, we should observe foreign firms with low asset mobility being taxed more than those with high asset mobility. However, if asset mobility serves as a commitment device, we will observe the opposite, as my theory suggests.

This project makes contributions to several influential literatures in political economy. First, my theory contributes to one of the fundamental debates in political economy. Hirschman (1970) argues that investors with low asset mobility are more likely to engage in political activities as it is less costly for them to choose the "voice" option compared to the "exit" option. However, Bates and Lien (1985) criticize this argument, questioning why governments would offer policy concessions to investors with low asset mobility that cannot exit. My theory resolves this debate, showing that governments may care more about the voice of investors with low asset mobility if 1) the government has overlapping interests with the investors, or 2) the government values loyalty due to intense

competition for investments.

Second, this paper provides a new perspective on the politics of FDI. Although scholarship has proposed to study the relationship between political institutions and FDI through the lens of "access points" (Ehrlich, 2011; Jensen et al., 2012), most existing studies, partially due to the popularity of the "obsolescing bargain" theory, adopt the framework of "veto points"(Tsebelis, 1995; Henisz, 2000). This paper suggests that it is possible to travel beyond the "obsolescing bargain" framework. Foreign firms are faced with a trade-off between getting preferential treatment in host countries and better protecting their assets against all possible risks.

Third, the theory suggests an unanticipated implication of international capital mobility. Building on numerous studies of international capital mobility (Garrett, 1995; Quinn, 1997; Basinger and Hallerberg, 2004; Freeman and Quinn, 2012), I examine how macro-level changes in global capital markets affect the micro-level interaction between host governments and individual foreign firms. The results suggest that competition for investments can force host governments to place more weight on foreign firms' loyalty. Accordingly, more intense competition for investments can lend investors with large amounts of immobile assets more political leverage.

Lastly, following the liberalism tradition in international relations (Milner, 1997; Moravcsik, 1997), this paper studies government preferences in the politics of FDI (Pinto and Pinto, 2008; Pandya, 2014). Previous research often assumes that host governments have purely predatory preferences. Allowing for a wider range of government preferences nuances our understanding of the effects of asset mobility and highlights that it is necessary to take the preferences of host governments seriously.

2 Theory

2.1 Overview

In this section, I derive sufficient conditions under which host governments assign better policies to foreign firms with lower asset mobility. Following existing studies on

asset mobility, the theory focuses on the case of taxation. However, the theory's implications apply equally to other government policies that have distributive effects among firms.

Consider a host country interacting with multiple foreign firms that have made sunk investments.[4] I deliberately abstract away from the entry decisions of foreign investors because the theoretical discussion focuses on the *ex post* immobility of investments and the related problem of credible commitment (e.g., Jensen (2008b)).[5] While unobserved entry decisions may introduce selection bias empirically, I argue that this concern does not undermine my theory's validity, as the theory does not rely on any assumptions about firm characteristics apart from their asset mobility. I discuss in detail how my design addresses the selection issue in the empirical section.

Capturing the key assumption of the credible commitment problem, I assume that the host government has an opportunity to renegotiate tax rates after the foreign firms have sunk their investments. However, as other governments are competing for foreign investments, tax rate changes affect each firm's propensity to stay, which, in turn, affects the host government's utility. I use this basic setup to study how the government's optimal tax rate varies with firm asset mobility based on two types of government preferences: 1) the host government values political benefits associated with firm performance more than fiscal revenue, and 2) the host government is predatory and values tax revenue more.

The first scenario is a generalization of all cases in which governments are willing to trade government resources for better economic outcomes. Many studies demonstrate the importance of economic performance on political survival, both in democracies and non-democracies (Przeworski et al., 2000; Anderson, 2000; Mesquita et al., 2005; Gandhi, 2008; Jiang, 2018). If economic performance is closely tied to their career prospects, politicians should be willing to use government resources to support high-performing firms. Essentially, this scenario assumes that the host government maximizes *political survival* instead of *fiscal revenue*.

[4]Foreign firms here are defined as tax-paying foreign subsidiaries of multinational corporations. This definition of foreign firms is different from the one provided by Gulotty (2020), which defines foreign firms as exporting firms with no foreign subsidiaries.

[5]See Pandya (2016) for a comprehensive review.

As foreign firms, which tend to be more productive, can create better employment opportunities and help facilitate industry agglomeration (Melitz and Ottaviano, 2008; Konrad and Kovenock, 2009), the host government factors foreign firms' performance into their political calculations. In the taxation setting, this assumption implies that the government is willing to offer lower tax rates (i.e., sacrificing tax revenue) in exchange for better firm performance.[6] Notably, governments can obtain political benefits even if lower tax rates do not actually benefit firms. Jensen and Malesky (2018) suggest that governments can still claim credit for attracting more investments by offering incentives, even though there is no evidence suggesting that these incentives work. Therefore, even if lower tax rates do not aid firm performance, politicians can still benefit politically if the firms stay.

If offering low tax rates can secure political gains, the government must decide which firms are worthy of low tax rates. As long as the delivery of political benefits depends on the firm not moving elsewhere, such as when political benefits are associated with employment or economic growth, the government must take firm propensity to stay into consideration. However, firms, especially foreign ones, cannot credibly commit to staying upon receiving a given policy deal. This inverse credible commitment problem is intrinsic to the volatility of the global economic system, where many factors influencing firm decisions to enter and exit markets are neither observable nor controllable by host governments.

As foreign firms with immobile assets are always less likely to move than those with highly mobile assets, the liability of having a large amount of immobile assets now becomes an advantage. Immobile assets reassure the host government that firms will deliver the desired political benefits upon receiving a better policy deal. For these reasons, host governments will always prefer to offer immobile firms a lower tax rate, *ceteris paribus*.

The second scenario captures the predominant setting in the literature. The govern-

[6]Recent work by Pond and Zafeiridou (2020) produces similar implications but involves very different mechanisms. The authors argue that governments care about firm stock market performance due to electoral concerns associated with the prevalence of financialization. The stock market performance of public firms with low asset mobility is more sensitive to increased tax rates. Investors are more reluctant to invest in immobile firms in the face of a tax increases as immobile firms cannot move their assets to avoid taxation. Foreseeing this consequence, the government is less likely to raise the tax rate of immobile public firms.

ment is assumed to maximize tax revenue (Levi, 1988; Olson, 1993). What prevents governments from looting foreign assets is the global competition for investments: foreign firms can move their assets when faced with expropriation. Canonical theories suggest that governments will exploit mobile firms less as they can move more easily (Bates and Lien, 1985; Boix, 2003). Notably, in the classic formulation, the expropriation level is not explicitly associated with the level of competition for capital. The government will offer a level of expropriation equivalent to the best offer made by other governments minus the firm's moving cost, and the firm will always stay with certainty. In other words, firms can credibly commit to staying upon receiving a policy concession. The intensity of competition for capital is immaterial.

However, foreign firms can seldom make such a strong commitments. Suppose that a lower level of expropriation decreases the firm's propensity to move, but the probability of moving always exists (i.e., the probability cannot be zero). When competition for investments is less intense, the probability of foreign firms with large amounts of immobile assets choosing to leave is relatively small. In this case, in accordance with existing findings, my theory shows that predatory governments will expropriate immobile foreign investors as they cannot credibly threaten to leave.

When the level of competition increases, competing governments are making more attractive offers and the probability of firm exit increases. As more foreign firms can credibly threaten to leave, the host government must lower tax rates for more firms, which echos the classic "race to the bottom" hypothesis. The credible commitment problem becomes less salient as the predatory government will not expropriate foreign investors who can threaten to leave. Instead, the inverse credible commitment problem gains in importance. Now, foreign firms with highly mobile assets find it challenging to convince the government that they will stay if being expropriated less. In an environment where promises are hard to keep, the host government starts to value "loyalty." Foreign firms with large amounts of sunk capital find it easier to persuade the host government that they will stay if not being expropriated. Recall that the only reason why a predatory government is willing to lower the tax rate is that a low tax rate keeps the firm from moving their assets. If only the firm with sufficiently low asset mobility can credibly

commit to staying, the host government will offer such firms lower tax rates. On the other hand, highly mobile firms will be taxed more because these firms are likely to leave regardless of the policy deal they receive.

Therefore, my theory shows that the relationship between asset mobility and tax rates is non-monotonic. Large amounts of immobile assets can have either positive or negative consequences on foreign investors; its effect depends on both the government's preferences and the environment. In the next section, I formalize the intuitions outlined above.

2.2 Setup

The model features one host country m and N tax-paying foreign firms. Firms are assumed to have the same production technology but differ in their asset mobility. For simplicity, no two firms are assumed to share the same asset mobility. Consistent with the literature, asset mobility is defined as the cost of moving assets.

I first describe a simple model of the underlying economy. The N firms engage in monopolistic competition where each firm produces a unique product and monopolizes a niche industry. If consumer utility displays constant elasticity of substitution, the equilibrium profit level is determined by a firm's productivity level (Melitz, 2003). Since all foreign firms are assumed to have the same production technology, they obtain the same profit of π.[7]

The government of the host country m chooses a tax rate t_i for each firm i. The fiscal revenue for the government is calculated by summing up the tax collected from each firm: $\sum_i t_i \pi$.

The government derives utility from two sources: fiscal revenue and political benefits derived from firm performance. This setup captures a wide variety of government preferences. Governments prefer higher revenue because government activities depend on the size of the budget. Better firm performance creates more employment opportunities, increases local wages, boosts economic growth, facilitates agglomeration effects, and signals the competence of politicians. The government faces a trade-off between more tax

[7]This assumption can easily be relaxed to accommodate heterogeneous firms. The model's main results will remain unchanged.

revenue and better firm performance. Government revenue increases with the tax rate but political benefits are a *decreasing* function of the imposed tax rate, which captures the intuition that lower corporate tax rates help firms (Bauer, Davies, and Haufler, 2014; Lee and Gordon, 2005). A government that values the political benefits of firm performance should be willing to reduce tax rates to improve relevant economic indicators. In other words, governments can redistribute economic welfare by lowering tax rates. Formally, I define political gains as $b(t_i)$ where $b'(t_i) < 0$: the political benefit of firm i decreases as t_i increases.

Each player moves in sequence. The game structure is similar to the classic hold-up problems in the political science and economics literature (Grossman and Hart, 1986; Antras, 2003; Carnegie, 2014):

1. The government, m, imposes a tax rate t_i on each firm i.

2. There are M other countries competing for foreign investors. Each country will incur N industry-specific productivity shocks. That is, each shock in a country only affects one of the N niche industries. Upon receiving the shock, each country makes N offers to the N foreign firms operating in country m, respectively.

3. Observing the tax rate chosen by the government and the offers made by the other M countries, each firm decides whether to stay and produce or take the outside offer and leave.

For the sake of tractability, the choice available to m is constrained to be binary $t_i \in \{\underline{t}, \bar{t}\}$, with $0 < \underline{t} < \bar{t} < 1$. However, the government cannot afford to offer low tax rates $\underline{t}$ to all of the N foreign firms as citizens require their government to provide at least a certain amount of public goods through government spending. If they fail to deliver sufficient public goods, government officials may, for instance, be faced with the threat of being removed from office through elections or revolutions. Due to this concern, the government can offer at most K firms ($K < N$) the low tax rate $\underline{t}$. This assumption echoes similar assumptions in the public economics literature where the government needs to provide a fixed amount of public goods using tax revenue in each period (Bauer, Davies,

and Haufler, 2014). The constraint also avoids the unrealistic situation where the government offers the low tax rate to all firms. The source of such a constraint is omitted from the model, but readers can interpret it as either a political constraint (e.g., governments cannot hand out low tax rates without political consequences) or a financial constraint (e.g., governments may be in debt and have to collect a certain amount of revenue). However, the constraint need not be binding as the government can always choose to impose the high tax rate $\bar{t}$ on all foreign firms.

The other M countries in the global economic system prefer higher investments. After m chooses the tax rate allocation, each country incurs industry-specific economic shocks and then considers making an offer to each of the N foreign firms operating in country m. In line with the literature on capital taxes, the economic shocks capture uncertainty surrounding global and domestic economies (Keen and Marchand, 1997; Rodrik and Ypersele, 2001; Bretschger and Hettich, 2002). Specifically, suppose country j incurs a shock in each of the N industries denoted by $D_{jk},\ k \in \{1, \cdots, N\}$. It can then offer the foreign firm that monopolizes industry k in country m at most D_{jk}. If firm k accepts the offer, country j will obtain a payoff of $e_j \geq 0$, otherwise it gets 0. This process takes place in all M countries simultaneously. The shocks are drawn from the same uniform distribution Unif$[0, D_{upper}]$.[8]

Finally, each of the N firms compares the offers made by the M countries and the tax rate offered by country m and chooses to stay or exit based on which action maximizes firm revenue. If a firm chooses to stay, it will obtain the post-tax profit $(1-t)\pi$; if it decides to leave, it will obtain the value of the accepted offer minus the exit cost. Recall that exit costs capture asset mobility. Foreign firms with lower exit costs will always find outside offers more attractive than their peers with higher exit costs.

2.3 When The Government Values Political Gains

First, let us consider the scenario in which country m cares more about political gains than fiscal revenue. Formally, this is the case when $\bar{t}\pi + b(\bar{t}) < \underline{t}\pi + b(\underline{t})$: the total benefit of

[8]Readers may also interpret this model as competition among local governments rather than national governments. Results remain identical.

imposing the low tax rate exceeds the benefit of imposing the high tax rate on a firm. For ease of exposition, I will shorthand $t\pi + b(t)$ with $G(t)$. We can restate the above condition as $G(\bar{t}) < G(\underline{t})$.

Using backwards induction, I first study the behavior of firms. A firm's decision is straightforward: it will stay if and only if none of the M offers presented by other countries exceed the post-tax profit plus the exit cost, that is $(1-t_i)\pi + c_i$. With this knowledge, the M competing countries will present offers equal to the size of their respective shocks. In other words, no country will present offers that are less than the maximum possible value. To see this, suppose country j receives a shock D_{jk} in industry k. If it presents an offer $D^* < D_{jk}$ to firm k, it risks losing the bid if one of the other countries presents an offer between D^* and D_{jk}. Thus, it can increase the probability of winning the bid by offering the maximum amount D_{jk}. Therefore, all countries will present offers of maximum size to all firms.

Lemma 2.1. *The government m will offer the low tax rate $\underline{t}$ to K firms if $G(\bar{t}) < G(\underline{t})$.*

Proof. The government will offer a firm a low tax rate if and only if the expected payoff of offering the low tax rate is higher than the expected payoff of offering the high tax rate. The expected difference in payoffs of presenting different tax rates to any firm i is:

$$\mathbb{E}[u_i(\underline{t})] - \mathbb{E}[u_i(\bar{t})] = p_i(\underline{t})^M \cdot G(\underline{t}) - p_i(\bar{t})^M \cdot G(\bar{t})$$

It is readily observable that this difference is always greater than 0 when $G(\bar{t}) < G(\underline{t})$, since $p_i(\underline{t})^M$, the probability of staying upon receiving the low tax rate, is always larger than $p_i(\bar{t})^M$. Therefore, the government will offer as many low tax rates as possible. Recall that the government is faced with a constraint which prohibits it from proposing the low tax rate to more than K firms. We conclude that the government offers exactly K firms the low tax rate $\underline{t}$. □

Lemma 2.1 proves that the public goods provision constraint is binding, which suggests that the government will impose the low tax rate on exactly K firms. Equipped with this knowledge, we obtain the first main result:

Proposition 2.2. *When the government values political gains over fiscal revenue (i.e., $G(\bar{t}) < G(\underline{t})$), it will propose the low tax rate $\underline{t}$ to the K foreign firms with the* ***lowest asset mobility****. The remaining $N - K$ foreign firms will receive the high tax rate $\bar{t}$.*

Proof. See Appendix A.1. □

Proposition 2.2 explains why the government offers firms with lower asset mobility lower tax rates. When the government values political benefits, it views the lower tax rate as an investment: firms receiving lower tax rates will deliver political benefits in return, a logic that echoes theories in economics and business studies (Becker, Johannesen, and Riedel, 2020). However, as firms cannot credibly commit to staying, the government needs to account for the risk of firms leaving. As firms with lower asset mobility are less likely to exit after being offered the lower tax rate, the government, *ceteris paribus*, always prefers to offer a lower tax rate to firms with lower asset mobility.

2.4 When The Government Values Fiscal Revenue

Now, let us consider the behavior of a predatory government, in which case the government values fiscal revenue more than political gains. Formally, a predatory government is a government that obtains higher utility by imposing a higher tax rate $G(\bar{t}) > G(\underline{t})$. Notice that a predatory government will impose the high tax rate $\bar{t}$ on all firms if offering the low tax rate does not generate higher expected payoffs for any of the firms.

Lemma 2.3. *Denote by $\{c_i\}_{i=1}^{N}$ the firms' exit costs arranged in increasing order, with c_1 being the smallest exit cost and c_N the largest exist cost. If there exist c_L, c_{L+1} and $L < N$, such that $G(\bar{t}) < \left(\frac{(1-\underline{t})\pi+c_L}{(1-\bar{t})\pi+c_L}\right)^M \cdot G(\underline{t})$ and $G(\bar{t}) \geq \left(\frac{(1-\underline{t})\pi+c_{L+1}}{(1-\bar{t})\pi+c_{L+1}}\right)^M \cdot G(\underline{t})$, the government will offer $\min\{L, K\}$ firms the low tax rate $\underline{t}$. If $L = K$, the government will offer K low tax rates $\underline{t}$. However, if such c_L and c_{L+1} do not exist, the government will impose the high tax rate $\bar{t}$ on all N firms. The number of firms receiving the low tax rate increases as the number of competing countries M increases.*

Proof. See Appendix A.2. □

Lemma 2.3 characterizes the decision rule of a predatory government. Whether the government offers the low tax rate to a firm depends on the firm's asset mobility. If the firm's asset mobility is very low, the government prefers not to offer the low tax rate as the firm is unlikely to leave upon receiving the high tax rate. As a result, depending on the distribution of asset mobility, the government may offer any number of firms between 0 and K the low tax rate.

Notably, given any distribution of asset mobility, if the number of competing countries increases (i.e., M increases), the government will present the low tax rate to more firms. This finding has two important implications: 1) it is consistent with existing findings that government competition for firms drives down average corporate tax rates, and 2) competition for capital greatly alleviates the credible commitment problem: when allowed to renegotiate tax rates, predatory host governments still offer low tax rates due to the fear of losing investments.

Now, let us consider the scenario in which $L > K$: because of the competition for capital, the government would prefer to offer more than K firms the low tax rate but the budget constraint binds. We again study the allocation decision of the government. Among the N firms, which K firms will receive the low tax rate?

Proposition 2.4. *There exists M^* such that for all $M > M^*$, the government will offer the K firms with **lowest asset mobility** the low tax rate $\underline{t}$ and offer the other $N - K$ firms the high tax rate $\bar{t}$, even when the government values fiscal revenue more than the political gains.*

Proof. See Appendix A.3. □

Proposition 2.4 provides a counter-intuitive result. Conventional wisdom suggests that governments become more attentive to highly mobile firms' needs when competition for capital increases. However, Proposition 2.4 shows that as competition intensifies (i.e., $M > M^*$), the government instead pays more attention to firms with lower asset mobility.

The result is produced by an exacerbation of the inverse credible commitment problem and an amelioration of the credible commitment problem. Recall that the credible commitment problem becomes less salient, while the inverse credible commitment problem becomes more salient when competition intensifies. When there are only a few competing

countries (i.e., small M), foreign firms with low asset mobility cannot credibly threaten to leave, and those with high asset mobility can still make relatively credible promises to stay. Hence, the host government will expropriate firms with low asset mobility and offer those with high asset mobility low tax rates.

However, when there are many competing countries (i.e., large M), even the least mobile firms can credibly threaten to leave and the government will offer the low tax rate to those firms whose likelihood of staying is most strongly affected by being offered the low instead of the high tax rate. Since there are many offers that are attractive to firms with high asset mobility, offering the low tax rate to a highly mobile firm will have little effect on their likelihood of staying and a low tax rate would be "wasted" on highly mobile firms. On the other hand, because of their inferior outside options a low tax rate can effectively incentivize firms with low asset mobility to stay and the government therefore offers low tax rates to firms with low asset mobility.

Corollary 2.5. *There exists a competition level M_L such that for intermediate levels of competition M between M_L and M^*, $M_L < M^*$ the government will offer the low tax rate $\underline{t}$ to the K foreign firms with medium levels of asset mobility but the high tax rate $\overline{t}$ to those with high and low asset mobility.*

Proof. See Appendix A.4. □

This corollary examines the tax rate allocation when the competition level is high enough for the host government to worry about the inverse credible commitment problem but not high enough so that all foreign firms can threaten to leave. In this case, firms with the lowest asset mobility will be expropriated because they cannot credibly threaten to leave; on the other hand, firms with high asset mobility cannot make credible promises to the host government. As a result, firms with medium-level asset mobility will receive the low tax rate, but firms at the two extremes will be taxed more.

It is worth emphasizing that all results still hold if we allow for repeated bargaining between the host government and foreign firms. The current setup is equivalent to a model with counteroffers where the government has to pay a prohibitively-large cost to adjust the current policy allocation. This is empirically relevant, for instance, when the

policy is sticky and costly to change, as is the case for regulations or industrial policies. However, the results also hold if we allow for lower adjustment costs. Firms with high asset mobility will always ask for more counteroffers from host governments than low asset mobility firms because they enjoy more attractive outside otions. If each time the host government needs to pay a small adjustment cost by reallocating policies, it is still preferable to offer firms with low asset mobility a better policy due to smaller total adjustment costs.

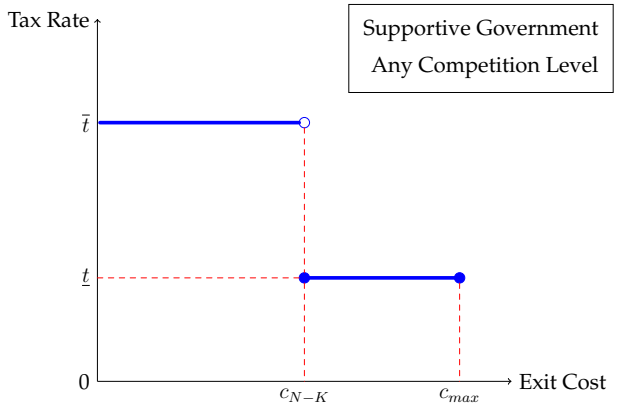
2.5 Empirical Implications

Proposition 2.2, Proposition 2.4, and Corollary 2.5 characterize the sufficient conditions for observing the positive effects of low asset mobility. The empirical predictions are summarized in Figure 1. In the figure, the horizontal axis measures the exit cost — larger exit cost represents lower asset mobility; the vertical axis is the tax rate. When the government is supportive, it always offers firms with lower asset mobility the low tax rate (Figure 1a). The other figures illustrate different scenarios under a predatory government. When the competition level is low (Figure 1b and Figure 1c), the government will impose the high tax rate on all firms except those with very high asset mobility. With the competition level increasing, the government starts to favor firms with lower asset mobility (Figure 1d and Figure 1e).

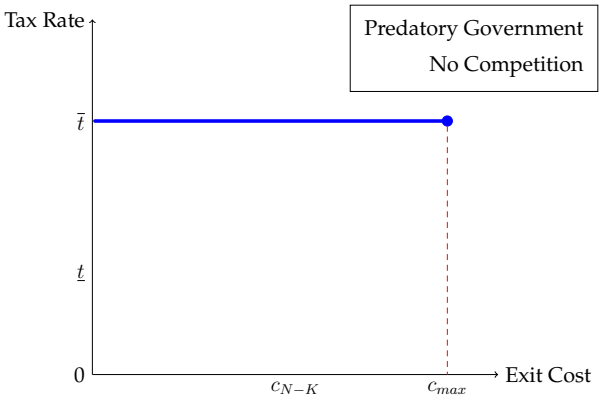
It is readily observable that high asset mobility is only strictly beneficial when the government is predatory *and* the competition level is low (i.e., in Figure 1c). In any other scenario, at least some firms with low asset mobility receive equally good or better policies than their counterparts with high asset mobility.

Thus, it is reasonable to expect that we can observe the positive effects of low asset mobility in reality. First, many host governments likely care strongly about economic performance. Many studies demonstrate that indicators of economic performance, such as growth, income, and employment, are tightly linked to government survival and economists have emphasized the implications of FDI on economic growth and development (Alfaro, Kalemli-Ozcan, and Sayek, 2009). Second, existing studies show that

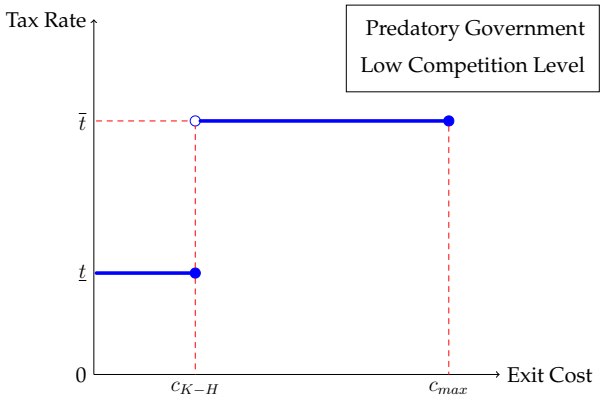
Figure 1: Empirical Predictions



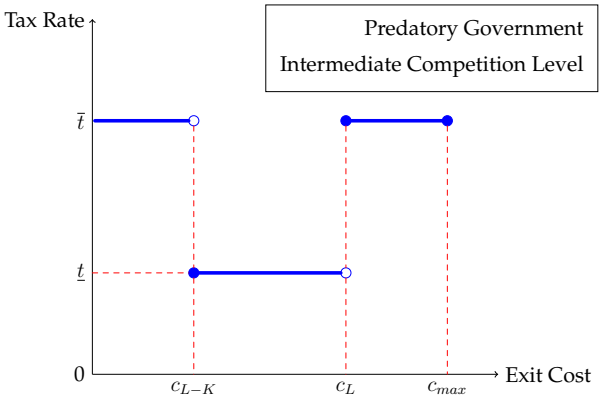
(a) A supportive government always offers foreign firms with the lowest asset mobility the low tax rate



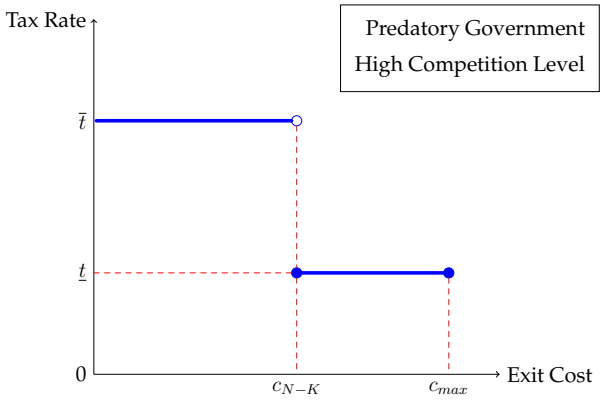
(b) A predatory government will offer all foreign firms the high tax rate when there is no competition



(c) A predatory government will offer only a few foreign firms with the highest asset mobility the low tax rate when the competition level is low



(d) A predatory government will offer foreign firms with medium asset mobility the low tax rate when the comptition level is intermediate



(e) A predatory government will offer foreign firms with the lowest asset mobility the low tax rate when the comptition level is high

international capital mobility exerts intense pressure on many domestic political issues such as taxation, industrial regulations, social welfare policies, and even regime change (Garrett, 1995; Vogel, 1997; Rudra et al., 2008; Freeman and Quinn, 2012). Therefore, it is sensible to expect that competition for capital is a critical concern for many governments. Thus, I propose the following empirical hypotheses.

The first hypothesis captures my theory's main prediction:

Hypothesis 1. *Foreign firms with lower asset mobility are more likely to receive better government treatment.*

The next two hypotheses summarize effect heterogeneities predicted by my theory. First, recall that competition for investments exacerbates the inverse credible commitment problem and lends greater advantage to firms with lower asset mobility.

Hypothesis 2. *When intergovernmental competition for investments is more intense, foreign firms with lower asset mobility are more likely to receive better government treatment.*

Finally, I expect that the inverse credible commitment problem is exacerbated when the government's time horizon is longer. Having a longer time horizon implies that the government is taking more future competition into consideration. Intuitively, if the government hopes to work with a foreign firm for five years, it needs to consider all the possible competing offers made within the next five years. On the contrary, if the government only worries about next month, the number of foreseeable competing offers is much smaller.

Hypothesis 3. *When government leaders have a longer time horizon, foreign firms with lower asset mobility are more likely to receive better government treatment.*

3 Empirics

An ideal identification strategy would require random assignment of asset mobility to foreign firms. As this is infeasible, I propose a partial solution to the causal identification problem by leveraging a sharp change in China's corporate tax laws.

3.1 China's 2008 Enterprise Income Tax Law

On March 16, 2007, the National People's Congress of China passed the "Enterprise Income Tax Law," which became effective on January 1, 2008. The new corporate income tax law entailed two significant changes in the tax system: 1) the statutory tax rate was set at 25% for all firms, domestic or foreign (compared with the previous 33%); 2) the new law replaced previous incentives exclusively available to foreign firms with a new set of incentives available to both domestic and foreign firms. Hence, from January 1, 2008, local governments were forbidden from offering tax incentives exclusively targeting foreign firms.

Although the central government urged local governments to respect any existing agreements signed with foreign firms, numerous disputes between local governments and foreign firms regarding existing tax agreements still arose due to ambiguities in the new law. Furthermore, local governments differed markedly in their implementation of the new law.

There were three majors problems in the implementation process:

1. Some rules on how to calculate tax bases were significantly delayed.

2. There were conflicts between new and existing policies.

3. The criteria for new incentives eligibility were unclear.

For example, the rule regarding how to deduct expenses on employee pension and medical insurance was not published until March 2009 (Figure B.1). However, the central government required all local governments to adopt this standard from January 2008. In other words, local governments needed to devise their own rules to calculate tax bases in 2008. Similar delays can also be found in other issue areas of the law, which caused significant implementation discrepancies between local governments in 2008.

Due to the rather chaotic implementation process, local governments were granted more room to offer or abolish incentives. Foreign firms worried about the implementation process also voiced their concerns over the ambiguity of the law. In some cases, local governments had to ask upper-level governments whether individual companies were

qualified for incentives (Figure B.2). Therefore, the ambiguous rules in the early implementation stages gave local governments more room in allocating tax incentives. As I confirmed in interviews with local Chinese officials there also existed cases in which local governments unilaterally abolished preferential tax agreements with foreign firms in 2008.[9]

This sweeping change in the corporate tax system provides a unique opportunity to test my theory. During the early stages of the law's implementation (i.e., in 2008), it was less costly for local governments to renegotiate tax rates with foreign firms. Consequently, the new tax rates enjoyed by foreign firms should be highly correlated with government preferences. If high asset mobility protects foreign firms from expropriation, we should observe that foreign firms with high asset mobility get better tax rates from local governments in 2008. However, if low asset mobility helps foreign firms reassure local governments of their commitment, we will observe these firms getting better tax rates.

This identification strategy lends strength in the following aspects:

1. It exactly matches the setup of the theory. The law change creates a chance for local governments to renegotiate with foreign firms that have sunk costs. Therefore, we can interpret the empirical findings as direct evidence for the theory.

2. The empirical design addresses the problem of reverse causality due to *ex ante* bargaining. If foreign firms condition their investments on the tax rate they receive, then the direction of causality is unclear. As I look at firms that have made their investments at least two years before the law change, it is unlikely that the tax rate they receive in 2008 significantly influences their entry decisions.

Admittedly, this strategy fails to account for unobserved heterogeneity between firms with high and low asset mobility because asset mobility is not randomly assigned. However, I try to address this issue by using a rich set of covariates and a difference-in-differences design.

[9] I conducted my interviews in July and August of 2019. The sample includes 15 local government officials and managers of foreign firms in China.

3.2 Statistical Models

Suppose the amount of tax a firm i needs to pay in year t is:

$$\begin{aligned}\text{Tax}_{i,t} = c_i + \alpha_t + \delta \cdot \text{Asset Mobility}_i + \eta \cdot \mathbb{1}\{t = 2008\} \cdot \text{Asset Mobility}_i + \beta \cdot X_{i,t} \\ + \gamma \cdot Z_{i,t-1} + \epsilon_{i,t} \end{aligned} \tag{1}$$

This model assumes that the amount of tax that a firm pays is a function of asset mobility and other factors. Before 2008 (i.e., $t \neq 2008$), the effect of asset mobility on the amount of tax that a firm pays is δ. However, when the new tax law became effective in 2008, there is an additional effect of asset mobility η caused by the change in government calculations. For example, due to a reduction in the cost of reneging on tax agreements, firms need to pay more or less tax even though asset mobility does not change. Local governments may favor firms with higher (or lower) asset mobility, and therefore, we expect firms with different levels of asset mobility to experience different levels of changes (captured by the value of η). If my theory is correct, η should be positive (i.e., higher asset mobility is associated with higher taxation). Otherwise, η should be negative.

The parameters c_i and α_t capture time-invariant confounders and a common time trend. Asset mobility is assumed to remain constant in short time windows (e.g., from 2007 to 2008). Hence, it only varies at the firm level but not across years. I include contemporaneous time-varying covariates $X_{i,t}$ and lagged time-varying covariates $Z_{i,t-1}$ to account for firm heterogeneity.

To identify η, I use a first difference strategy:

$$\Delta_t \text{Tax}_i = \boldsymbol{\eta} \cdot \text{Asset Mobility}_i + \beta \cdot \Delta_t X_i + \gamma \cdot \Delta_t Z_i + \Delta_t \alpha + \epsilon_i \tag{2}$$

It is worth mentioning that the model cannot identify δ, which is the effect of asset mobility on tax amount before the tax change because it is canceled out by taking the first difference. Also, notice that the error term is the same as the i.i.d. error in a cross-sectional setting, even if we assume a Markov process between $\epsilon_{i,t}$ and $\epsilon_{i,t+1}$ that allows for temporal correlations.

3.3 Data

I rely on the Chinese Industrial Enterprises Database for firm-level financial information. The database covers all manufacturing firms with sales above 5 million RMB (US $700,000) from 1998 to 2013. It is estimated that the database covers about 85-90% value added in most manufacturing industries in China and serves as a foundation for the central government's GDP calculation (Brandt, Van Biesebroeck, and Zhang, 2012; Huang and Tang, 2011). The database includes both firm registration and financial performance information.[10]

The sample is restricted to wholly foreign-owned enterprises. I also exclude foreign investors from Hong Kong, Macau, or Taiwan, because scholarship suggests that ethnically Chinese foreign investors (such as those from Hong Kong, Macau, and Taiwan) are substantially different from other investors due to their pre-existing connections or better knowledge of the Chinese political, social, and economic system (Huang, 2003; Fukushima and Kwan, 1995). Scholars also show that joint ventures are strategic choices of foreign investors to mitigate political risks (Puck, Holtbrügge, and Mohr, 2009; Morschett, Schramm-Klein, and Swoboda, 2010). I therefore exclude joint ventures from my analyses to partially address the confounding effects of political connections or political knowledge.

The main analysis is complemented with analyses of heterogeneous treatment effects and additional robustness tests using data from other sources. I will present detailed explanations of the additional data sources when needed.

3.4 Measurement and Covariates

To measure asset mobility, I use the fixed asset ratio:

$$\text{Asset Mobility}_{i,t} = 1 - \frac{\text{Fixed Asset}_{i,t}}{\text{Total Asset}_{i,t}}$$

[10]Economists have raised concerns over the data quality after 2008 (Hsieh and Klenow, 2009; Liu and Lu, 2015; Gao and Van Biesebroeck, 2014; Brandt, Van Biesebroeck, and Zhang, 2012, 2014). For that reason, I exclude data from 2009 to 2013.

Notice that a *higher* fixed asset ratio signifies *lower* asset mobility. This measurement strategy is similar to recent work by Pond and Zafeiridou (2020) using the amount of intangible assets to measure asset mobility.

I categorize asset mobility into high, medium, and low. The analyses only compare firms with high and low asset mobility. I make this decision for two reasons. First, Figure 1 demonstrates that the relationship between asset mobility and government treatment is non-linear. Since we cannot observe government types and cutoff competition levels, it is infeasible to precisely test the relationship under different scenarios. However, recall that firms with high asset mobility will only receive a lower tax rate if the competition level is very low. Because scholars suggest that local competition for investments is quite intense in the Chinese context (Lü and Landry, 2014; Wang, 2015), I argue that foreign firms with high asset mobility should receive worse treatment than those with low asset mobility *on average*. The trichotomization helps test this implication. Second, the proposed measurement is an approximation of real world asset mobility. The concern is that foreign firms with similar fixed asset ratios may be perceived to be the same by governments. For example, governments may not perceive firms with fixed asset ratios of 0.5 and 0.6 as two firms with different asset mobility. Therefore, the trichotomization helps address attenuation bias caused by measurement error.

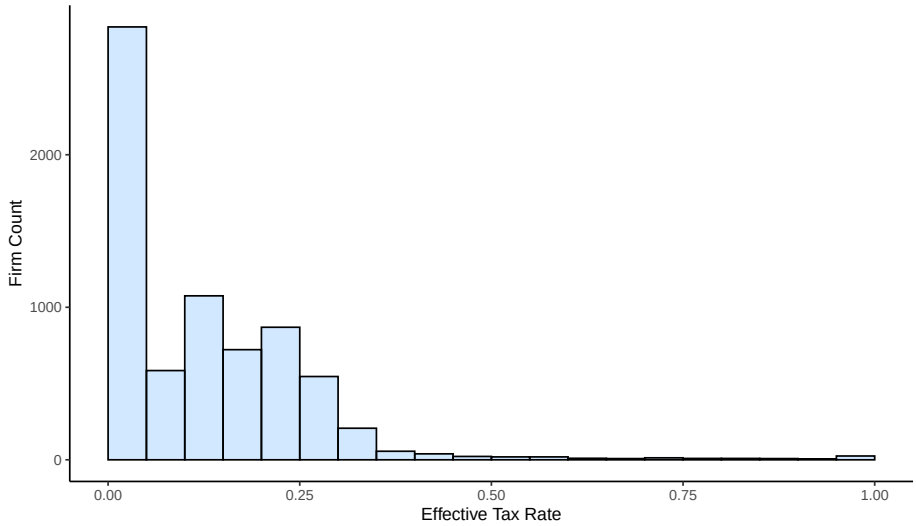
When choosing cutoffs to categorize firms, I use the 30th quantile and 60th quantile in the main analysis; that is, firms whose asset mobility is below the 30th quantile will be coded as low; firms between the 30th and 60th quantile will be coded as medium; firms above the 60th quantile are coded as high. Readers may be concerned with this arbitrary choice of cutoffs. I show in Appendix C.1 that the results remain unchanged even if I randomly sample 100 cutoffs.

The dependent variable is the amount of taxes that firm i owes in year t. It is a function of firm profits, government incentives, and other financial factors. The effect of the statutory tax rate is absorbed into the profit coefficient as it is the same for all firms. In addition, I include a rich set of firm-level covariates to simulate the data generating process. The included variables are profit, debt, number of employees, revenue, main production cost, inventory, amounts of export, and loss in the previous year.

4 Results

4.1 Main Results

Figure 2: Distribution of Foreign Firm Effective Tax Rates in 2008



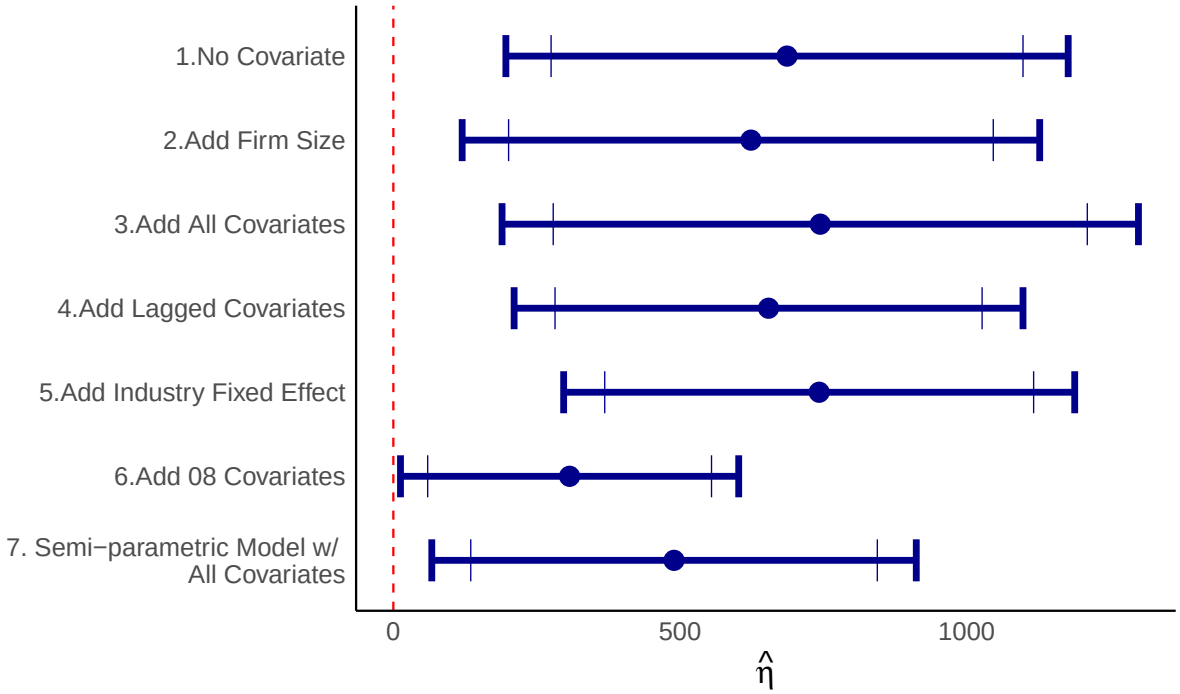
Note: *this figure presents the empirical distribution of foreign firm effective tax rates. Tax rates are calculated by dividing tax by profit. Most foreign firms do not pay any income tax. Around 4% of firms (394 firms) have effective tax rates that are negative or higher than 1. I exclude these firms from the graph for illustration purposes but keep them in the main analyses. In Appendix C.5, I show that the results are robust to exclusion of these observations.*

Figure 2 visualizes the distribution of foreign firm effective tax rates in 2008. Effective tax rates are calculated by dividing tax by profit. Most of the foreign firms in the sample do not pay any income tax. However, there are a small number of firms that pay a tax rate above 50%. From an accounting standpoint, these are cases where 1) certain costs are deducted from profits but are still taxable, or 2) firms pay deferred tax. Hence, the figure demonstrates that there is substantial variation in the tax rates enjoyed by foreign firms.

The main results are included in Figure 3. All of the models use robust standard errors clustered at the prefecture level. The dots in the figure are point estimates using 2007-2008 data. The two error bars are the 90% and 95% confidence intervals. Model 1 includes only asset mobility as the covariate. Then, I add covariates of firm size such as profit, the number of employees, and revenue. In model 3, all firm-level covariates are

included: debt, main production cost, inventory, exports. Lagged loss is introduced in model 4. In model 5, I include an additional industry fixed effect to address concerns that the new tax law affects industries differently.

Figure 3: Main Results



Note: *this figure presents the results of seven regression models. The blue dots are point estimates and the error bars are 95% and 90% confidence intervals.*

Model 6 and model 7 include additional contemporaneous covariates (i.e., firm data in 2008) allowing the effects of these variables to change across years. This is a reasonable choice if readers believe that these variables' coefficients change between 2007 and 2008. For instance, since the statutory tax rate changes after 2008, the effect of profit on the paid tax amount should also change. Hence, I allow financial variables directly related to income tax, such as profit, debt, lagged loss, and exports, to have time-varying coefficients in model 6. I believe that this model best captures the underlying data generating processes.

Model 7 further relaxes the linearity assumption. The double machine learning estimator proposed by Chernozhukov et al. (2017) allows estimation of causal quantities while avoiding fixed model specifications. The model not only accounts for linear re-

lationships between covariates and the outcome, but it also controls for any non-linear relationship between them. Therefore, I can control for unobserved non-linear relationships between the paid tax amount and the covariates. For example, the model can still capture the effect of profit on paid tax even if the tax system is progressive (i.e., firms with less profit enjoy lower tax rates).

Figure 3 shows that the parameter of interest is consistently positive and statistically significant. The findings directly support my claim that firms with lower asset mobility pay less tax, *ceteris paribus*. In 2008, foreign firms with low asset mobility pay on average around $42,000 U.S. dollars less, compared to those with high asset mobility, while controlling for observable firm characteristics and unobservable time-invariant confounders.

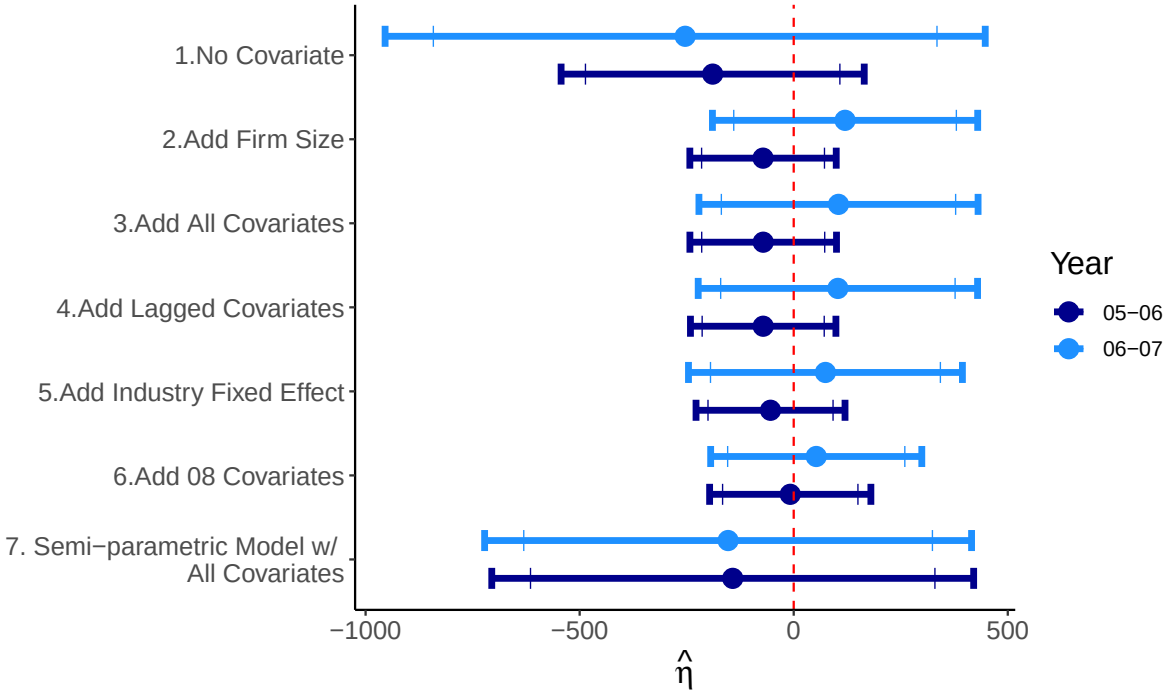
The validity of the results relies on the parallel trend assumption; that is, firms with high and low asset mobility would experience similar changes in paid tax amount if there were no change in the tax law. Since this assumption cannot be tested, I instead propose two placebo tests. I run the same models using 2006-2007 and 2005-2006 data. Because the new corporate tax law did not become effective until 2008, we should not observe any effects using pre-2008 data.

Figure 4 present the placebo results. It is readily observed that none of the models return significant point estimates. Many of the coefficients are in the opposite direction as well. This increases our confidence in the validity of the main results. I also use Covariate Balancing Propensity Score (Imai and Ratkovic, 2014) to achieve covariate balance between firms with high and low asset mobility, and the results remain unchanged (see Appendix C.3).

4.2 Heterogeneous Effects: Competition

Hypothesis 2 postulates that the positive effect of low asset mobility increases with competition intensity. I follow the approach of Lü and Landry (2014) to measure inter-governmental competition. The authors show that the number of prefectural governments in the same province is positively correlated with inter-governmental competition. Local leaders in China are considered for promotion by upper-level officials. For example,

Figure 4: Placebo Results



Note: *this figure presents the results of two placebo tests using 2005-2006 and 2006-2007 data. The blue dots are point estimates and the error bars are 95% and 90% confidence intervals.*

government officials at the prefectural level are considered for provincial-level leadership positions by the provincial or national governments. As the number of available positions decreases as the rank goes up, many candidates are usually considered for the same position. As a result, political competition becomes more fierce if there are more candidates considered. Abundant studies have shown that local economic performance has a significant impact on the career prospects of local leaders in China (Kung and Chen, 2013; Lü and Landry, 2014; Landry, Lü, and Duan, 2018; Jiang, 2018). For these reasons, increased inter-governmental competition should also influence how local leaders treat local firms.

I refine this measurement by including information about individual local leaders. Specifically, I include the age of prefecture party secretaries to measure whether they are still eligible for promotion. Party secretaries are the commanders in chief at the prefectural level. In the Chinese political system, government officials are no longer eligible for higher positions above a certain age. The age caps vary across different ranks, with higher ranks having higher age caps. Jensen and Malesky (2018) also leverage similar po-

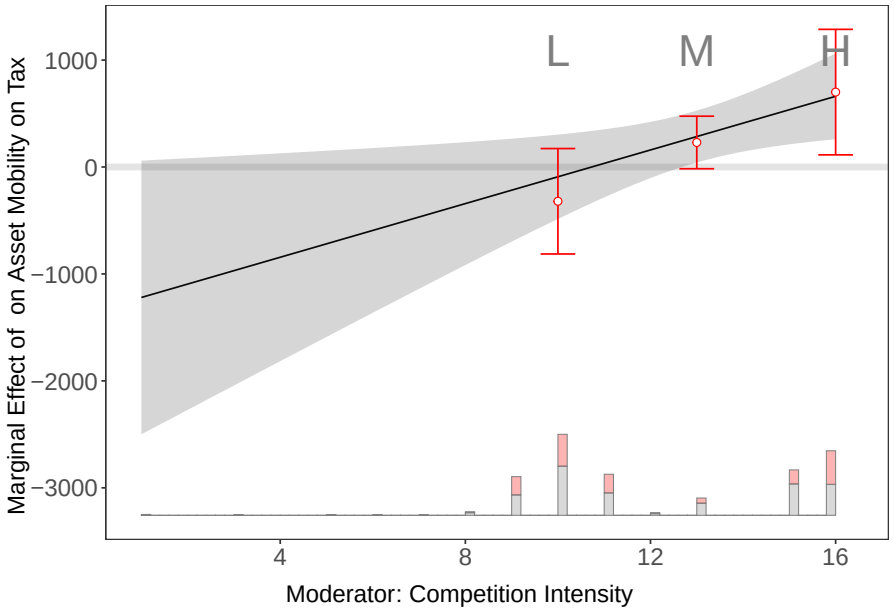
litical mechanisms to show that the probability of local governments offering incentives drops dramatically when the local leaders are older than the promotion eligibility age. Hence, I count the number of prefectural party secretaries whose age is below the age cap within the same province and use the count as an indicator of political competition intensity. This measurement captures within-province competition for investments but does not necessarily measure global competition for investments. However, local competition for foreign investments is highly correlated with the global climate of foreign investments. Furthermore, local competition for investments is more tangible than global competition for investments in local government perception. Thus, analyzing the effect of local competition provides a meaningful test of my theory.

I draw the age information of local party secretaries from the database compiled by Jiang (2018). The database includes extensive demographic and career information of prefectural, provincial, and national leaders in China. The available periods range from 2000 to 2015. I use the age caps information documented by Kou and Tsai (2014) to decide promotion eligibility.

The results are presented in Figure 5.[11] The straight line results from a linear interaction model, and the three bars are results estimated with a binning estimator. The binning estimator helps guard against misinterpretation when the marginal effects of competition intensity are not linear (Hainmueller, Mummolo, and Xu, 2019). It estimates the marginal effects separately at low, medium and high levels of competition intensity, which by construction allows the effects to be non-linear. The results are robust across the two estimation strategies. When local competition increases, the positive effect of asset mobility becomes stronger (i.e., higher asset mobility associated with paying more taxes). The effect increases monotonically with the level of competition, which lends support to the proposed theory.

[11] I use the specification of model 6 as the baseline model. Prefectural level GDP and population are also included to control for different economic conditions.

Figure 5: Heterogeneous Effects: Competition



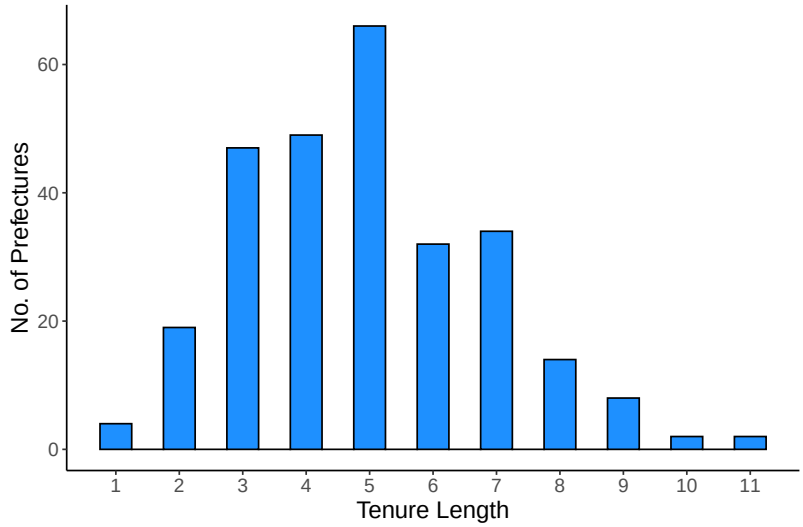
Note: *this figure presents results from a linear interaction model (the solid line) and a binning estimator (the error bars). The models examine how competition level moderates the relationship between asset mobility and paid tax amount.*

4.3 Heterogeneous Effects: Time Horizon

Like the effect of competition, I expect a longer time horizon to also highlight the inverse credible commitment problem. If local leaders pay attention to future economic outcomes, the ability of foreign firms to make credible commitments should weigh more heavily in government calculations. An official with a longer time horizon will consider more competition as more offers will be made within a longer time frame. Hence, my theory implies that local leaders with a longer time horizon should offer foreign firms with lower asset mobility even better treatment.

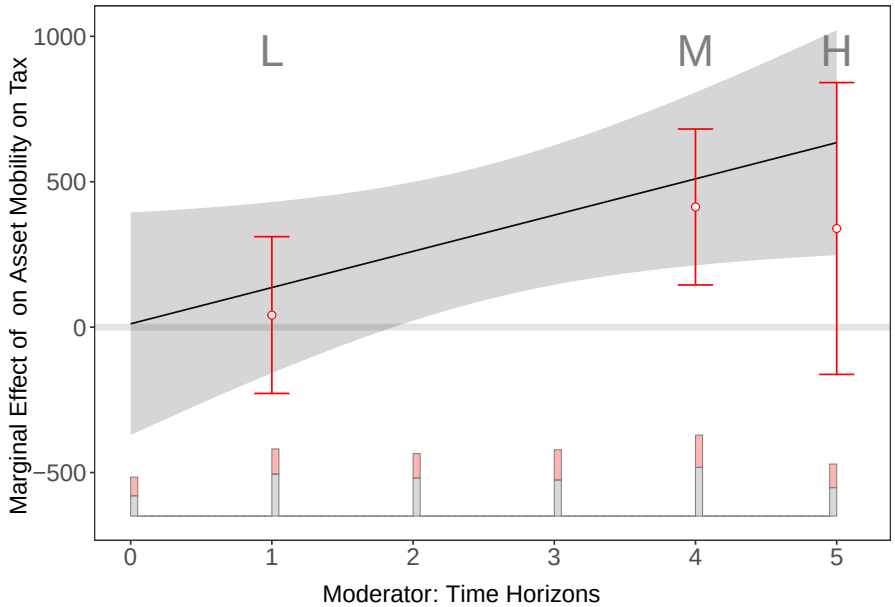
To measure the time horizons of local leaders, I again leverage information from Jiang (2018). I measure time horizons using the term limit in the Chinese political system. Prefectural level party secretaries are usually allowed to serve two terms, with each term spanning five years. Figure 6 presents the distribution of tenure lengths of party secretaries. The longest tenure in the data is 11 years, which supports my claim that every party secretary serves at most two five-year terms.

Figure 6: Distribution of Local Leaders' Tenure Length



Note: *this figure presents the empirical distribution of local leaders' tenure length. Almost all local leaders serve at most 10 years. There is also a peak at the five year mark. This pattern supports my claim that local leaders serve at most two five-year terms.*

Figure 7: Heterogeneous Effects: Time Horizons



Note: *this figure presents results from a linear interaction model (the solid line) and a binning estimator (the error bars). The models examine how time horizons of local leaders moderate the relationship between asset mobility and paid tax amount.*

I define the time horizon of a local leader as:

$$\text{Horizon}_{i,t} = 5 - (\text{Year } t - \text{Starting Date}_i)$$

This measurement essentially captures the number of years left in a term. It is worth noting that the longest horizon is 5, according to this definition, which occurs when the leader just assumed office.

I present the results in Figure 7. The linear interaction model shows a strong and positive relationship between the marginal effect of asset mobility and leader time horizon. The binning estimator reveals that the effect of asset mobility among local officials who have a long time horizon is positive but noisy. The increased uncertainty may be driven by idiosyncrasies caused by political transitions. Nonetheless, the analysis provides evidence that is consistent with the theory.

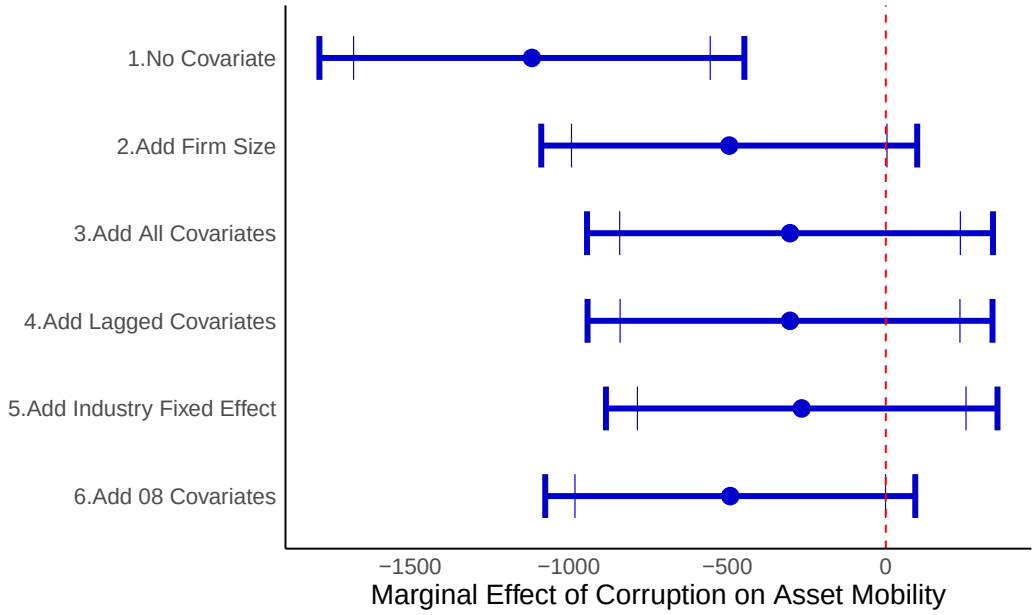
4.4 Confounder: Political Connections or Bribery

One major concern is the confounding effect of political connections or bribery. It is plausible that firms with political connections are more likely to invest in fixed assets. Politically connected firms are more likely to receive preferential treatment, such as low tax rates (Truex, 2014). Ideally, I would measure political connections at the level of the foreign firm, but to the best of my knowledge, such a comprehensive measure does not exist. For this reason, I use a proxy for political connections to assess if the observed empirical patterns could be explained by political connections.

As political connections and bribery are highly correlated in China, I propose to measure political connections using corruption cases. If the observed effect can be explained by political connections, we should observe stronger effects in localities where local leaders are corrupt. I use information from the Chinese Political Elite Database (Jiang, 2018) to identify corrupt local leaders. I code anyone arrested for corruption during the period from 2000 - 2015 as 1 and others as 0. Then, I classify whether a foreign firm was operating under a corrupt local leader in 2008. If political connections can explain the empirical findings, we should observe a strong and positive effect of asset mobility when foreign

firms operate under a corrupt official.

Figure 8: Confounder: Political Connections or Bribery



Note: *this figure presents the results of seven regression models. The blue dots are point estimates and the error bars are 95% and 90% confidence intervals.*

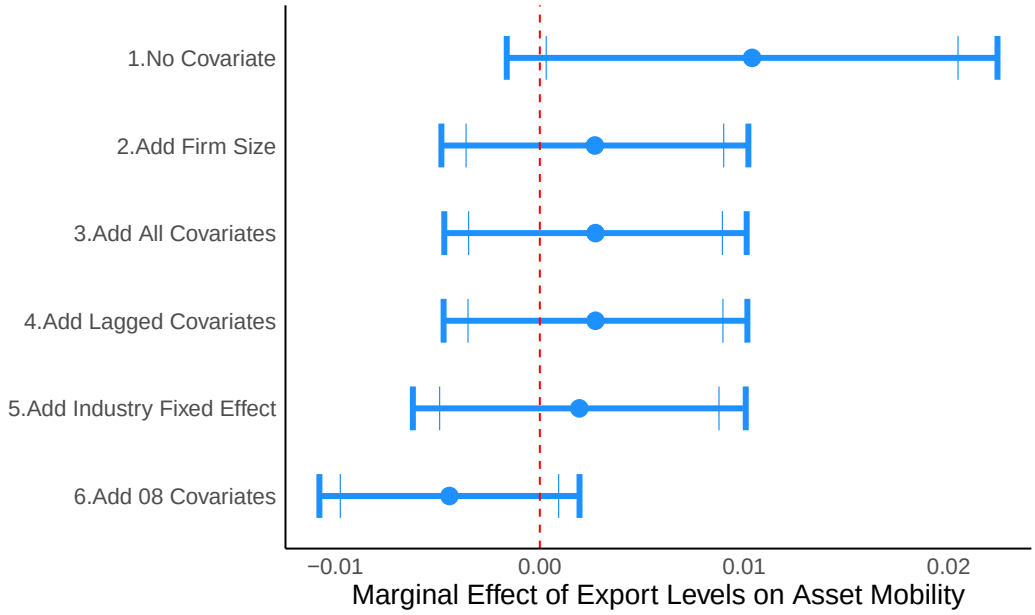
The results presented in Figure 8 do not support bribery as the channel underlying the empirical results. The positive effect of low asset mobility shrinks in localities governed by corrupt leaders. This pattern may be driven by the fact that corrupt officials are more predatory and shortsighted. As a result, only a small portion of foreign firms are connected, but most of them have to operate under a predatory and shortsighted government that expropriates firms with low asset mobility. Hence, the evidence suggests that the effect of political connections is not strong enough to account for the observed effects.

4.5 Confounder: 2008 Financial Crisis

The empirical design uses the enterprise tax law change in 2008 as the treatment. However, other influential events occurred in 2008. Though the tax law change should have the most considerable and immediate impact on the amount of tax each firm pays, it is also plausible that the 2008 financial crisis contributes to the observed effect. To ad-

dress this concern, I include prefectural level export data into the analysis.[12] The data is collected from the CEIC database. Prefectures having a larger export amount in 2007 should be hit harder by the financial crisis in 2008. If the financial crisis is the main reason driving the observed effect, we should see a robust relationship between the severity of the financial crisis and the magnitude of observed effects, though the direction of this relationship is less clear *ex ante*.

Figure 9: Confounder: 2008 Financial Crisis



Note: *this figure presents the results of seven regression models. The blue dots are point estimates and the error bars are 95% and 90% confidence intervals.*

The results presented in Figure 9 fail to support this alternative explanation. The signs of the point estimates are not consistent and their magnitudes are very close to 0.

5 Conclusion

This paper shows that the effect of asset mobility on expropriation risk deserves a closer look when we incorporate the preferences of host governments. In this paper, I identify three crucial factors that contribute to the positive effect of low asset mobility:

[12] I am grateful for Yishuang Li for generously sharing the dataset with me.

1) the inverse credible commitment problem, 2) political benefits associated with firm performance, and 3) competition for investments. These factors are prevalent in most countries that actively participate in the global economy. The theory proposes a new pathway to study the politics of FDI.

Empirically, I assess the validity of the theory in the context of China. Although I believe the mechanisms apply to firms worldwide, more empirical evidence is needed to demonstrate the theory's generalizability. My theory also provides a new interpretation of many existing empirical findings. For example, Zhu and Shi (2019) find that firms with low asset mobility are less opposed to predictable corruption. My theory can rationalize this phenomenon: immobile firms prefer predictable corruption because they have stronger abilities to secure preferential treatments.

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Appendix A Proofs of Theoretical Results

A.1 Proof of Proposition 2.2

Proof. Because Lemma 2.1 shows that the equilibrium number of firms that receive the low tax rate is exactly K, the next step is to solve for the optimal allocation of the K low tax rates. First, let us define the allocation in which the K foreign firms with the lowest asset mobility receive the low tax rate as $\mathbf{V}^*$. This proof will show the $\mathbf{V}^*$ delivers the highest payoff to the government.

I will prove it by contradiction. Suppose $\mathbf{V}' \neq \mathbf{V}^*$ is the optimal allocation. It has to follow that there exists at least one pair of firms (i, j) in which the one with the lower asset mobility receives the higher tax rate but the one with the higher asset mobility receives the lower tax rate. Without loss of generality, suppose firm i receives the low tax rate $t_i = \underline{t}$ and firm j receives the high tax rate $t_j = \bar{t}$. Since $\mathbf{V}' \neq \mathbf{V}^*$, the exit cost of firm i has to be *lower* than that of firm j. Denote the exit cost as $c_i < c_j$. If $\mathbf{V}'$ is indeed the optimal allocation, swapping t_i and t_j should not lead to a higher payoff. Denote $\mathbf{t}_{-i,-j}$ as tax rates that are received by firms other than i and j. Note $\mathbf{t}_{-i,-j}$ stays unchanged when we swap the tax rate between i and j.

$$
\begin{aligned}
&\mathbb{E}[U(t_i = \underline{t}, t_j = \bar{t}, \mathbf{t}_{-i,-j})] - \mathbb{E}[U(t_i = \bar{t}, t_j = \underline{t}, \mathbf{t}_{-i,-j})] \\
=&p_i(\underline{t})^M \cdot G(\underline{t}) + p_j(\bar{t})^M \cdot G(\bar{t}) - [p_i(\bar{t})^M \cdot G(\bar{t}) + p_j(\underline{t})^M \cdot G(\underline{t})] \\
=&[p_j(\bar{t})^M - p_i(\bar{t})^M] \cdot G(\bar{t}) - [p_j(\underline{t})^M - p_i(\underline{t})^M] \cdot G(\underline{t})
\end{aligned}
$$

If we can show $p_j(\bar{t})^M - p_i(\bar{t})^M < p_j(\underline{t})^M - p_i(\underline{t})^M$, it follows that $\mathbb{E}[U(t_i = \underline{t}, t_j = \bar{t}, \mathbf{t}_{-i,-j})] - \mathbb{E}[U(t_i = \bar{t}, t_j = \underline{t}, \mathbf{t}_{-i,-j}) < 0$, a contradiction.

Denote $H(t) = p_j(t)^M - p_i(t)^M$. Because firm j has lower asset mobility, it follows that $H(t) > 0$ for all t. Through factorization, we can show:

$$
\begin{aligned}
H(t) &= (p_j(t) - p_i(t))[p_j(t)^{M-1} + p_j(t)^{M-2} p_i(t) + \cdots p_i(t)^{M-1}] \\
&= \text{Constant} \cdot L(t)
\end{aligned}
$$

The first term is a independent of the tax rate t because of the property of uniform distribution. Also notice that the second term is an decreasing function of t. Then, it follows that $H(\bar{t}) - H(\underline{t}) < 0$, which concludes the proof. □

A.2 Proof of Lemma 2.3

Proof. Again, the government prefers to offer a firm i the low tax rate if and only if the expected payoff of the low tax rate is higher:

$$\begin{aligned}
\mathbb{E}[u_i(\underline{t})] - \mathbb{E}[u_i(\bar{t})] = p_i(\underline{t})^M \cdot G(\underline{t}) - p_i(\bar{t})^M \cdot G(\bar{t}) > 0 \\
\implies G(\bar{t}) < \left(\frac{p_i(\underline{t})}{p_i(\bar{t})}\right)^M \cdot G(\underline{t}) \\
\implies G(\bar{t}) < \left(\frac{(1-\underline{t})\pi + c_i}{(1-\bar{t})\pi + c_i}\right)^M \cdot G(\underline{t})
\end{aligned}$$

The above inequality proves that the government can obtain a higher payoff of imposing the low tax rate on firm i if the exit cost of that firm c_i satisfies the relationship.

Notice that $\left(\frac{(1-\underline{t})\pi+c_i}{(1-\bar{t})\pi+c_i}\right)^M$ is always greater than 1 and decreasing in the exit cost c_i. If c_h satisfies the inequality, then it follows that any firm whose exit cost is less than c_h will also satisfy the inequality. Index the exit cost such that c_h denotes the hth smallest exit cost. Hence, if c_h satisfies the inequality, the government would prefer to offer at least h firms the low tax rate. Now find c_L such that c_L satisfies the inequality but c_{L+1} does not. The optimal possible allocation for the government would be to impose the low tax rate on the L firms with lowest exit costs. However, since the government cannot offer more than K firms the low tax rate, the number of firms which receive the low tax rate is $\min\{K, L\}$.

It is also possible that none of the exit cost satisfies the inequality. Then, the government will impose the high tax rate on all of the firms. However, it is worth noting that the condition should always hold for a sufficiently large M since $\left(\frac{(1-\underline{t})\pi+c_i}{(1-\bar{t})\pi+c_i}\right)^M$ is unbounded and monotonically increasing in M. □

A.3 Proof of Proposition 2.4

Proof. As shown in the proof of Lemma 2.3, the government would be better off imposing the low tax rate $\underline{t}$ on all of the N firms, for a sufficiently large M. Formally, it holds that there exists a M_N^* such that the government prefers to offer the low tax rate to all of the firms when $M > M_N^*$. We need to show that among the N firms, which K of them will receive the low tax rate.

Similar to the proof of Proposition 2.2, let us consider when swapping tax rates is beneficial. Define the allocation in which the K foreign firms with the lowest asset mobility receive the low tax rate as $\mathbf{V}^*$. To prove the proposition, it needs to be shown that $\mathbf{V}^*$ triumphs any other allocation $\mathbf{V}'$ when M is sufficiently large.

Since $\mathbf{V}^* \neq \mathbf{V}'$, there must exist a pair of firms (i, j) such that $c_i < c_j$ but firm i receives $\underline{t}$ under $\mathbf{V}'$ and receives $\bar{t}$ under $\mathbf{V}^*$. If $\mathbf{V}^*$ indeed is the optimal allocation, then swapping the tax rate between firm i and firm j will lead to a lower payoff.

$$
\begin{aligned}
&\mathbb{E}[U(t_i = \underline{t}, t_j = \bar{t}, \mathbf{t}_{-i,-j})] - \mathbb{E}[U(t_i = \bar{t}, t_j = \underline{t}, \mathbf{t}_{-i,-j})] < 0 \\
\iff & p_i(\underline{t})^M \cdot G(\underline{t}) + p_j(\bar{t})^M \cdot G(\bar{t}) - [p_i(\bar{t})^M \cdot G(\bar{t}) + p_j(\underline{t})^M \cdot G(\underline{t})] < 0 \\
\iff & [p_j(\bar{t})^M - p_i(\bar{t})^M] \cdot G(\bar{t}) - [p_j(\underline{t})^M - p_i(\underline{t})^M] \cdot G(\underline{t}) < 0 \\
\iff & G(\bar{t}) < \frac{p_j(\underline{t})^M - p_i(\underline{t})^M}{p_j(\bar{t})^M - p_i(\bar{t})^M} \cdot G(\underline{t})
\end{aligned}
$$

If we can show that the above inequality always holds for a sufficiently large M, we can conclude that $\mathbf{V}^*$ is indeed the optimal allocation. This condition is sufficient as it proves that further deviation from $\mathbf{V}^*$ leads to lower payoff.

Denote $p_i(\bar{t})$ as p. Notice the following relations:

$$
\begin{aligned}
p_i(\underline{t}) &= p + \frac{(\bar{t} - \underline{t})\pi}{D_{upper}} \equiv p + a \\
p_j(\bar{t}) &= p + \frac{c_j - c_i}{D_{upper}} \equiv p + b \\
p_j(\underline{t}) &= p + \frac{c_j - c_i}{D_{upper}} + \frac{(\bar{t} - \underline{t})\pi}{D_{upper}} \equiv p + a + b
\end{aligned}
$$

where p, a, b are values between 0 and 1 by construction.

We can rewrite the above equality as:

$$G(\bar{t}) < \frac{(p+a+b)^M - (p+a)^M}{(p+b)^M - p^M} \cdot G(\underline{t})$$

Factorizing the numerator and denominator:

$$\begin{aligned}
& G(\bar{t}) < \frac{b \cdot \sum_{k=0}^{M-1} (p+a+b)^{M-1-k}(p+a)^k}{b \cdot \sum_{k=0}^{M-1} (p+b)^{M-1-k} p^k} \cdot G(\underline{t}) \\
\iff & G(\bar{t}) < \left(\frac{p+a+b}{p+b}\right)^{M-1} \cdot \frac{\sum_{k=0}^{M-1} (p+a+b)^{-k}(p+a)^k}{\sum_{k=0}^{M-1} (p+b)^{-k} p^k} \cdot G(\underline{t}) \\
\iff & G(\bar{t}) < \underbrace{\left(\frac{p+a+b}{p+b}\right)^{M} \cdot \frac{1 - \left(\frac{p+a}{p+a+b}\right)^{M-1}}{1 - \left(\frac{p}{p+b}\right)^{M-1}}}_{x_M} \cdot G(\underline{t})
\end{aligned}$$

It is readily observed that $\lim_{M\to\infty} x_M = \infty$. Then for any $G(\bar{t})$ and $G(\underline{t})$, these exist a M^*_{ij} such that $G(\bar{t}) < x_M G(\underline{t})$ for all $M > M^*_{ij}$. Note that this threshold M^*_{ij} depends on the pair (i, j). Since the number of firms N is finite, there are finite pairs of (i, j) to consider. We can define $M^*_{pair} \equiv \max\{M^*_{ij}\}$. It follows that the swap is always beneficial for any pair (i, j) where $c_i < c_j$ for $M > M^*_{pair}$. Recall that M^*_N is the threshold of the government being better off offering all firms the low tax rate $\underline{t}$. Finally, we define $M^* = \max\{M^*_{pair}, M^*_N\}$. We conclude that the government will offer the K firms with lowest asset mobility lower tax rate if $M > M^*$. □

A.4 Proof of Corollary 2.5

Proof. Proposition 2.4 shows that the government will give the low tax rate to the K firms with lowest asset mobility when the competition level M is very large. In Corollary 2.5, I will demonstrate for an intermediate competition level M, the government will offer the low tax rate to firms with medium asset mobility but the high tax rate to both the most mobile and the immobile firms.

Suppose M_L is the competition level that makes the government prefer to offer exactly $L = K + 1$ firms the low tax rate. Following the the proof strategy presented in Appendix

A.3, we know there exists a M_L^* such that the government will offer the K firms with the lowest asset mobility among the L firms the low tax rate. Thus, for any $M > M_L^*$, the firms with the highest asset mobility will never receive the low tax rate. Moreover, if M is not large enough to make the government consider offering all N firms the low tax rate, Then, a proportion of firms with the lowest asset mobility among N firms will never be considered for the low tax rate. As a result, there are exactly K firms with medium level of asset mobility will get the low tax rate but firms with either too high or too low asset mobility will get the high tax rate. □

Appendix B Examples of Policies

Figure B.1: A Delayed Policy

2009年09月24日 来源：财政部 国家税务总局 【字体： 大 中 小】 打印本页

各省、自治区、直辖市、计划单列市财政厅（局）、国家税务局、地方税务局，新疆生产建设兵团财务局：

根据《中华人民共和国企业所得税法》及其实施条例的有关规定，现就补充养老保险费、补充医疗保险费有关企业所得税政策问题通知如下：

自2008年1月1日起，企业根据国家有关政策规定，为在本企业任职或者受雇的全体员工支付的补充养老保险费、补充医疗保险费，分别在不超过职工工资总额5%标准内的部分，在计算应纳税所得额时准予扣除；超过的部分，不予扣除。

财政部 国家税务总局

二〇〇九年六月二日

To Provincial Level Governments, State Taxation Administration, Local Taxation Administrations:

According to the related articles in the *Enterprise Income Tax Law of the People's Republic of China*, we hereby announce additional tax deduction rules regarding the pension insurance and medical insurance:

Starting from January 1, 2008, the amount of payment made for pension insurance and medical insurance, if within 5% of the total salary, can be deducted from enterprise income taxes.

Ministry of Finance, State Taxation Administration
June 2, 2009

Figure B.1 presents a delayed policy. The announcement publishes rules for deducting pension and medical insurance expenses from tax bases. Though the announcement was made in June 2009, it asked local governments to implement this rule starting from January 2008. Therefore, local governments have to devise their own rules for calculating tax bases.

Figure B.2 presents a list of cases where local governments ask upper-level governments regarding individual firms' eligibility for certain tax incentives. In these cases, the upper-level government offers an official reply.

Figure B.2: Official Reply to Firms' Eligibility for Incentives

1、江苏省国家税务局关于香港德贤集团有限公司取得的特许权使用费免征企业所得税的批复
苏国税函[2008]361号 / 现行有效 / 2008.09.19发布 / 2008.09.19实施

2、江苏省国家税务局关于吴江华衍水务有限公司适用企业所得税税率的批复
苏国税函[2008]344号 / 现行有效 / 2008.08.25发布 / 2008.08.25实施

3、江苏省国家税务局关于江苏中基复合材料有限公司适用企业所得税税率的批复
苏国税函[2008]343号 / 现行有效 / 2008.08.25发布 / 2008.08.25实施

4、安徽省国家税务局关于来安新奥燃气工程有限公司适用企业所得税税率的批复
皖国税函[2008]193号 / 现行有效 / 2008.07.22发布 / 2008.07.22实施

5、安徽省国家税务局关于奥地利孚斯特内燃机及测试设备公司取得特许权使用费免征企业所得税的批复
皖国税函[2008]191号 / 现行有效 / 2008.07.21发布 / 2008.07.21实施

6、广州市国家税务局关于广东海丰鞋业有限公司2007年度购买国产设备投资抵免企业所得税的批复
穗国税函[2008]174号 / 现行有效 / 2008.06.30发布 / 2008.06.30实施

7、广州市国家税务局关于广东海丰鞋业有限公司2006年度购买国产设备投资抵免企业所得税的批复
穗国税函[2008]173号 / 现行有效 / 2008.06.30发布 / 2008.06.30实施

8、广东省国家税务局关于法国阿海珐核电公司取得特许权使用费免征企业所得税的批复
粤国税函[2008]341号 / 现行有效 / 2008.06.25发布 / 2008.06.25实施

9、江苏省国家税务局关于江苏联能风力发电有限公司适用企业所得税税率的批复
苏国税函[2008]277号 / 现行有效 / 2008.06.15发布 / 2008.06.15实施

10、江苏省国家税务局关于光大环保能源(常州)有限公司适用企业所得税税率的批复
苏国税函[2008]276号 / 现行有效 / 2008.06.15发布 / 2008.06.15实施

11、江苏省国家税务局关于江苏龙源风力发电有限公司适用企业所得税税率的批复
苏国税函[2008]271号 / 现行有效 / 2008.06.15发布 / 2008.06.15实施

12、江苏省国家税务局关于太仓协鑫垃圾焚烧发电有限公司适用企业所得税税率的批复
苏国税函[2008]269号 / 现行有效 / 2008.06.15发布 / 2008.06.15实施

13、江苏省国家税务局关于南通宏达热电有限公司适用企业所得税税率的批复
苏国税函[2008]279号 / 现行有效 / 2008.06.15发布 / 2008.06.15实施

2. Official Reply by Government of Jiangsu Province regarding the appropriate income tax rate applies to Wujiang Water Company (2008.09.19)

3. Official Reply by Government of Jiangsu Province regarding the appropriate income tax rate applies to Zhongji Company (2008.08.25)

8. Official Reply by Government of Guangdong Province regarding deducting royalties from income taxes of Areva S.A. (France) (2008.06.25)

Appendix C Robustness Tests

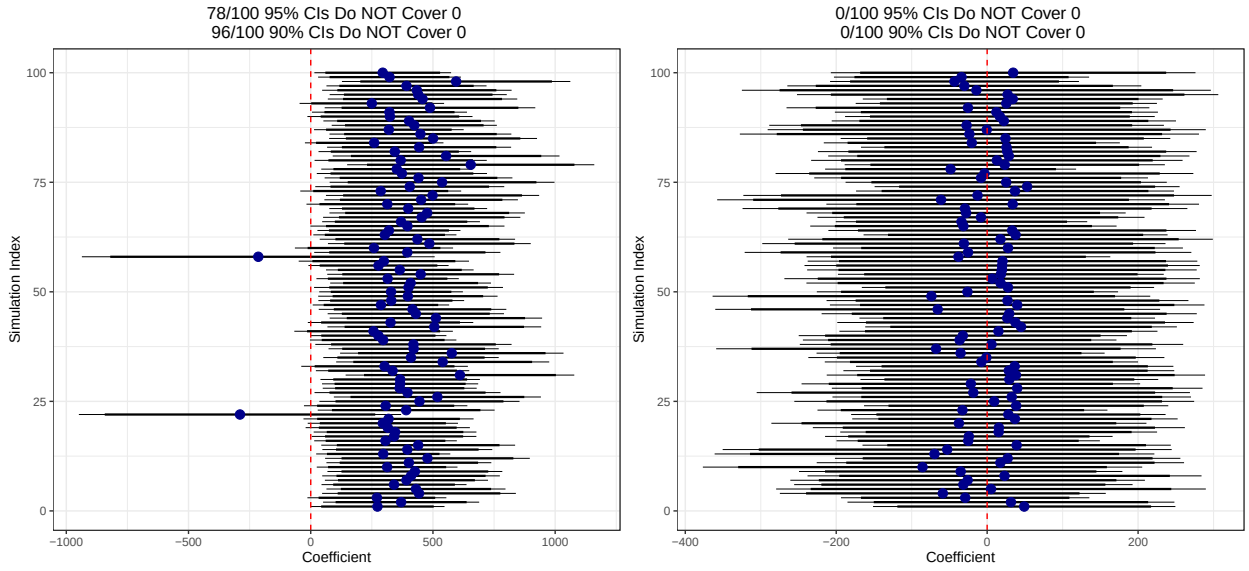
C.1 Robustness Test: Random Cutoffs

Recall that the choice of 30th/60th quantile is arbitrary. The observed patterns can be driven by this cutoff choice. To test robustness of the findings, I randomly sample 100 pairs of cutoffs and use them to run the preferred model (model 6).

Each pair of the cutoffs consists of one below the median and one above the median. Firms' asset mobility then is trichotomized using these 100 pairs of cutoffs. Besides, I replicate this exercise using the placebo data (i.e., 2006-2007 data). If the results are not sensitive to cutoff choices, they should stay unchanged in most of the cases.

Figure C.1 reports the results. Figure C.1a reports the 100 point estimates along with the 95% and 90% confidence intervals, using data from 2007 and 2008. Among the 100 trials, 78 of them stay positive and statistically significant at the 95% level and 96 of them remain significant at the 90% level. Besides, none of the regressions returns a significant result at either level using the placebo data (Figure C.1b).

Figure C.1: Robustness Test: Randomly Cutoffs

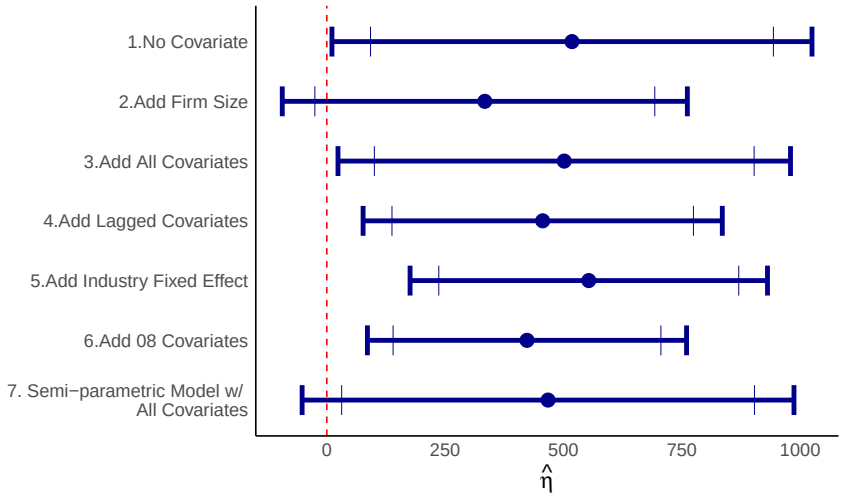


(a) Treatment Year (2007 - 2008)

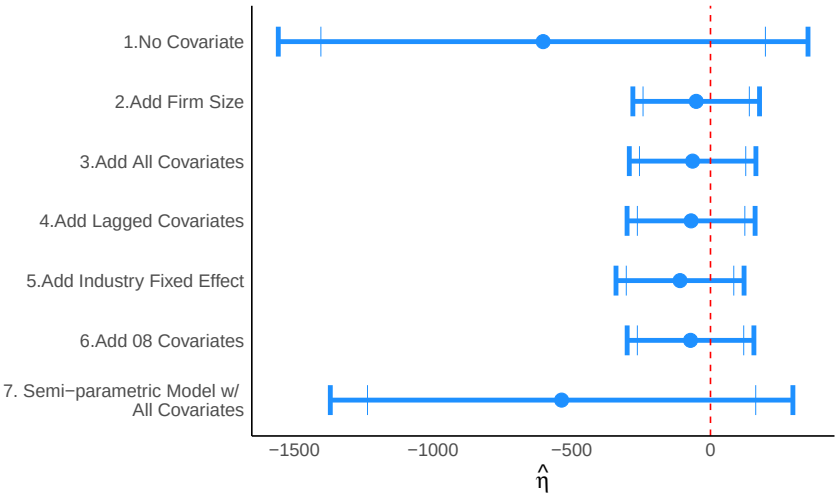
(b) Placebo Year (2006 - 2007)

C.2 Robustness Test: Same Firms from 2005 - 2008

Figure C.2: Robustness Test: 2005 - 2008 Panel



(a) Treatment Year (2007 - 2008)



(b) Placebo Year (2006 - 2007)

The treatment and placebo results presented in Figure 3 and Figure 4 use two different set of firms. The main results use foreign firms which stay in the sample from 2006 - 2008 but the placebo results use foreign firms which stay from 2005 - 2007. One may be concerned with validity of the placebo test when I use two different groups of observations. Furthermore, Brandt, Van Biesebroeck, and Zhang (2014) suggests that the 2008 sample is less comprehensive as previous years, which causes concerns on validity of the main results. To address these concerns, I replicate the main and placebo results on the same

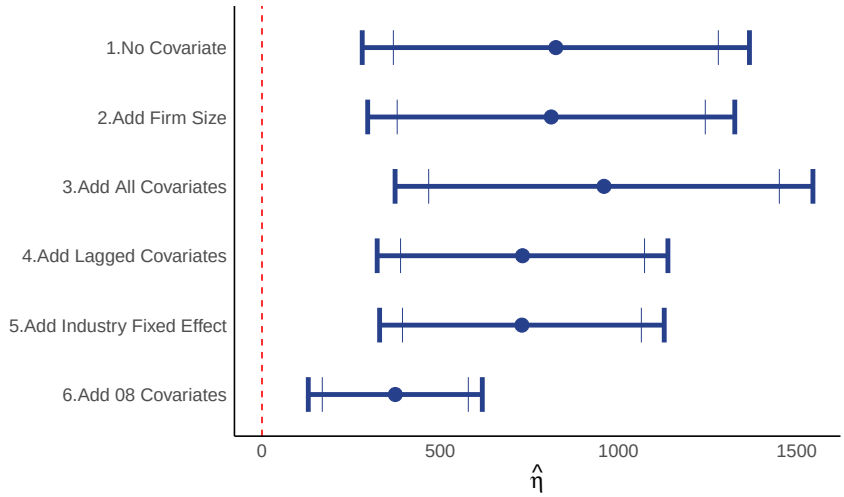
set of foreign firms which stay in the sample from the entire 2005 to 2008 period. This exercise allows me to test the parallel trend assumption on the same set of firms. It also addresses the data coverage issue by studying firms that are consistently in the sample.

Figure C.2 presents both the main and placebo results. This panel dataset loses around 25% of observations compared with the datasets used in the main analyses. The estimated effects of the law change essentially remain unchanged, however, the standard error of the semi-parametric model increases significantly. The increased noise could be caused by the reduction in sample size, as semi-parametric models converge much more slowly than parametric models. Reassuringly, all regressions using the placebo data return statistically insignificant results.

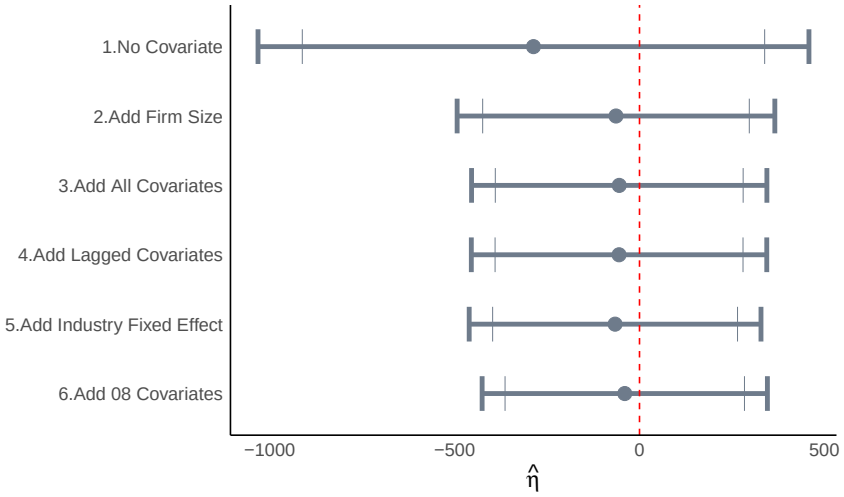
C.3 Robustness Test: CBPS Weighting

The difference-in-differences design solves time-invariant confounders. Still, we need to consider time variant confounders as well. I use the Covariate Balancing Propensity Score (Imai and Ratkovic, 2014) to re-weight my sample to achieve covariate balance between the treatment and control group. Then, I replicate the main and placebo analyses using the weighted sample.

Figure C.3: Robustness Test: CBPS Weighting



(a) Treatment Year (2007 - 2008)

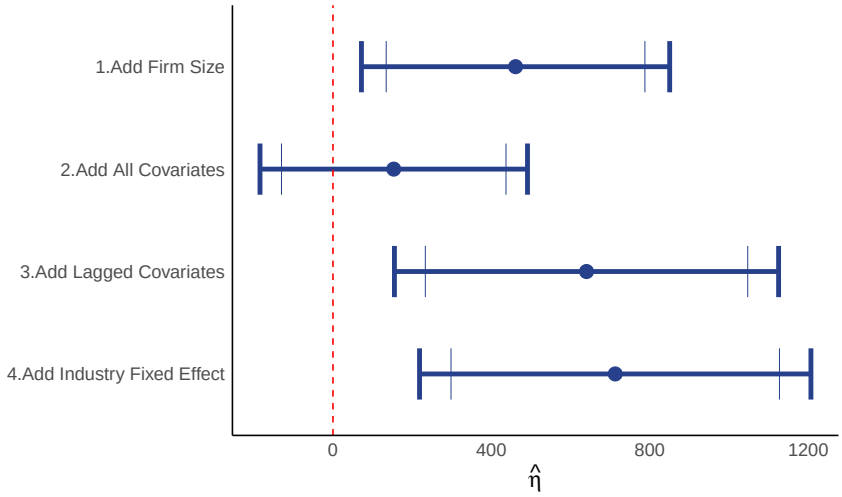


(b) Placebo Year (2006 - 2007)

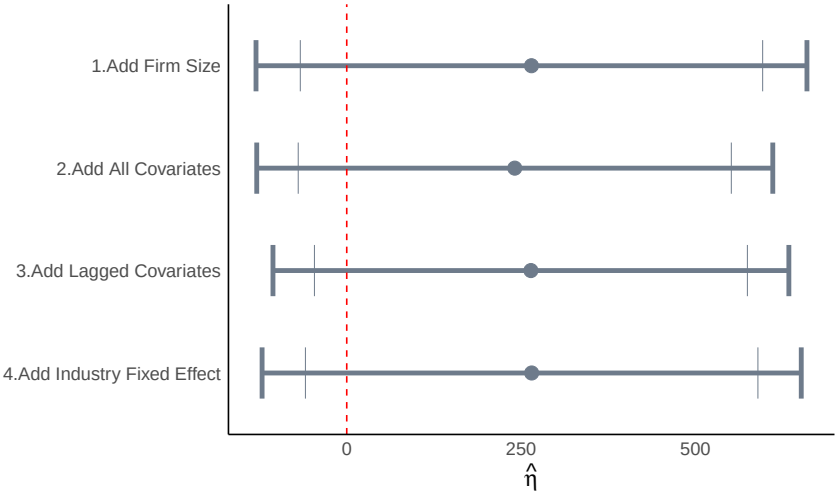
Results presented in Figure C.3 stay almost unchanged, which suggests that my results are not driven by significant differences in covariates neither.

C.4 Robustness Test: Simple Regressions

Figure C.4: Robustness Test: Simple Regressions



(a) 2008 Data



(b) 2007 Data

The difference-in-differences design fails to identify the baseline effect of asset mobility before the 2008 law change. It raises two concerns: 1) even if foreign firms with higher asset mobility pay more taxes after the law change, they can still pay less in total when we consider the baseline effect of asset mobility; 2) the observed effects of higher asset mobility firms paying more tax can be purely mechanical, if governments only offer higher asset mobility firms preferential tax rates prior to the law change; hence, local governments can only abolish preferential tax rates of high asset mobility firms as the low

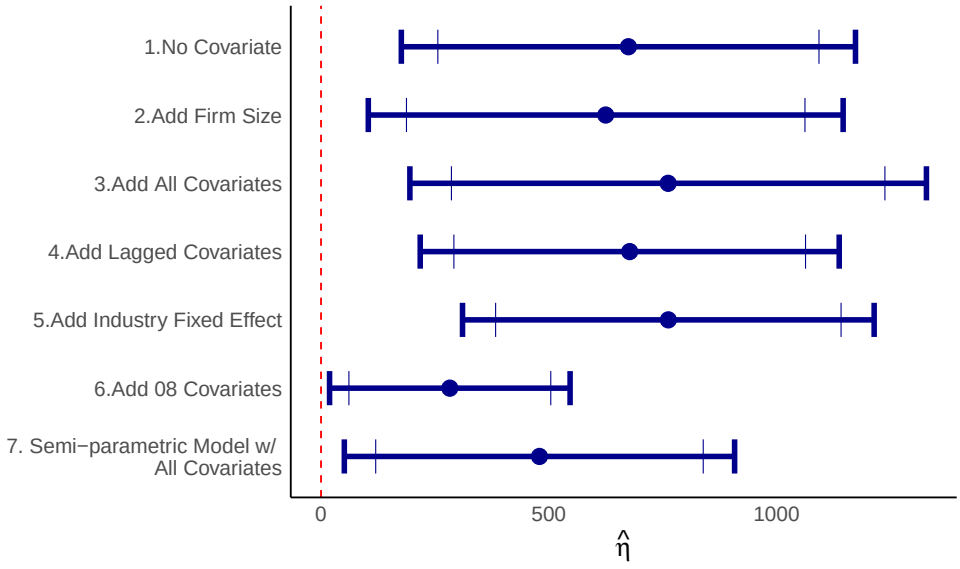
asset mobility ones never enjoy any preferential treatment.

Essentially, these concerns suggest that the overall effect of low asset mobility is still negative, even if the identified effect is positive. I propose a simple test to address these concerns: I will regress the paid tax amount on asset mobility using 2007 and 2008 data separately. If the results consistently show that low asset mobility firms pay less tax, it addresses these concerns.

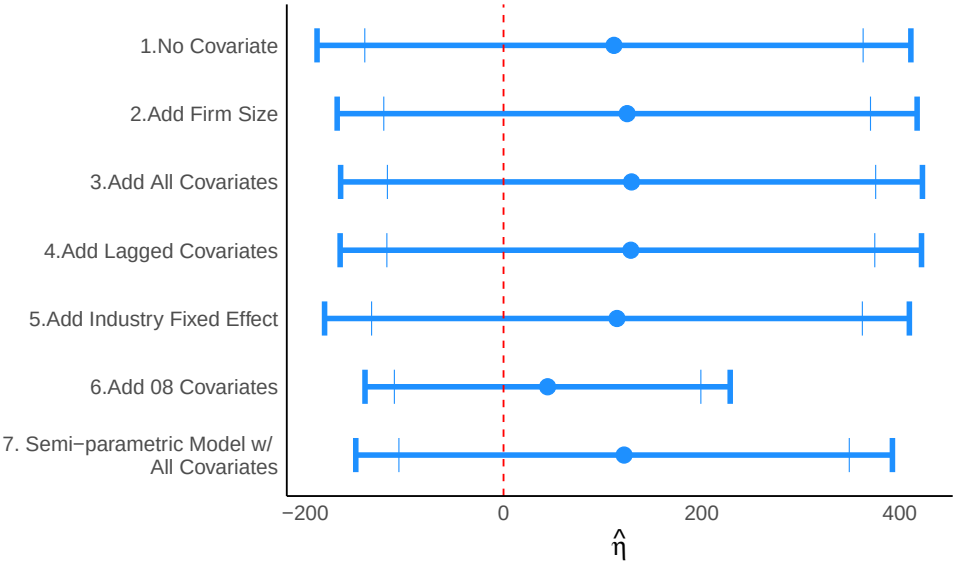
Figure C.4 presents the two sets of regression results. They are less robust than the main analyses, probably because the models cannot account for individual firm fixed effects. Results in Figure C.4a shows that low asset mobility firms still pay less tax after the law change in 2008. Results in Figure C.4b also confirm that firms with low asset mobility pay less tax in 2007, though the effects are not statistically significant. These results suggest that firms with low asset mobility enjoy a slight advantage before the law change, but gain increased advantages after the law change. This finding supports neither of the above concerns but is consistent with my theory and empirical design.

C.5 Robustness Test: Delete Observations with Negative Tax Or Above One Effective Tax Rates

Figure C.5: Robustness Test: Delete Negative Tax and Above One Effective Tax Rates



(a) Treatment Year (2007 - 2008 Data)



(b) Placebo Year (2006 - 2007 Data)

From an accounting standpoint, firms with negative tax amount or tax amount exceeding the profit are both sensible cases. Negative tax represents that the government will return the firm previously paid income tax. It is also possible that the paid tax amount

exceeds the profit in the same year, because 1) the government uses different rules to calculate taxable profit; 2) the firm may need to pay deferred tax. Therefore, I include all of these observations in the main analyses. However, one may argue that these observations involve a different data generating process from other observations. To test the finding robustness, I re-run all the models with these observations excluded. These cases account for around 4% of the total observations. Figure C.5 shows that the results remain robust.