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When Firms Provide:
The Political Consequences of the
Corporate Provision of Public Services

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Master of Arts, Emory University, 2014
Bachelor of Science, University of Michigan, 2010

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An abstract of
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Abstract

When Firms Provide:
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Corporate Provision of Public Services
By Jane Lawrence Sumner

In this dissertation, I develop a new theoretical framework for corporate public service provision, also known as corporate social responsibility or corporate community involvement. Rather than considering it as an independent corporate action, I embed corporations into a government service provision structure with central governments and subnational governments. This allows me to answer the question: what are the political and economic effects of corporate public service provision? While many have noted that corporations often provide public services when there are gaps in provision, I argue that those gaps are the result of strategic choices on the part of central governments. Central governments strategically withhold funding, creating the potential for service gaps, in order to encourage subnational governments to use the companies in their jurisdiction as a resource for service provision, whether by asking them to provide directly or by taxing them. This model has implications for a variety of important political phenomenon and in my dissertation I focus on three dependent variables: intergovernmental transfers, within-country foreign direct investment flows, and overall levels of public service provision. Using a new data set of highly-disaggregated subnational data in China, India, and Indonesia and a variety of statistical models, I find the evidence generally supports the theory. My broad conclusions are that corporate public service provision influences governments and development in ways that are not immediately obvious, which begs further inquiry as the phenomenon becomes more popular.

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1 Introduction

Governments and host countries benefit in many ways by attracting foreign direct investment (FDI). Foreign direct investors tend to create jobs, and those jobs tend to pay relatively well (Jensen, 2003; Scheve and Slaughter, 2004; Pandya, 2010). The relatively high wages paid by foreign investors can drive up wages across the board, leading to economic development and also decreasing income inequality (Jensen and Rosas, 2007).[1] Foreign direct investment brings foreign exchange into a country and can lead to positive spillover effects, allowing domestic industry to benefit from the knowledge and technology imported by foreigners (Jensen, 2006).

In recent years, however, governments' ability to wring these positive benefits from foreign investment has been stymied both by an onslaught of treaties governing host governments' treatment of investors and by the ever-increasing global competition for capital. Bilateral investment treaties (BITs) are one example. BITs reassure risk-averse investors by committing host governments to honoring a broad set of investors' rights (Kerner, 2009; Kerner and Lawrence, 2014). Among the activities prohibited by these agreements, however, are many ways that host governments have historically benefited from the presence of investors. Imposing technology transfer agreements or mandatory joint ventures on foreign investors, a strategy that contributed greatly to the industralization of South Korea (Mardon, 1990; Mardon and Paik, 1992), for instance, are both forbidden under most BITs.

Although ostensibly a good thing for investors, who can fear fewer threats to their capital, and also for governments, who may now be more able to attract investment, these treaties have made it harder for governments to benefit from FDI. Yet although their ability to harness the power of FDI for their benefit has decreased in recent years, their need for the extra resources it would provide has not. If anything, host governments

[1] Although see (Rodrik, 1997) and te Velde and Morrissey (2004) for counterarguments.

in the developing world are more in need of developmental assistance in recent years—the Millennium Development Goals and other developmental pressures have pushed them to improve living conditions and grow economically, while austerity measures, financial crises, and the cost of oil, among other things, have all worked to erode their ability to pay for these advances.

There is some evidence that governments are beginning to get creative in the ways they attempt to harness foreign investment for domestic gain. In a working paper, Graham, Johnston and Kingsley (2015) find that, when formally constrained from engaging in other types of 'creeping expropriation', governments use restrictions on transfers and repatriation of assets to take foreign wealth. In a similar vein, in this dissertation I argue that governments use corporate philanthropy to benefit directly from investment. With their ability to collect taxes and impose technology transfer, local-sourcing, and joint venture agreements constrained, and their developmental needs increasing while their developmental resources stagnate, governments strategically induce investors to provide social services, thereby reducing the burden on the government to provide those services. Rather than the central government asking the investors directly, however – which could easily be construed as a predatory act that might deter future investment – central governments aim instead to make companies contribute voluntarily, by strategically inducing local governments to ask instead. Although many have identified that corporations and other private actors will provide social services when there is a gap in the existing service provision (Hönke and Thauer, 2014; Krasner and Risse, 2014), I depart from that literature by arguing that these social service provision gaps are often strategic.

In the following chapters, I explain and formalize my theory, which models corporate public service provision as the result of a decentralized political process by which the central government and local governments both aim to achieve some ideal level of service provision while minimizing spending. This model produces many empirically testable implications. Among them, the theory suggests that if governments strategically withhold funds to local governments to induce corporate philanthropy, we should observe noticeable effects on central government fiscal transfers, the within-country allocation of foreign investment, and patterns of development subnationally.

In the rest of this chapter, I provide background information on FDI and public service

provision, then I explain why the two are logically linked. Then I lay out the basics of the theory — that the presence of corporations allows central governments to act strategically to marshal corporate resources for domestic benefit — and preview the empirical chapters.

The Obsolescing Bargain, Political Risk, and Foreign Direct Investment

For all the reasons outlined above, governments have strong incentives to attract investment, whether foreign or domestic. The main perks of foreign investment, for developing countries, are that foreign companies tend to pay higher wages (Scheve and Slaughter, 2004; Pandya, 2010), that governments may be able to benefit from technological and knowledge spillovers that could benefit their domestic industries (te Velde and Morrissey, 2004; Havránek and Iršová, 2011; Iršová and Havránek, 2013; Damijan et al., 2013), and that foreign companies typically increase foreign exchange stores (Jensen, 2006). Yet investment generally is seen as a positive thing, and almost all government entities aim to attract it. States and cities in the United States, as well as countries worldwide, use investment incentives to lure companies to build factories in their jurisdictions, both to create jobs and because it allows politicians to credit claim.[2] According to a 2012 New York Times article, states, counties, and cities in the United States spend over $80 billion in investment incentives to companies annually.[3] Most countries have at least one, and sometimes multiple, investment promotion agencies (IPAs), which run ads, provide information, and host and attend conferences with the intent to attracting investors. Although these offices tend to be neither staffed nor funded as well as they would like (United Nations Conference on Trade and Development, 2001, 2008), Eastern Poland's IPA had an ad campaign in 2013, placed in The Economist and in airports among other places, that managed to go viral.[4].

Yet advertising and investment incentives alone are not enough to attract investment. Governments that wish to attract investment must also reassure potential investors

[2]This is all despite strong evidence that investment incentives do not actually work to attract investment or create jobs (Jensen, Forthcoming).

[3]Story, Louise. "As Companies Seek Tax Deals, Governments Pay High Price". *New York Times*. Published 1 Dec. 2012. Accessed 7 March 2016.

[4]Although this campaign was very successful by internet standards, it is unclear how much investment it actually attracted.

about the safety of their investment in the long-term. This is because investors have fairly long time horizons — once an investor deploys its capital, it typically intends to stay there for a long period of time. This is because relocating is expensive. Not only will assets that cannot be moved or sold at market prices be forfeited or sold at fire sale prices, but moving means that workers must be retrained, supply chains reestablished, good will regenerated, and permits renegotiated. Colloquially, relocating is a pain. Even when corporations choose to move factories to take advantage of lower costs abroad — in other words, when they leave voluntarily to seek out greater long-term profits elsewhere — it can take years to recoup the costs of building or retrofitting plants, paying severance and resolving broken contracts, moving equipment, and establishing sufficient "tribal knowledge" in the new factory to assure the product complies with standards and can be sold.[5] When Siemens AG, the German industrial conglomerate, for instance, shuttered plants in Ohio in 2007 to take advantage of cheaper labor in Mexico, by some estimates it was at least five years before the new plant was profitable.[6] By a similar token, United Technologies Corporation, parent company of Carrier International, reports spending $155 million in 2015-2016 on " severance related to workforce reductions and facility exit and lease termination costs associated with the consolidation of field and manufacturing operations" (United Technologies Corporation, 2016, p. 29), including Carrier's extremely unpopular decision in the first quarter of 2016 to close a factory in Indiana and move its production to Monterrey, Mexico in the hope of greater future profitability.[7] The story is much more dire for investors who leave under less voluntary conditions — companies that leave because of tax hikes, land grabs, or shifting political conditions, that must bear these costs without a plan suggesting the move will eventually pay off.

Reassuring investors about the long-term safety of their assets is no simple task for governments, however — often the threats companies fear are from the government itself. Even governments that make the strongest and most earnest promises may renege on them. With investors so hesitant to move, governments have a fair bit of leeway to

[5] Author interview, March 2016. Interview subject went on to explain, "It takes time to build up that tribal knowledge. It goes beyond training. It's the ability to troubleshoot and assess problems when they arise. It just takes time to develop that body of knowledge. And, in the meantime, testing and waste can be expensive." See Appendix A for more information.

[6] Author interview, August 2015.

[7] Figures and quotation from United Technology Company Quarterly Report for quarter ending 31 March, 2016; additional information from author interview, March 2016.

encroach upon them without triggering capital flight. Reneging on those initial commitments allows governments to extract more benefits from the now-relatively-immobile investment. This dynamic — that bargains struck before the investors arrive are no longer as attractive afterward, when the investor's threats to leave are less credible — is often called the *obsolescing bargain* (Vernon, 1971). Because shifting the terms of the agreement ex post is attractive, the promises governments make ex ante are less credible. Investors know that the promises may only last until production begins, at which point the contract may change in ways that are unappealing to the investor. The government's inability to credibly commit to upholding its ex ante promises is the foundation of *political risk* — the risk companies face of threats to their profitability from the government — political risk is a chief driver of underinvestment (Jensen, 2003, 2006).

Some governments pose less political risk to investors than others. This is because some political institutions are thought to help the government make its promises more credible. The credibility of commitments can be enhanced in different ways, all of which should reassure investors that the contract they strike is the contract they will operate under. Any institution or arrangement that makes it difficult or painful to change policies is thought to reduce political risk: democracy (North and Weingast, 1989; Jensen, 2003, 2008) and federalism (Jensen and McGillivray, 2005; Jensen, 2006) are two such domestic political institutions that are thought to overcome commitment problems and increase investment.[8] If their domestic institutions prove insufficient to reassure investors, governments can also take other measures to tie their hands, increase the costs of reneging, or more credibly signal their commitment to keep their promises. Bilateral investment treaties (BITs) and preferential trade agreements (PTAs), as well as the spread of investor-state settlement dispute (ISDS) clauses in other treaties, all serve this purpose by enshrining a set of investors' rights and giving investors the right and ability to sue violating host governments (Kerner, 2009; Kerner and Lawrence, 2014) for potentially large sums of money (Desai and Moel, 2008).

The institutions that are thought to constrain countries from reneging on their commitments to investors have become very common in recent years. Most countries are now democracies (Figure 1.1), most countries have signed BITs, and some have signed

[8] Although see Li and Resnick (2003) for an example of an argument against democracy attracting FDI.

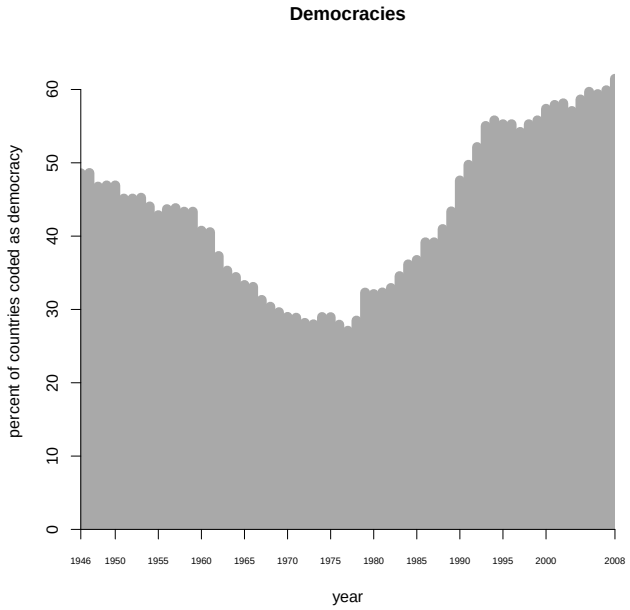


Figure 1.1: The percent of countries coded as democracies by Cheibub, Gandhi and Vreeland (2010).

many BITs (Figure 1.2). From the standpoint of attracting FDI, this is a positive development — governments should be more constrained in their ability to renege on the commitments they make to investors, which should generally protect investors' assets. In part because of this increase in institutions, global competition for capital has also become increasingly fierce, further constraining governments from engaging in behavior that investors do not like. However, the flip side is that host governments are commensurately limited in their abilities to extract benefits from FDI. While earlier waves of countries– most notably South Korea– were able to impose joint partnerships, local sourcing requirements, and technology transfer agreements to leverage FDI for development purposes (Mardon, 1990; Mardon and Paik, 1992), governments in the contemporary era have fewer options. Yet as their abilities to directly benefit from FDI have dwindled, their need for those resources has not.

Public Services, Private Actors

Although taxes and other encroachments on companies are sometimes demonized, both because of the strain they put on investors and their links to perceived corruption, they do serve an important purpose. They allow governments to make money off investment.

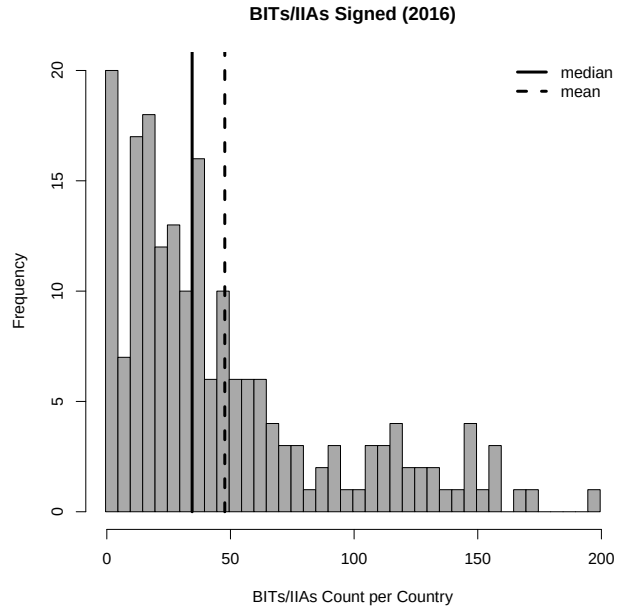


Figure 1.2: The average country has signed almost 50 BITs/IIAs and the median country has signed 35. Because BITs outnumber IIAs for most countries (BITs account for 57% of the total on average), this means the average country has signed BITs/IIAs with roughly a quarter of all the other countries on earth, and not all of those would be relevant dyads.
Source: UNCTAD International Investment Agreements Navigator, accessed 8 March 2016.

While creating jobs and increasing foreign exchange within the country are undoubtedly good for governments, they may not directly fill a government's coffers. This matters because a fundamental task of governments — perhaps the most fundamental task of governments — is to provide public goods[9] and services for their people, and these services cost money (Samuelson, 1954; Tiebout, 1956; Buchanan, 1987; Volden, 2005).

Governments exist, primarily, for the purpose of providing public goods and overcoming collective action problems. This is a broad category that includes abstract goods such as national defense, justice, and security, but also more concrete goods, such as public education, hospitals, police and fire protection, waste management, roads, bridges, dams, and the like. This is true of more economically-developed countries and

[9]Here I depart somewhat from the traditional definition of public goods as goods that are non-rival and non-excludable in favor of the definition given by Tiebout (1956, 417): "... a public good is one which should be produced, but for which there is no feasible method of charging the consumers". His redefinition comes to accommodate the concern that "for most of the goods supplied by governments, increased use by some consumer-voters leaves less available for other consumer-voters. Crowded highways and schools, as contrasted with national defense, may be cited as examples" (Tiebout, 1956, fn. 6). I hew to his definition because this critique is valid, and I use public goods and public services more or less interchangeably, as the former is the more common term but the latter is more technically accurate.

less economically-developed countries alike. In most countries, most public services are provided through a multi-level process, where the central government allocates funds to subnational governments, and subnational governments contribute some own-source revenue and then use that money to provide the service locally.[10] A good example of this is road and infrastructure maintenance: national governments provide funds to lower tiers of government, but seldom do federal governments actually fill potholes themselves. Instead, local governments organize and carry out the service provision with the central government's money, sometimes supplemented by their own financial contribution.

Where do these funds come from? Governments generate revenue to provide these services in a variety of ways, but perhaps the most common is taxation (Bird, Martinez-Vazquez and Torgler, 2008). Governments tax their citizens, and they also tax businesses, exchange (e.g., sales tax, tariffs, stock trading), consumption (e.g., excise tax), production, land use, and a variety of other activities. There is a vast literature on the conditions under which citizens will or will not vote to tax themselves to provide services — Alesina, Baqir and Easterly (1999); Habyarimana et al. (2007); Owens and Sumner (Forthcoming), among many others — but many countries in the developing world still have a difficult time raising tax revenue, despite an arguably much greater need to provide these services (Bird, 1989; Bird, Martinez-Vazquez and Torgler, 2008; Aizenman and Jinjarak, 2009). One problem is that income tax is hard to collect, especially compared with taxes that can be collected from fewer actors or in fewer places (e.g., collected at ports and airports in the case of tariffs) (Aizenman and Jinjarak, 2009), and another is that developing countries often lack the administrative infrastructure to collect taxes at all (Bird, 1989; Bird, Martinez-Vazquez and Torgler, 2008). A further problem is that, even if there is political will and administrative capacity, if the population is generally poor, the revenue that is collected may not meet its needs.[11]

The implication of this is that developing countries have a greater need than their more-developed neighbors to generate revenue through taxation, but their ability to do so is limited. Without being able to directly profit from investors, their ability to provide public services has diminished, but their need to provide the services to their people has not. Demand for public services in the developing world has, if anything,

[10] National security is seldom if ever entrusted to subnational governments.

[11] This is especially true if we consider that the wealthy are often elites who may be able to avoid paying taxes themselves.

only increased in recent years. Swelling populations that are skewing younger, the rise of social media (Tufekci and Wilson, 2012), and international pressure, such as the Millennium Development Goals (Clemens, Kenny and Moss, 2007; Easterly, 2009), have all contributed to governments feeling increased pressure to provide services for their citizens.

When governments cannot or do not provide public goods and services, service provision often falls to private, non-state actors (Ostrom, 1996; Frye, 2006; Boulding and Gibson, 2009; Boulding, 2010; Adida and Girod, 2011; Tsai, 2011; Cammett and Maclean, 2011, 2014; Heger and Jung, 2016). While some non-state provision, such as privatization, contracting, and public-private partnerships, entail companies being paid to provide services (Jing, 2008; Post, 2009; Teets, 2012), many types of non-state providers are not providing for payment. This type of unpaid non-state provision occurs when non-state actors fill gaps in public services at their own expense, without government compensation, largely or entirely of their own accord, and usually to serve some broader organizational purpose. These non-state providers include, but are not limited to, NGOs (Boulding and Gibson, 2009; Boulding, 2010), individual citizens (Adida and Girod, 2011), rebel groups (Heger and Jung, 2016), religious groups, and businesses (Frye, 2006; Polishchuk, 2009; Hönke and Thauer, 2014).[12]

This is not a recent development, nor is it an isolated or rare one. The Roman Catholic Church is a good and well-documented example of a non-state provider. It opened its first school in India in 1543. Catholic missionaries were providing 90% of education in Africa at the dawn of the decolonization period (Calderisi, 2013). As of 2015, there are 95,246 Catholic elementary schools, 43,783 Catholic secondary schools, and 5,167 Catholic hospitals worldwide.[13] Exact numbers and histories are harder to come by for other groups with less precise and centralized record-keeping. Because NGOs are often involved in many different types of activities across different sectors (Boulding and Gibson, 2009), it is difficult to summarize their global impact, but NGO

[12] NGOs are a very large and diverse group. I include them in the category of non-state service providers as I define it above, although it is certainly the case that often they do explicitly contract with governments (Boulding and Gibson, 2009), so as to differentiate them from companies that bid for government contracts. The distinction, however, is not important for my argument and they can be categorized into either of the groups without consequence for my theory.

[13] Center for Applied Research in the Apostolate. *Frequently Requested Church Statistics*. `http://cara.georgetown.edu/frequently-requested-church-statistics/`. Georgetown University. Accessed 10 March 2016.

Aid Map lists a total of 5,012 active projects worldwide. Of those, of which 31.2% are categorized as 'education', representing a total of $692,215,497, budgeted to be spent by 54 organizations in 121 countries. Similarly, they report almost 3.5 billion dollars committed to health initiatives to be spread over 147 countries.[14] Hezbollah and Hamas both provide education and welfare services to those within their territories, and the Tamil Tigers in Sri Lanka deliver mail, among other services (Heger and Jung, 2016).

The motivation to provide services is clear for most of these non-state providers: many groups are explicitly philanthropic organizations (NGOs, religious groups), are recruiting members (religious groups, rebel groups), or both. Yet companies that provide unpaid public services — services that are ancillary to their primary business (e.g., automotive companies building water treatment facilities, coal mining companies fixing roads) — have motivations that, at least initially, may seem less straightforward.

The history of companies providing public services to their workers and communities dates back to the very first multinational corporations (Rothkopf, 2012). In the very early days, the overlap between multinational corporations and the state was, in some cases, almost complete — India was the British East India Company and Indonesia was the Dutch East India Company. These companies not only provided public services, but also performed other tasks commonly associated with governments, such as raising armies (Rothkopf, 2012). As the role and strength of states grew, corporate service provision remained prominent but became slightly more modest in scale. By the early 20th century, it was not uncommon for companies to house, educate, protect, and entertain their workers, both in response to weakness on the part of the state and to slow the development of labor unions (Jacoby, 1997)[15], although some corporate service provision in that time period can be attributed to CEOs with grandiose visions of social change (Grandin, 2010).[16]

[14] Because projects can span activities and sectors, categories are not exclusive. Data are self-reported and not necessarily representative or comprehensive. NGO Aid Map, `https://www.ngoaidmap.org`, accessed 11 March 2016.

[15] This was called 'welfare capitalism', which has a different meaning in history than it does in political science.

[16] Henry Ford, founder of the Ford Motor Company and popularizer of the assembly line, was one such leader. Ford provided language and citizenship classes for all of his employees in Dearborn, Michigan, and require they take them if they were immigrants. The classes culminated with workers emerging from a papier-mâché melting pot, waving American flags and having shed their 'native' attire. (This is woven into the plot of the Jeffrey Eugenides novel 'Middlesex', but is entirely non-fictional.) Ford was also famously anti-Semitic and, less-famously, so opposed to cows that he allegedly forbid his workers from eating beef, and tried to build a car out of soybeans to bolster his efforts to popularize soy as a replacement for beef(Grandin, 2010).

In more recent years, some companies still provide to their workers and communities in order to affect social change[17], but more often companies engage in service provision and other forms of community initiatives to fill gaps in service provision, to gain legitimacy, and in response to some form of coercion or pressure from the government (Frye, 2006; Polishchuk, 2009; Su and He, 2010; Zhao, 2012; Beddewela and Fairbrass, 2015; Shirodkhar, Beddewela and Richter, 2016). As Polishchuk (2009, 86) explains, it "is 'voluntary-coercive' when companies come under pressure from the government, and social investments become de facto supplemental businesses taxes... [and] such revenues partly offset the insufficient official sources of revenue for regional and local budgets". Although companies can benefit from providing public services — it can help to win over non-governmental stakeholders (Frye, 2006; Henisz, Dorobantu and Nartey, 2014) and shape public opinion (Kerner and Sumner, 2016) — often the provision is in response to service provision gaps and responding to governmental pressure. As a result, their provision contributes to the government's service provision efforts.

But are these service provision gaps really incidental? Does it just happen that there are service gaps in the same places there are companies that are well-suited to fill them? In other words, are corporations really just responding to gaps in service? In this dissertation, I argue that they are not, and that, instead, the reverse may be true — the gaps in service may be a response to the presence of corporations. I argue that states can fail on purpose because public service gaps prompt a corporate response. Unlike religious groups, NGOs, and rebel groups, which may deliberately target areas with under-provision, there is little reason to think that most companies would deliberately invest in an area with huge gaps in service provision, especially since they so highly value worker training and infrastructure when choosing where to invest (Jensen, 2006). After all, good infrastructure is crucial for the efficient movement of inputs and outputs, education is important for recruiting trained workers, health care matters because it influences absenteeism and because sick workers are less productive. Companies have very good reasons to care a great deal about the quality of service provision, and very little incentive to deliberately invest in areas where such provision is poor.[18] Yet it would

[17] In the United States, these social enterprises are called benefit corporations, or "B-Corporations", and they are a "for-profit entity that is legally obligated to promote both a 'specific public benefit' of its choosing and the 'general public benefit"' (Cummings, 2012).

[18] I would like to thank Eric Reinhardt for making this point to me several times over the course of the last four years.

appear they are, as they are often confronted by the need to provide public services. I argue that although their frequent need to provide services gives the appearance they are investing in areas without services, they may not be. Instead, I argue that these service gaps can be created strategically by governments after a company invests in order to harness the potential of corporate philanthropy to derive a direct benefit from the investment. Further, I argue that this has implications for the host country, including altering power dynamics between levels of government, directing investment flows within the country, and shaping the country's development trajectory. In the following section, I provide an informal overview of my theory — which is formalized in the next chapter —and briefly highlight the empirical implications that I will test.

Theory Overview

As discussed earlier, public service provision is an expensive and multi-government process. While central governments run the show in some ways, issuing broad directions and providing a large proportion of the funding, it is the subnational governments — the provinces, districts, and cities — that are often responsible for carrying out the actual service provision. Since the central government bears the brunt of the responsibility for funding activities, it has good reasons to try to enlist others in shouldering some of this financial burden. Companies are especially well-suited to bear this burden: they are often integrated into their local communities, and they have resources, expertise, and personnel that local governments may lack.

Central governments know that companies are always aiming to improve their profitability, and that they will provide public services if doing so serves that aim. If the central government wants companies to contribute to providing public services, its primary task is to frame public service provision as such an opportunity. This is reflected in a common reason given for why companies provide public services: because there was a noticeable gap in provision and closing this gap makes the company more profitable. This is why the Ford Motor Company began building and operating primary schools in Mexico in the mid-1960s, for instance: it needed its factory workers to have the equivalent of an eighth grade education, and existing local educational facilities could not provide that. Although getting into education provision cost the company money, this

was more than offset by its increased ability to produce cars and car parts efficiently, safely, and without expensive errors (Hecht and Morici, 1993; Ford Motor Company, 2005).

Although ceasing service provision entirely would prompt companies to step in, central governments do have a vested interest in assuring that public services are provided. Creating a gap would mean that, at least until the company noticed and took steps to fill the gap, citizens would suffer, and that is not in the interest of the government. In my formal model, however, I show that central governments can instead use their ability to allocate funds as a tool to create the threat of public service gaps. By decreasing funding to governments below what is necessary for the subnational government to fulfill its responsibilities, central governments can create impending gaps, and if it can anticipate that subnational governments will notice their budgetary shortfall and ask the company to provide services instead of trying to make up the gap themselves, then the central government can succeed in enlisting companies to provide services. In equilibrium, as I will show in the next section, the central government will only withhold strategically when it knows that gaps will not be created — either because the subnational government can make up the difference by taxing or because the subnational government will get help from a company. Whether the central government chooses to strategically withhold funds and how the subnational government chooses to make up any budgetary shortfall it receives are a function of two characteristics of subnational governments: their career incentives and their spending capacity.

Career Incentives

The career incentives of a subnational government and its officials are crucial to determining the central government's funding decisions. A subnational official's career incentives can predispose it to wanting to please the central government, or not, based on how dependent the official is upon the central government for its continued career success. For instance, if the subnational official wants the central government to appoint him or her to a high-ranked or prestigious office in the future, he or she will want to govern and provide as the central government would like. This means that the central government can anticipate that the subnational government will provide services that are in line with the central government's goals. In that sense, these governments can be

considered the central government's service provision allies. By contrast, if the subnational government's career incentives do not require pleasing the central government — for instance, if they derive their power from other sources and see no likelihood of the central government's largesse helping it get ahead — the central government can anticipate that the subnational government will provide services that are further from what the central government would like. Primarily, then, the subnational government's career incentives are important because they provide a simple heuristic for the central government as it aims to predict both what the subnational government's service provision goals are and, thus, how it will aim to fill any budgetary shortfalls.

Capacity

A subnational government's capacity helps the central government anticipate how well the subnational government will spend the money it receives, independent of its goals. In this context, capacity refers to how efficiently the subnational government converts money into public services. With the same amount of money, a high-capacity subnational government will produce more of a public service than will a low-capacity subnational government. Many factors, ranging from a lack of non-monetary resources (equipment, personnel) to outright embezzlement, can reduce a government's capacity. A subnational government's capacity is important from the central government's perspective because low-capacity governments are more expensive: the central government needs to give them more money than they need to give high-capacity subnational governments to produce the same outcome. Thus the cost-savings of enlisting corporations to help with provision is greater in low-capacity districts. From the subnational government's perspective, its own capacity is important in guiding its decision about asking for help: a subnational government that knows it may struggle to reach its service provision goals may be more likely to seek out help from companies (knowing that taxation will yield less benefit) and more likely to value companies' efforts to provide public services.

Empirical Chapters

The theoretical model in Chapter 2 produces many empirically testable implications about other observable effects we should see if this theory is correct. This is especially

valuable because data on corporate public service provision is generally unavailable, and what is available tends to be biased toward high-profile service provision (e.g., schools, health clinics) and understates the smaller, and likely more common, activities (e.g., fixing roads). Thus, directly testing predictions that relate to where and when we see corporate public service provision, and what we would see as a result of it, is presently not a viable research design. Yet it is exactly now — when the activity is in its infancy but gaining support and prevalence — that is is most important to begin to theorize and identify about its potential effects. In this dissertation, I test three empirical implications of the model. The first speaks to patterns in central government financial transfers, the second to within-country allocation of foreign direct investment, and the third to the effects corporate public service provision may have on development and social welfare.

Career Incentives and Fiscal Transfers

This chapter focuses on the first stage in the process — the choice of the central government to allocate funds to its subnational units. The formal model shows that central governments can use their funding strategically to create gaps in order to make the subnational governments use the companies within its jurisdiction as a resource to fill those gaps. Subnational governments can either ask the companies to provide services or tax the companies as use those resources to fill gaps.[19] While the amount it raises in taxes is partially within the subnational government's control, the amount the firm provides is not. Thus, subnational governments are only willing to ask the firm when the gap between its funding from the central government and the amount it wants to provide is roughly equal to the firm's provision level. This is information the central government can use: by anticipating the circumstances that will lead the subnational government to ask for help and which lead it to tax, the central government can tailor its provision levels to shape the subnational government's choice.

The resulting prediction is that, contrary to received wisdom and existing literature, the central government's allies should not receive the most funding if companies are present and the central government's mandate is high. The central government's allies instead receive nothing and are left to tax the firm. This is because the central govern-

[19] In this chapter this is a dichotomous choice. In reality, there is a tradeoff between the two, although the tradeoff is less stark: asking for help greatly reduces the amount the subnational government can tax, but does not necessarily eliminate it. I relax the dichotomy assumption in Chapter 5.

ment knows that allies can be trusted to levy the tax and provide a lot of the service, but also because the benefit to the central government of having allies ask for help directly is quite small: because the firm's provision level is fixed and asking precludes taxing, the central government has to spend much more money to cover the subnational government's contribution. The most funding should instead go to those with only moderate career incentives — with a more moderate service provision goal, the proportion of the services the central government needs to fund is smaller, and unlike those with no interest in pleasing the central government, the moderates can be compelled to ask. The hypotheses, then, are twofold: the relationship between career incentives and funding should be monotonically increasing when corporate presence is low, but non-monotonic and greatest among the moderates when corporate presence is sufficiently high. I test this, and estimate the threshold that separates the two predictions, using a Bayesian model that allows for an endogenous, ex ante unknown threshold, using data from Indonesia, China, and India. The results are weak but supportive: variables associated with high career incentives increase funding when corporate presence is low, and have no effect when corporate presence is high.

Capacity and Within-Country FDI Allocation

In this chapter, I focus on the relationship between subnational governments and the companies located within them. One prediction of the formal model is that when career incentives are high and central government transfers are low, lower-capacity governments will seek help from companies, while higher-capacity governments will expropriate or tax at extremely high rates. I extend this implication to develop a prediction about the within-country allocation of foreign direct investment. Because lower-capacity governments are more likely to ask for help when they are in dire financial straits, and higher-capacity governments are more likely to expropriate, I argue that foreign investors can be protected by their ability to provide public services if they invest in low-capacity provinces. This implies that if investors have a good reason to invest in a country where they suspect they may be victims of government predation — such as China, which is the basis for my empirical testing — they should tend to flock to low-capacity provinces and avoid higher-capacity provinces. The logic here is that low-capacity provinces do a poor job of translating money into services. Were they to expropriate or tax the

company at high rates, they simply would not be able to provide as much in services as if they asked the company to provide. By contrast, high-capacity provinces are better able to utilize the resources seized from companies, and thus place a lower value on the company's ability to provide services itself.

This prediction helps to explain not only FDI allocation within countries — why do some regions get more than others, even when we account for location-specific assets? — but also how investors can enact strategies to make themselves more valuable to governments, and thus less likely to be predated upon by those governments. Since many of the characteristics and tools that can protect investors are either immutable, such as industry and importance to the economy, or difficult, such as cultivating ties with elites, this suggests a relatively simple and inexpensive way that companies can use corporate public service provision as a de facto insurance policy. Additionally, this chapter highlights, theoretically, the threats that subnational governments can pose to investors, an often under-appreciated aspect of foreign direct investment allocation. I test this theory using province-level data from China, including two new measures of provincial capacity. The evidence suggests fairly strongly that, even when accounting for other explanatory variables, low-capacity provinces do receive more foreign direct investment than higher-capacity provinces.

Anticipatory Compensation and Human Development

Finally, in this chapter, I focus on the last stage of the game — the provision of public services by corporations, and how it affects the overall level of public services. While in the model subnational governments have a choice of taxing or asking for help, in reality this dynamic is present but less stark: subnational governments can tax and ask for help, but must tax at low rates if they are to get company assistance. In this chapter, I relax the modeling assumption slightly and instead assume that local governments will, and indeed must, tax at far lower rates if they anticipate companies providing public services. Under this alternative assumption, the model shows that, for every additional unit of public services that local governments anticipate companies will provide, the local government lowers its tax rate to offset that addition. The counterintuitive result is that corporate public service provision does not increase the level of public services available in an area at all. Instead, because governments will anticipate and compensate by

providing less on their own, corporate public service provision at best works to maintain the status quo provision level. The good news is that, despite some recent fears that corporate public service provision might exacerbate existing regional inequalities, my theory and evidence suggest that it will only sustain them. The bad news is that mandating corporate public service provision should not have any noticeable effects on the amount of services or infrastructure that is available to residents.

To test this, I leverage a 2013 Indian law that requires all sufficiently large corporations to spend 2% of their pre-tax profits on providing public services and other developmental benefits to the communities surrounding their facilities. This allows me to compare the same districts with themselves, before and after the law takes effect, and, when controlling for other contemporaneous political changes, attribute changes in service provision to corporations providing public services. Yet because the law should only have an effect in districts with companies operating within them, it also allows me to compare districts with companies to districts without companies. To do this, I use a new data set containing geographic data on every company operating within India, and monthly district-level data on toilet construction in Indian schools. This is an especially good measure of public service provision, as it is developmentally important and companies have been explicitly encouraged by the government to satisfy their CSR requirements by building school toilets. Building school toilets is also relatively inexpensive and easy to repeat using the same plans. Thus, if we should see an effect of the law anywhere, it should be in building school toilets. As my theory suggested, I find no statistically significant nor substantively meaningful effect of corporate presence after the law takes effect. Districts with companies do no better than those without after the law takes effect.

Outline of Dissertation

This dissertation proceeds as follows. In Chapter 2, I describe the intuition behind the theory, the formalization of the theory, and a few empirical implications of the theory. In Chapter 3, I further elaborate on the relationship between career incentives and funding. In that chapter, I also discuss some of the challenges of testing that implication — challenges both in operationalizing and measuring variables of interest, as

well as challenges in statistical modeling — and then I present and discuss the empirical results. In Chapter 4, I discuss in greater depth how providing public services can help protect foreign investors from subnational government predation, but only when the government's capacity is low. I develop and explain two measures of subnational capacity, and then present evidence that suggests that foreign investors in China do, indeed, tend to flock to lower-capacity provinces. In Chapter 5, I explore the potential effects of corporate public service provision on overall levels of service provision, and argue that government compensation implies there should be no effect. I then explain the benefits of leveraging the Indian Companies Act of 2013 for empirical testing and provide further background on that law and the Indian school toilets initiative. I then present evidence that shows no statistical or substantive effect of corporations providing public services, which is consistent with my theoretical expectations. Finally, in Chapter 6, I put all of the empirical chapters and the theory into perspective, discuss some avenues for future research, and conclude with normative policy implications presented by my research.

Conclusion

In this chapter, I have provided the overview of the argument of my dissertation. I argue that governments, stripped of other avenues of directly benefiting from foreign investment by increasing formal constraints and the competition for global capital, have begun to try to induce corporate philanthropy as a way to save money on public services without skimping on public services. I argue that they do this by deliberately creating gaps in funding for public services, thus inducing certain types of local governments to seek out corporations to help them provide public services. I provided a brief overview of my formal theory and short previews of the three theoretical expectations that I will test empirically. In the next chapter, I formalize the theory, and the three chapters following that test each of the implications discussed above. The final chapter concludes with some overarching lessons, avenues for future research, and policy implications.

Appendices

A Interview excerpt: cost of relocating factory

"This is the issue with [name of approximately 10-year-old Mexican plant]. The product will be up to [specifications], and then not. And we won't figure it out until they go up for testing and determine [the units] are not to specification. And because [the new factory workers and management] don't know any better, we don't catch it until testing and then we have a giant backlog of product on quality hold. So then you have to test to determine if the nonconformance was an outlier or if the whole product needs to be pulled, and if it is [not an outlier] then we have to test each unit individually to see if it passes, and that's very expensive. Mainly manpower, so they can do it in Mexico. If the part is not worth testing — if it's too cheap or if the [profit] margin is too low – we will just throw it out. There's very little you can scrap. It's a complete loss." (Author interview, financial analyst with major multinational corporation, March 2016)

2 A Theory of Corporate Public Service Provision in Multilevel Governing Structures

Introduction

Public services are a feature of government that is simultaneously very close to the everyday lives of citizens and yet often overlooked in political discussions. As often as citizens flush the toilet, take out the trash, and avail themselves of roads and sidewalks, they seldom consider the politics that undergird those services. Yet sewage, waste management, and roads and sidewalks, along with education, health care, bridges, streetlights, and similar public services are all the direct end result of a political process. That political process begins with the allocation of funds at the central government level, then moves to the application of those funds by lower-level governments, and, if all goes well, terminates with citizens having access to clean water, public education, and safe roads. If the water coming out of the tap is clean and safe to drink and if the streetlights are not all burnt out, there are multiple levels of government to thank, all of which played a role in securing that outcome.

Although many political factors can shape how this process works, most treatments of public services proceed with the assumption that the entity providing the public services is a government. In this chapter, I show what happens when we relax that assumption. What happens to that political process when private actors – in this case, multinational corporations (MNCs) and other businesses – provide public services? What are the political and economic effects of "corporate social responsibility"? I demonstrate that adding a secondary, alternative, private provider of public services alters how the levels of government involved in the process carry out their jobs. Specifically, I show that

central governments and local governments both condition their behavior on what they expect firms can provide.

One challenge of studying corporate public service provision is that it is, at present, impossible to get a clear picture of the scope and spread of the empirical phenomenon. There are no comprehensive data sources, and even if one were to aim to aggregate the ample anecdotal evidence that is available, it would not constitute a representative, let alone a comprehensive, sample. For instance, although nearly every multinational corporation has a website on which they report their community involvement[1], these websites typically highlight only a small selection of their corporate public service activities. There are good reasons to believe that these highlighted activities are not selected at random — instead these are likely to be the largest, most visible, or most successful activities. This suggests that, were they collected and aggregated, they would not be a representative sample of the phenomenon. The same holds true for corporate public service that is reported on municipal government websites or reported in the media. Thus, the effort that would be involved in collecting all of this data into a single source would be immense, and the payoff would be a data set that would feature a selection of the largest, most pleasing, and most visible activities – overstating their prevalence – and entirely neglect the more quotidian pothole-filling and streetlight-fixing. In future work, I will undertake the task of developing a theory of which activities enter the public consciousness and why, with a more thorough plan for how to account for the missingness in observed data, but that is beyond the scope of this project.[2] For the time being, then, empirical tests of the service provision itself is not an option.

Yet that does not (and should not) preclude a study of that phenomenon and its political and economic effects. Indeed, if anything, the fact that corporate service provision is not yet entirely mainstream, but becoming more so, is even more reason — not less — to study the phenomenon and theorize about its potential unintended consequences. Accordingly, in this chapter I present a formal model of the public service provision process with corporate public service provision taken into account. It describes how central governments and local governments work together to produce public services, and shows

[1] This is the term most often used on corporate websites.

[2] Some excellent work has been done recently on handling data quality and unrepresentative samples when quantifying human rights abuses and war casualties — see, for example, Gohdes and Price (2012) and Landman and Gohdes (2013) — but at present it is not entirely clear how to migrate that methodology to the issue at hand.

how this dynamic is changed by the introduction of corporate public service provision. Modeling this formally, and deriving other, more readily-observable, empirically testable implications of the model, allows for the phenomenon to still be studied, even in the absence of data on corporate public service provision itself.

In what remains of this chapter, I describe the logic behind the model, then formalize the model and derive and explain the comparative statics that I will test in the remainder of the dissertation.

A Model of Private Provision

This model is written to answer the question of how local and central governments, the actors traditionally responsible for providing public services, are affected when corporations provide public services. Citizens interact with and benefit from public services on a daily basis. The roads and sidewalks you use, the water you drink, the fire fighters who assure your house does not burn down — these are all public services. Public services often do not seem inherently political, but they are the result of a fairly complex political process. Although lower tiers of government typically provide public services, they are not the only government actor involved. They are providing with funding and some direction from the central government. So, broadly speaking, all public services occur by the process of a central government issuing some type of directive — this can be direct, such as 'build a bridge in this place', or less direct, such as 'the responsibility for maintaining roads is entrusted to provinces' — and providing some funding for that service to be carried out, and then the local government applying those funds, along with some of its own revenue, to the provision of the public service.

In the simplest version of this process, all the actors would agree on what should be done and the process would be perfectly efficient. If that were the case, the central government would issue some directive and transfer enough money to the local government to exactly fulfill its part of that directive. The local government would then levy just enough in taxes to pay its portion, and spend every dollar on exactly fulfilling the directive. There would be no conflict and little strategy. Yet politics is not that simple and mechanical. The real world differs substantially from this imagined process. In the real world, levels of government do not always agree on what should be done, and in the

real world, local governments may not always be perfectly efficient in their spending. Both of these things alter how central government spending actually occurs and what ends up being provided.

The first departure from that idealized reality is how efficiently local governments spend their money. I call this the local government's **capacity**. Capacity is a measure of how well local governments carry out the tasks assigned to them. It can be thought of as a measure of return-on-investment — if a government is high-capacity, most or all of every dollar it spends providing public services will actually translate into public services. By contrast, if a government is low-capacity, the government produces less for every dollar spent. Capacity can come from many different places: a lack of qualified staff, inefficient planning, a poor job of hiring contractors, general ineptitude, or corruption. If two local governments have the same goal but differ in capacity, the lower-capacity government will require more money to achieve the same outcome.

The second way local governments can differ is in their goals, and specifically how these goals align with the central government's goals. Do local governments agree with the central government about what level of the public service ought to be produced? This alignment is driven by a combination of factors, but here I focus on the local government's **career incentives**. I focus on this specifically because it is a relatively easy heuristic the central government can use to anticipate what the local government ideally wants to provide. Local governments that are run by executives who stand to gain from pleasing the central government — appointees of the central government and elected officials from parties represented in the central government, for instance — will set goals that are very close to the central government's goal. In these cases, producing outcomes that are very close to the central government's ideal goal may pay dividends to the local official's career, perhaps making it more likely he will be considered for a cushy cabinet position, elevated in the party hierarchy, or given resources to aid him in his next election. Even netting out other factors that may shape a local government's ideal public service provision level, we should expect that wanting to please the central government for the purpose of furthering one's own career should lead an official to set its goals close to the central government's ideal. By contrast, when other factors are held constant, local officials whose careers will not benefit from doing what the central government wants — officials who belong to other parties or derive their power

from other sources — should have goals that are further from the central government's ideal. Central governments should only ever provide local governments with as much as they need to fulfill their anticipated goals, since otherwise central governments are overpaying for fewer goods.[3] If two governments differ in career incentives but are similar in capacity, we should expect the central government to give more funding to local governments whose career incentives predispose them to be aligned with the central government.

If there are large companies present in the local government's jurisdiction, however, the process I outlined changes even further. No longer must the central government rely solely on the local government to fulfill the service provision objectives. Corporations often jump at opportunities to improve their own profitability. This means that the central government may be able to leverage the corporation's presence to help it achieve its public service goals if it can put the corporation in a position where fulfilling the central government's goals can help the corporation improve its own profitability. In other words, if the central government can make the corporation *want* to provide services, it can have a secondary source of service provision that can allow it to save money while still providing services.

One nearly-surefire way to assure that companies will provide public services is to simply not provide adequate public services. Plenty of evidence, both academic and anecdotal, shows us that companies will often provide services to fill a gap if that gap harms their profitability. If workers get sick and miss work, it may behoove the company open a health clinic or have an immunization drive, for instance. Yet cutting public services entirely is a strategy that does not mesh well with a central government that actually cares about making sure public services are provided. So central governments do not actually want to create gaps in public services, they just want to create the threat of a gap. They want the subnational government to fear that a gap is imminent and use the company as a resource to fill it.

The way central governments can create this real and visceral threat of public service

[3] If the local government's goal is greater than than central government's goal, the central government should only ever provide as much funding as is necessary for that government to reach the central government's goal. Because I am specifically looking at career incentives as a driver of alignment, in my analysis there should never be cases where the local government's goals are greater than the central government's, but it is easy to conceive of situations where other variables might drive the ideal point higher than that.

shortages is by cutting funding to local governments. If the local government sees that their funding has been cut, and will be insufficient to fulfill their responsibilities even if it increases its own contributions, the local government can use the company as a resource. They can either levy an additional tax on the company, or they can seek out the company's assistance to fill in those gaps. To the company, this is an opportunity rather than a threat — they are being presented with the opportunity to contribute to a public service that will help them to remain profitable, and the only punishment for declining is a gap in service provision.

The difficulty is that the central government must be very careful to assure that funding gaps actually result in the types of solutions the central government wants. That is, if the central government wants the local government to ask the company for help, they need to structure their funding so that the local government will choose to do that. If instead the central government would prefer the local government levy a tax instead of asking for help — because having the firm provide directly is not desirable in all circumstances — it needs to use its funding to assure that happens.

The result is that we should see central government's withholding funds in different ways in different situations. When they want the local government to tax, they should often withhold money entirely. If they want the company to ask for help, they should pay just enough that the company's anticipated contribution will fill the gap between what the local government can provide without taxing and its ideal service provision goal. Asking for help should be most attractive as a strategy when the local government's career incentives are low, when then central government's service provision goals are low, and when the local government's capacity is low. All of these situations represent the most cost-savings. By contrast, when a local government's career incentives are particularly high, the central government does not need them to ask for help from the company, knowing it will instead levy a large tax and be motivated to provide by itself.

In the next section, I formalize this logic, presenting the utility equations and choices for each actor, and explaining the logic behind the solution of the model. I then explain the equilibrium and the empirical implications of the model.

Formalization

The following model formalizes the theory described above. In this model, there are three actors: a central government (C), a subnational government (S), and a private firm (F). Figure 2.1 illustrates the order of play, and Table 2.1 summarizes the variables in the model. The game takes place in three steps. First, the central government chooses how much funding (m) it will give to the subnational government in order to achieve the central government's service provision goal (G_i). The subnational government, then, decides whether it will levy a tax on the firm to provide its contribution of the service, or whether it will ask the firm for help. By construction, it cannot do both — if it asks the firm for help, it cannot also tax the firm.[4] If the subnational government chooses to tax rather than seek help, it chooses its optimal tax rate ($\tau \geq 0$), collects it, and provides the service. If the subnational government chooses to seek help from the firm, the firm decides how much it wants to provide ($F_i \geq 0$), and both local government and firm provide services in tandem. The game then ends and the service provision outcomes are realized.

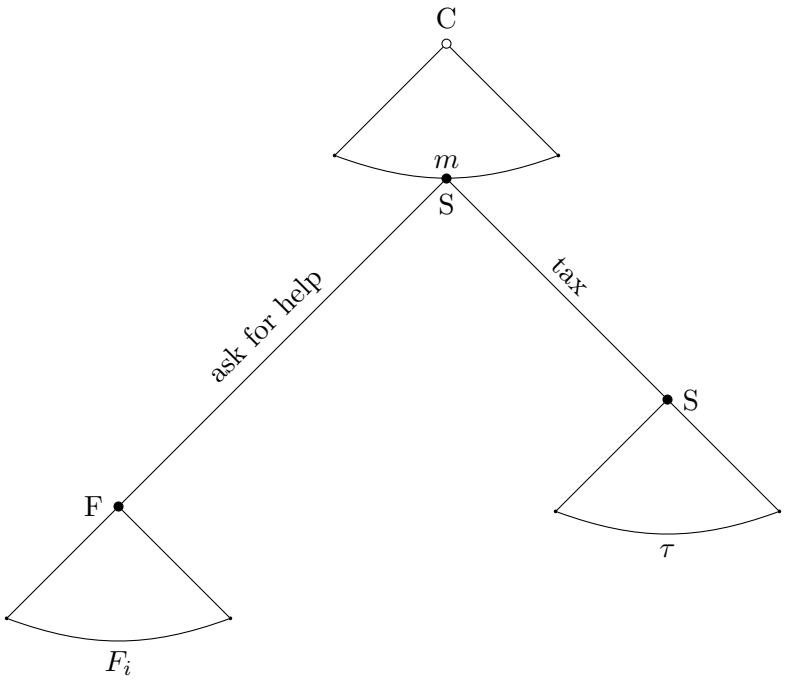


Figure 2.1: The order of play.

[4]This is a simplification of reality, but not a departure from it. In reality, companies must tax far less or not at all if they ask the company for help. Otherwise the burden on the company is too great for it to stay. I relax this assumption in Chapter 5.

As previously discussed, the central government has to use its funding strategically. It is trying to produce an ideal level of service provision for the subnational unit in question, and it can only do so by allocating funds. It chooses how much money to give any given subnational government in order to maximize its utility, and its utility has two components: it wants to produce a level of public service (x) that is as close as possible to its ideal without overshooting (because overshooting represents wasted money), and it does not want to spend too much money (Equation 2.1). Because the central government is able to set a service provision goal (or "mandate") for each of the subnational governments, we assume it always sets the mandate at its ideal policy outcome, and let this be exogenous to the model.[5] Thus, when it allocates funds (m) to the subnational government, it does so having dictated that the subnational government should use that funding to provide exactly the level of services it prefers ($x = G_i$). Its primary concern is ending the game with an outcome (x) that is as close as possible to its ideal outcome (G_i), while minimizing its expenditures (m). The further away the actual realized serve is from its ideal — whether under- or overshooting — the worse off the central government is (quadratic loss) and it also loses μ units of utility for every additional dollar it spends.

$$u_c = -(x - G_i)^2 - m\mu \tag{2.1}$$

where $x = c(m + \tau I)$ if the subnational government provides and $x = mc + F_i$ if the firm provides.

It transfers this money knowing that the subnational government has its own goals in mind, and these goals may not align with what the central government wants. I denote the subnational government's goals as aG_i, where G_i is the central government's goal and a dictates how close the subnational government's goal is from it. When $a = 1$, the local government's goals are perfectly aligned with the central government's goals. When $a < 1$, the local government prefers to provide less of the service, and when $a > 1$ it prefers to provide more. This alignment is driven by many different factors, but here

[5] Allowing the mandate to be set differently for each individual subnational unit does a lot of the work that would be gained by endogenizing the mandate — I can assume there are unit-specific variables that lead the central government to set the goal it does and because the game is not formally repeated, I can assume the goal can change from year to year without having to explicitly model the factors that lead to that change.

I specify that the alignment is driven by the local government's career incentives: the reason for this is that this is something the central government can know and be fairly certain of, which allows it to approximate how closely aligned the local government is with it in order to make its funding choices.

In addition to the local government's own goals, the central government needs to consider the local government's capacity to provide the services in question. Even with the best of intentions, subnational governments may lack the resources or skilled personnel to provide services at the level the central government desires. A government with low capacity (c) will provide less return on every dollar of investment from the central government than will a government with high capacity. Taken together, the level of public service the subnational government will provide for any amount of money m is equal to mc – the amount of money it is given, transformed by its ability to spend it.

The money provided by the central government is often not enough, on its own, to fund the services the subnational government needs to provide. When the subnational goernment receives its allocation from the central government, it must then assess how much additional money is needed to hit its goal. It can then make up that shortfall by levying a tax (τ) or asking the company to help provide. Often subnational governments are expected to contribute some portion of the price of service provision from revenue they generates on their own. If it chooses to tax instead of asking for help, the subnational government thus has the option of choosing to set a tax rate, τ, which is the proportion of the company's assets (I) it takes in taxes to fund public services. Yet setting a tax rate is, in itself, costly. In this model it is costly in two ways. First, there is an opportunity cost to taxation (y), that represents the goodwill it loses from the company when it levies the tax and any foregone other tax revenue it could have generated from the firm for other purposes. Second, if the local government chooses to levy a tax to provide the service in question, it cannot also ask the firm for help in kind. So while the local government has an incentive to increase the tax rate such that it has more revenue with which to provide public services, it also has an incentive to not set the tax rate too high.[6]

In total, then, if it does not ask for help, the total amount of service the local govern-

[6] In this model I allow for the tax rate to be less than zero and greater than one. A tax rate of less than zero is interpreted as a subsidy, and a tax rate of greater than one is interpreted as expropriation.

ment provides is $c(m + \tau I)$ — the total money it has from the central government and its own revenue collection efforts — transformed by its spending capacity. If it chooses to ask the firm for help and provide services in tandem with the firm, the total realized service provision is combination of what the subnational government can provide with the central government's money (cm) plus whatever the company chooses to provide (F_i). This utility function is represented by Equation 2.2.

$$u_s = -(x - aG_i)^2 - y\tau \tag{2.2}$$

where $x = mc + F_i$ if they make demands and $x = c(m + \tau I)$ if they choose to tax.

The firm's choice of how much to provide if it is asked to provide is also strategic. The firm's primary goal is to maximize its profitability (Equation 2.3). Unlike the central and local governments, however, the firm's ability to maximize its own profitability within the service provision system is somewhat circumscribed. It cannot set the tax rates it has to pay – t proportion of its assets (I) to the central government, and τ proportion of its assets to the local government — and I assume that the amount of assets it has invested (I) is exogenous. Thus, there is little the firm can do to maximize its after-tax profits ($(1 - t - \tau)I$) within this framework. The only thing the firm can do to improve its profitability is to provide public services (F_i), which provide a return (b) on its investment (I). Yet providing services costs money, so while it can help profitability, spending money on public services can also hurt profitability.[7] The cost of the service provision (F_i) is a function of the cost of the service in question (β) – which is fixed for any given service, and which we can think about as a way to generally discriminate between service provision that is going to be expensive (e.g., building a school) as opposed to a type of service provision that will be relatively cheap (e.g., filling a pothole) – and what proportion of the cost of that service it is willing to invest (b). The firm thus chooses the proportion it will invest in the public service, b, in order to maximize its profitability, and this determines the amount F_i that it provides.[8]

[7] In Equation 2.3, the cost of providing the service is quadratic and centered at zero. Since F_i cannot be negative, this simply represents the fact that providing public services gets costly quickly, so firms are not especially eager to provide large amounts of any service.

[8] In this model b can be interpreted as both the return on investment the firm receives for providing the service and the proportion of the service it chooses to provide. Since the proportion of the service it chooses to provide is an increasing function of the return on investment, I could place a scale parameter in front of it, but because that scale parameter would have no substantive interpretation and not be measurable, I simply let it be 1.

$$u_{firm} = (1 - t - \tau)I + bI - F_i(b)^2 \tag{2.3}$$

where $F_i(b) = \sqrt{\beta}b$, for a fixed β

label	name	bounds
G_i	central government ideal point	$G_i \geq 0$
F_i	firm ideal point	$F_i \geq 0$
I	value of investment (assets)	$I \geq 0$
b	proportion of service to provide/return on investment	$b \geq 0$
β	cost of provision	$\beta \geq 0$
τ	subnational tax rate	$[-\inf, \inf]$
t	national tax rate	$[-\inf, \inf]$
a	alignment with central government goals	$0 \leq a$
m	transfers from center	$m \geq 0$
c	capacity	$c \geq 0$
y	opportunity cost of taxing	$y \geq 0$
μ	opportunity cost of allocating money	$\mu \geq 0$

Table 2.1: Variable key

Analysis

The results of the model show us how the central government chooses to allocate its funds in order to save money on public services while still not skimping on public services, relative to its preferences about service provision. Because the central government cannot directly control the subnational government, it must ensure incentive compatibility: in order to get what it wants, it has to make the subnational government want to do the same thing. Its funding decisions are therefore made to shape the environment in which the subnational government makes its decisions. The central government has an expectation about how the subnational government will choose based on the money it receives, and it provides funding accordingly to push the subnational government toward doing what the central government wants it to do.

If the central government is to use its funding in this way, it has to be able to form these expectations about which choices the subnational government will make. If the subnational government taxes, the central government must anticipate the tax rate it will choose. If it asks for help, the central government must anticipate what the firm will be willing to provide. Then, the central government must weigh the expected final service provision under each scenario — the government providing alone and the government

providing in tandem with the firm — and determine which is closer to the outcome it wants to see. Only then can it make its funding decision.

Because the central government is making its choice in anticipation of what the local government and the company will do, and the local government is making its decision based on what the company will do, the model is solved using backward induction. Each actor is looking down the game tree: the central government determines what it expects the subnational government and the firm to do, and the subnational government determines what it expects the firm would provide if it were to provide. It is these anticipated moves that form the basis of the equilibrium.

The firm determines the return on investment (b) it would require from a public service provision in order to maximize its overall utility (Equation 2.4). From this, it can determine how much it will provide if asked to provide. How much of a service the firm is willing to provide is a function of its return on investment and the cost (or extent) of the service provision (β).[9] What this means is that although the firm would prefer to provide more as the return on its investment increases, this desire to provide is tempered by the cost of the provision. The ideal return on investment (b^*) is substituted into the equation for the firm's provision level (F_i) to determine how much the firm is willing to provide in equilibrium (Equation 2.4).[10]

$$b^* = \frac{I}{2\beta} \tag{2.4}$$

Concurrently, the subnational government chooses the tax rate that maximizes its utility (Equation 2.6). The subnational government's ideal tax rate, τ^*, increases as its career incentives favor pleasing the central government, but decreases with every additional dollar the the central government transfers, meaning it will tax more if it wants to provide more, but less if its funding s already sufficient. Knowing its ideal tax rate and the firm's chosen level of service provision, the subnational government considers its two choices: in the first, it produces a level of goods with the firm's participation

[9] The firm experiences diminishing marginal losses to the cost of the project because there are savings in scale. Building one school is expensive. Building five schools is more expensive, but not five times as expensive, because the firm can duplicate efforts and costs from the first school.

[10] In this iteration of the model, the return on investment is considered on the pre-tax value of the firm's investment, which means the amount the firm is willing to provide does not include terms for taxation. Theoretically, this corresponds to the firm's EBIT – earnings before interest and tax – which is a common accepted measure of profitability.

($x = mc + F_i$) and loses no utility from levying a tax. In the second, it produces goods on its own with its additional tax revenue ($x = c[m + \tau I]$), but bears a cost of levying the tax.[11] If asking the firm for help results in services closest to its goal, without overshooting, it chooses to ask for help from the firm. If providing on its own gets it closest, including the tax penalty, it levies a tax.

The central government, then, has to consider how to allocate funds. It knows that for some range of m, the subnational government will tax and provide a certain level of services on its own. For another range of m, t will ask for help, resulting in a different level of services provided in tandem with the firm. The central government considers which service level is closest to its own, and takes into account how much it would have to spend to be within the correct range, and provides the amount of m that will provoke the subnational government to make that decision.

$$F_i^* = \sqrt{\beta} b^* = \frac{I}{2\sqrt{\beta}} \tag{2.5}$$

$$\tau^* = \frac{G_i acI - mc^2 I - \frac{y}{2}}{c^2 I^2} \tag{2.6}$$

In equilibrium, it turns out there is one range of m in which the subnational government will ask for help, but two ranges in which it will tax and provide by itself. If m is below a threshold m_1 or above another threshold, m_2, the subnational government will choose to tax, while between the two it will ask the firm to help provide (Figure B.1). There are two tax ranges because there are different reasons the subnational government would choose to tax instead of asking the firm for help. In the upper range, the subnational government receives so much money from the central government that it can easily provide the good on its own by levying a small additional tax or no tax. In that range, it has no need to seek out the firm's help. If the central government provides a level of funding in the lower range, however, the subnational government also taxes, but does so because the gap between provision and ideal goal is so large that the firm's contribution is just not enough. The subnational government asks for help only when it cannot quite reach its goal by taxing, but can read it by asking the firm for help.

[11] This is a simplification for modeling purposes. If the subnational government was able to both tax and ask for help from the firm, the strategic logic would remain the same, although firms are unlikely to be as generous in their willingness to provide goods if they are paying both ways. See Chapter 5.

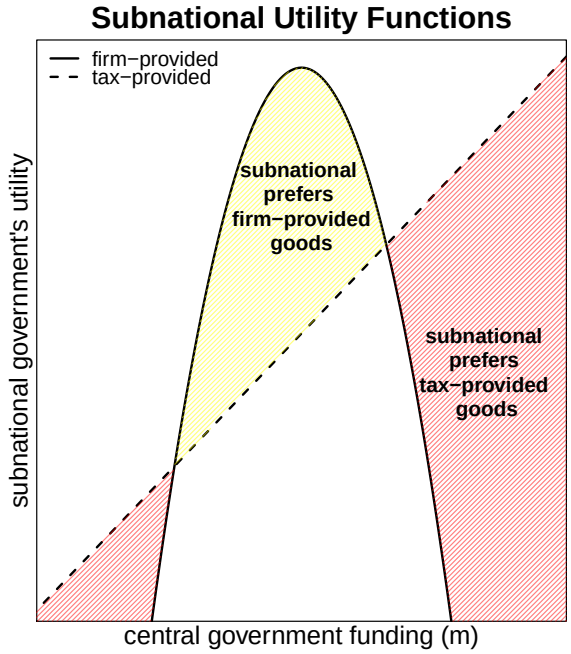


Figure 2.2: The subnational government's two utility functions, both plotted as a function of transfers from the center. The dotted line represents its utility from tax-provided goods and the solid line is its utility from firm-provided goods. The red (dark) shaded area covers values of m for which tax-provided goods are preferable to the subnational government, while the yellow (light) shaded area cover values of m for which firm-provided goods are preferable

$$\bar{m_1} = -\frac{2I\sqrt{\frac{cy}{2\sqrt{\beta}}} + y + (\frac{cI}{\sqrt{\beta}} - 2acG_i)I}{2c^2I} \tag{2.7}$$

$$\bar{m_2} = \frac{2I\sqrt{\frac{cy}{2\sqrt{\beta}}} - y + (2acG_i - \frac{cI}{\sqrt{\beta}})I}{2c^2I} \tag{2.8}$$

The central government must then consider not only which outcome it prefers, but also how much it would have to give the subnational government to put it into the appropriate range in which it would make that decision. We can think about this as each outcome having a 'cost' (in m) and the central government having a price it is willing to pay (m^*). The price it is willing to pay is the amount it would spent to maximize its utility under each outcome. Thus, m^*_{firm} is the amount it would like to spend for firm-provided services, and m^*_{tax} is the amount it would like to spend for the subnational government to tax.

For the subnational government to ask the company for help, the central government

must transfer an amount m that is between m_1 and m_2. m^*_{firm}, the price the central government wants to spend for firm-provided goods, is greater if the central government's mandate is high, and lower when the firm's presence is particularly large, and is represented by Equation 2.9. If the central government transfers an amount outside of that range, the subnational government will choose to tax. m^*_{tax}, the price the central government wants to spend for firm-provided goods, is always the lowest amount of money it can transfer. Often, but not always, this is zero. The reason is that for every additional dollar the central government transfers, the subnational government lowers its tax rate, and vice versa. This means that the amount of services that is provided by taxing is fixed (Figure 2.3), and the central government cannot increase it by spending more, so it instead transfers as little money as it can while still not changing the subnational government's mind and prompting them to ask for help instead.[12] Which is better, then? If the central government transfers more than a certain threshold ($\bar{m}_d$ in Equation B.3), the firm-provided goods obtained by asking for help will always be better for the central government. Below that threshold, the central government always prefers that the subnational government levy taxes and provide on its own (Figure B.2).

$$m^*_{firm} = \frac{2G_i c\sqrt{\beta} - cI - \mu\sqrt{\beta}}{2c^2\sqrt{\beta}} \tag{2.9}$$

$$\bar{m}_d \geq \frac{G_i a}{c} - \frac{y}{2c^2 I} - \frac{I}{2c\sqrt{\beta}} \tag{2.10}$$

The central government, then, must carefully negotiate several different thresholds, bearing in mind not only what values will make the subnational government choose to ask for help or tax, but also how much the central government is willing to spend for each possible outcome. This produces a number of different cases or scenarios that the central government must considered.[13] Sometimes the central government and subnational government find themselves in agreement — for instance, if the central government wants to provide m^*_{firm} and have the subnational government ask for help, and m^*_{firm} is within the range of values for which the subnational government also wants to ask for help. In other cases, they are in conflict, where the subnational government will not

[12] As explained in the proof, this eliminates the upper taxation zone for the subnational government. In equilibrium, the central government will never prefer to pay the higher value to obtain taxation when it can instead pay a lower value to do the same thing.

[13] See proof, in Appendix B, for a detailed explanation of each case.

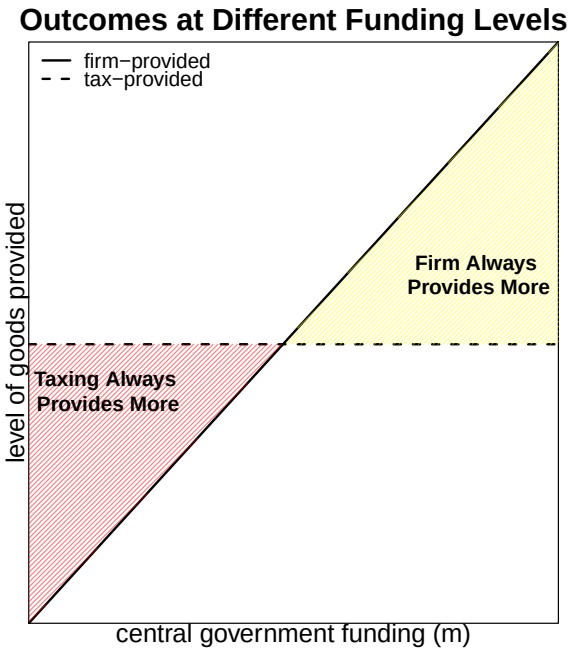
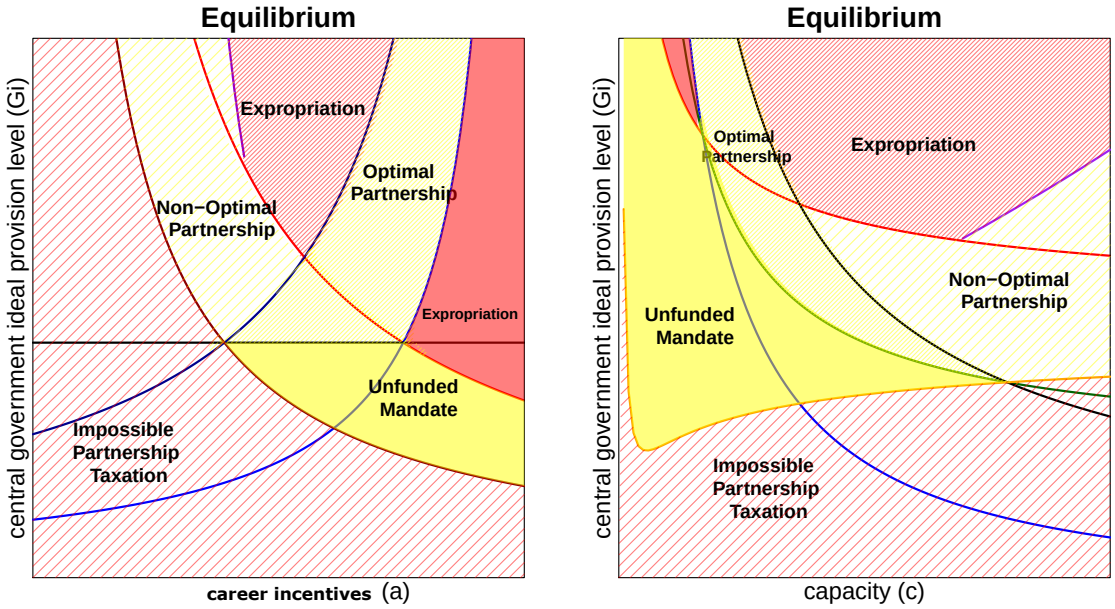


Figure 2.3: Values of outcome goods provided if firm-provided and tax-provided at different values of m.

ask for help even if the central government wants it to. In cases like that, the central government will either pay out at a boundary solution — right at the threshold between where the subnational government would choose to tax or ask for help — or cut its losses and pay nothing, depending on which maximizes its utility.

These different cases are plotted in Figure 2.4. "Impossible Partnership Taxation" and "Expropriation" both occur when there is no range of values for which the subnational government will agree to ask for help (that is, the 'ask' range is entirely negative), and so it chooses to provide no funding and have the subnational government tax. In the former case, taxation in this zone is within reasonable values, and the partnership is impossible because the subnational government's goal is so small that the goal can be achieved by levying a small tax with no additional central government funding. In the latter, taxation is so high that it amounts to a seizure of all of the firm's value. This can come about in two ways. In the first (solid color), the subnational government actually sets its goals so high that it cannot reach them by partnering because the firm's contribution is so small, and it instead taxes at an excessively high rate. In the second (non-solid), the central government actually prefers taxation at a very high rate, because neither a partnership nor reasonable taxation will produce enough services.

Asking for help, on the other hand, can come about in three different ways. "Non-



(a) Career incentives equilibrium plot.

(b) capacity equilibrium plot.

Figure 2.4: Two plots of the equilibrium space, with different cases labeled. Red (dark) sections result in taxation, while yellow (light) sections result in asking for help.

Optimal Partnership" happens when the central government and the subnational government are in conflict: the central government wants the subnational government to ask for help, but its chosen price is too low to make that happen. Instead, it chooses to pay more than it would like to in order to make the subnational government ask for help. "Optimal Partnership", instead, occurs when there is harmony— the central government wants the subnational government to ask for help, and the subnational government wants to ask for help for what the central government wants to pay. "Unfunded Mandates" occur when the central government gives no funding to the subnational government, and the subnational government chooses to ask for help. In that case, the subnational government is so keen on asking for help — either because it is eager to please or because it knows itself to be so incapable – that the central government would actually have to pay a sizable premium to make it tax.

In the following section, I explain a few of the implications of this model.

Comparative Statics

The Paradox of the Puppet Emperor

Central governments should be more favorable toward funding those governments who want to please them most. It is rational that central governments, concerned with achieving some end goal, should dedicate the most funding to those who will spend the money the way the central government would like it to be spent. After all, the closest thing to doing it yourself is installing a puppet emperor. The model shows, however, that this is not the case if firms provide public services: for subnational governments, it is possible to be too eager to please.

One implication of the model is that moderation in loyalty is the key to maximizing intergovernmental transfers. Although when the central government expects little of the subnational governments, all subnational governments are starved of funding, for sufficiently large mandates, as we would expect to see in most decentralized countries, both those with the lowest and highest incentive to please the central government receive no funding. This can result in "impossible partnership taxation", "expropriation" or "unfunded mandate" (Figure 2.4a). It is, instead, those who are only moderately eager to please that receive the most funding in these cases.

The logic behind starving those who have no little interest in pleasing the central government is straightforward. Those with little incentive to carry out the central government's wishes cannot be compelled to partner with a firm. This is because their ideal policy is so far from the central government's that even with little to no funding, they can provide what they want of the good with a minimal additional tax. Asking for help would, to them, be overkill: it would result in far more of the good provided that they want. Because there is no sum of money that will incentivize these subnational governments to ask for help, the central government instead cuts their losses and gives them nothing, leaving it up to them to levy a small tax and provide whatever it is they want. More colloquially: they cannot be relied upon to carry out the task as ordered, and so there is no point to wasting money on them.

If the disloyal are a waste of money, why also starve out allies? After all, their career incentives incline them toward carrying out the central government's wishes exactly. That, as it turns out, is their downfall, in two different ways. First, subnational gov-

ernments whose careers are heavily reliant upon carrying out the central governments wishes cannot credibly commit to not carry out the central government's mandates, even if they are not provided with sufficient resources to do it on their own. In other words, the central government does not need to fund the very loyal subnational governments, because it can trust that, if there are firms there, those subnational governments will find a way. If the central government's mandate is moderate, this results in an un-funded mandate', where the subnational government receives nothing and ask for helps provision to a firm.

Second, because their career incentives predispose them to carrying out the central government's wishes, when the central government's goals are high, the cost savings of the firm providing simply is not as great. The reasons are that the firm's provision is fixed and the subnational government has no control over it, and asking for help precludes the subnational government from taxing. Thus, the higher the goal, the more the central government has to pay to cover the subnational government's contribution if they choose to ask for help. When the goal is small, in contrast, the proportion the firm will cover is fairly high, and the central government's spending is lower. Thus, at sufficiently high levels of government mandate, allies expropriate. In these cases, the subnational government is so desperate to provide services to the central government's specifications, and the central government wants so much, that asking for help from the firm will still result in falling short of the goal. Instead, the subnational government chooses to tax at very high levels, up to and possibly beyond the value of the firm, in order to provide the most it possibly can to the central government.

By contrast, it is those in the middle, for moderate ranges of central government mandate, that receive funding. They may even, in fact, receive more money than the central government would ideally like to give them — as is the case in the "Non-Optimal Partnership", in which the central government pays a premium to coerce the local government into asking for help, rather than saving money and obtaining fewer goods from taxation. In either case, the moderates receive the spoils, because they are neither entirely unreliable, like the disloyal, nor so eager to please as to do anything, like the hyper-loyal. They will ask for help, for the right price, and they will largely spend their money in a manner agreeable to the central government. They can be influenced, but they cannot be taken advantage of.

At very high levels of government mandate, though, a chasm opens in the middle of the moderate bloc. When the central government has very high service targets for the subnational governments, the most moderate of the moderates receive nothing, just like the disloyal and the hyper-loyal, while the low-moderate and high-moderate receive more funding. These subnational executives are in a strange position: at lower levels of mandate, they would be among the "Non-Optimal Partnership" set, where the central government pays more than it would like to trigger asking for help. Now, however, they receive nothing, and this is because they are not loyal enough to ask for help for the right price (like in the "Optimal Partnership"), but are too loyal to provide a sub par good. What that means is that, while the central government could pay a premium to coerce the subnational government into asking for help, the central government's mandate is so high that the premium will still result in a lower level of services than they would get by letting the subnational government tax. So they give them nothing, and let them tax, but this taxation results in expropriation.

Although it does depend in part upon the level of the central government's mandate, what this implication predicts is that, if anyone is to receive funding, it must be those with moderate levels of career incentives. Regardless of the mandate, both allies and those who are entirely uninterested in the central government's wants never receive funding. The moderately loyal may not always receive funding – indeed, if the targets are too low or too high, the central government may wager it is better off letting them tax – but only the moderately loyal will ever receive funding.

Starving Those Who Cannot Feed Themselves

All governments vary in their capacity. While some are very efficient with funds, others may struggle to provide adequate services for their citizens. These less-capable provinces require more funding to provide the same level of services as their more-capable neighbors. This is often seen as one of the benefits of decentralized and federal systems: funds can be redistributed from the wealthier to the needier provinces, to assure a more even standard of living across the country.

Yet the model shows that, when firms provide public services, this is not the case. Not only do the less-capable subnational governments not receive more than the more-capable provinces, but, often, they receive less. This is not cruelty on the part of the

central government, though— this is a way to obtain a higher quality of services for less-capable provinces than they could provide on their own.

Again, when the central government's goal (or anticipated mandate) is low — when it simply does not expect the subnational government to provide much — no subnational government receives funding. They are all in the realm of "Impossible Partnership Taxation": there is no sum of money for which the subnational government will ask for help, because asking for help will always result in over-provision.

At moderate levels of government mandate, however, the different levels of capacity begin to differentiate themselves. At low to moderate levels, governments fall into the "Unfunded Mandate" section— in these scenarios, central governments provide nothing to subnational governments, and the subnational governments ask for help from the firm. In this case, services are provided solely by the firms, as the subnational government's capacity level renders them incapable of providing a reasonable return on the central government's investment. At higher levels of capacity, asking for help still occurs, but in partnership. Central governments provide some amount of funding, whether more than they would like (in the case of the "Non-Optimal Partnership") or at the price they would prefer ("Optimal Partnership"), but then subnational governments apply that funding toward partnership with a firm to provide a greater good than they could provide on their own.

As the amount of mandate increases, the proportion of the least-capable that receive no funding decreases, but the least capable subnational governments still receive no funding, while more capable governments do. The result is that governments that are not sufficiently capable of providing goods on their own instead receive goods provided by firms with no input of their own.

Safety Among the Maladroit

Capacity can be a double-edged sword. Although the least-capable governments are starved of resources if there are firms that can provide the goods instead, these least-capable governments may also provide more hospitable investment environments than their more-capable neighbors. When the central government's demands are high — when the central government wants the subnational governments to provide a very large amount of a good or service — the high-capacity governments may pose a threat to

investors. On its face, this may seem confusing. Proficiency in public goods provision should attract investors, at least in theory — they should have better infrastructure, more educated workers, and, possibly, a more functional government. We tend to associate a high quality of public service provision with rule of law, development, and other features thought to attract investment.

Yet once the investment is there, these high-capacity governments may also prove to be very effective predators. The reasoning, again, lies in what the governments are aiming to provide, and how close they can get by taxing as opposed to asking for help. The low-capacity governments are so poor at providing services that they will never be able to provide more of a good by taxing than they can provide by asking for help from the firm. The firm will always do a better job of providing the good, whether it does so by itself or in partnership with the firm, than the firm can do by itself, even with additional tax revenue. This inability to provide services has a protective effect on the firm: if the firm is willing and able to provide services for the government, it can protect its assets again expropriation.

The high-capacity governments, on the other hand, are not inept. If they must provide a large amount of services, there reaches a point where asking for help will not provide enough. Because they have at least moderate capacity, the subnational governments can provide a higher quality of good by taxing at a high rate — tantamount to or fully expropriation — and using their own abilities to provide services, than they can by asking for help from the firm. This means that moderate-to-high-capacity governments, in countries that are highly decentralized or rely heavily upon their subnational governments for service provision, may actually pose serious threats to investors, while less-capable governments may protect them.

Conclusion

Public service provision is a complicated and expensive endeavor. Higher levels of government tend to provide the bulk of the funding for the services, while lower levels of government are responsible for carrying out the action. The tastes and capacities of the different actors can cause conflict — lower levels of government may not want to provide the same amount of services that central governments would prefer, and lower

levels of government may struggle to efficiently provide services. The result is that central governments must be careful and strategic with their funding, so as to assure that public services are provided, that the provision level is close to their goal, and that good money is not thrown after bad.

In this chapter, I show that the strategies that the funding strategies we would expect of central governments — give more money to the governments who want what you want, and give more money to the governments that need more money in order to provide the service — are upended when corporations provide public services. When corporations engage in public service provision, or "corporate social responsibility", central governments are able to leverage their presence to help provide public services. They do this by intentionally creating the potential for public service gaps — by withholding necessary funding and trusting that subnational governments will seek out companies for help in making up the balance in order to maintain or increase their profitability. When this strategy is viable, our expectations change: central governments no longer financially favor those who want what they want, and they have an incentive to starve poor-performing governments of funds, all while assuring that services are still provided. In the chapters that follow, a test a few of these empirical predictions.

Appendices

B Theoretical Proof

Solution

The model is solved using backward induction, and the proof follows.

Step 1 Choose the b that maximizes the firm's utility. This is the amount of benefit the firm gets from providing goods, and it will determine the ideal level of goods the firm chooses to provide.

$$b^* = \frac{I}{2\beta}$$

Step 2 Convert this equilibrium b into an equilibrium firm ideal point, F_i^*.

$$F_i^* = \sqrt{\beta}b = \frac{I}{2\sqrt{\beta}}$$

Step 3 Find the subnational tax rate that maximizes the subnational government's utility.

$$\tau^* = \frac{G_i acI - mc^2 I - \frac{y}{2}}{c^2 I^2}$$

Step 4 The subnational government has to choose between taxing the firm and delegating some of the provision to the firm. Therefore, we must compare the utility the subnational government derives from the goods that are provided when it delegates to the firm ($x = mc + F_i$) and the utility it derives from the goods it provides by taxing ($x = mc + c\tau^* I$). The subnational governments makes this decision upon seeing the money m it receives from the central government, and so we determine threshold $\bar{m}$ below which the subnational government's utility from delegating is higher than its utility from taxing.

Because the firm-provided utility is quadratic, while the tax-provided utility is linear[1], there are two intersection points. Between these two thresholds, the utility the subnational government receives from delegating to the firm is greater than the utility it receives from taxing. Below or above these thresholds, the utility from taxing is greater (Figure B.1).

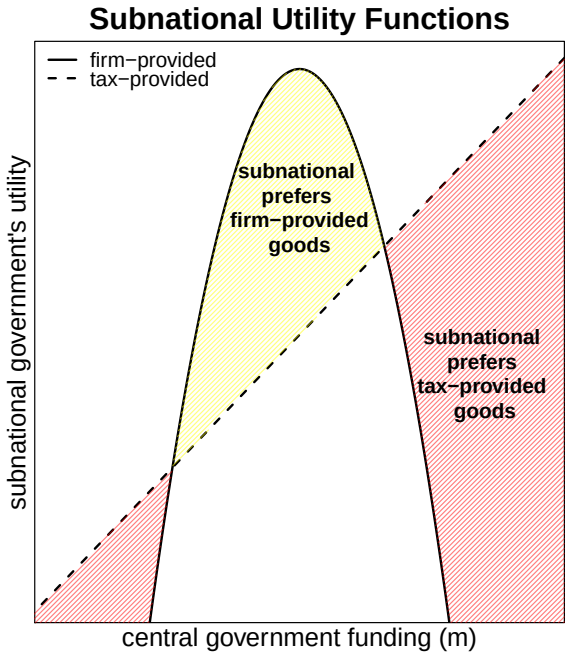


Figure B.1: The subnational government's two utility functions both plotted as a function of transfers from the center. The dotted line represents its utility fom tax-provided goods and the solid line is its utility from firm-provided goods. The red shaded area covers values of m for which tax-provided goods are preferable to the subnational government, while the yellow shaded area cover values of m for which firm-provided goods are preferable

$$\bar{m_1} = -\frac{2I\sqrt{\frac{cy}{2\sqrt{\beta}}} + y + (\frac{cI}{\sqrt{\beta}} - 2acG_i)I}{2c^2I} \tag{B.1}$$

$$\bar{m_2} = \frac{2I\sqrt{\frac{cy}{2\sqrt{\beta}}} - y + (2acG_i - \frac{cI}{\sqrt{\beta}})I}{2c^2I} \tag{B.2}$$

Therefore, the firm's actions in equilibrium are a function of m. In the higher of the tax-provided zones, the subnational government is being provided with so

[1]The subnational government sets its optimal tax rate and adjusts it based on the m it receives. The tax rate is strictly decreasing with m, and the firm can offset its utility loss from overprovision by lowering the tax rate.

much m that it can easily reach its ideal point on its own without aid of the firm. In the firm-provided goods section, the quantity of m that is provided can best reach the subnational government's ideal point when combined with the firm's contribution. But in the lower of the tax-provided zones? In this range of m, the subnational government is receiving so little that it cannot make ends meet even with the firm's contribution. In this range, we observe very high tax rates, as the subnational government resorts to expropration or near-expropriation in order to finance its goods provision.

$$action = \begin{cases} \text{tax} & \text{if } m < \bar{m_1} \\ \text{demand} & \text{if } \bar{m_1} \leq m \leq \bar{m_2} \\ \text{tax} & \text{if } m > \bar{m_2} \end{cases}$$

Step 5 Now, because the central government is the one who actually provides the money, we must determine the value of m that maximizes the central government's utility if it receives firm-provided goods, and then again if it receives tax-provided goods. This tells us, in effect, what the central government is willing to pay the subnational government in order to obtain either of these outcomes.

The central government's optimal m to obtain firm-provided goods is

$$m^*_{firm} = \frac{2G_i c\sqrt{\beta} - cI - \mu\sqrt{\beta}}{2c^2\sqrt{\beta}}$$

We know this is a maximum because $\frac{\partial^2 u_{demand}}{\partial m^2} = -2c^2$, so the second derivative is negative for all values of c.

There is no internal maximum in the realm in which the goods are tax-provided, as the central government's utility from a tax-provided good is strictly decreasing in m. Why is this true? Recall that the subnational government sets its ideal tax rate, and that tax rate (τ) is a function of m. That means that as the central government increases m, the subnational government decreases τ enough to offset it. So for each additional unit of m that the subnational government receives, it receives no additional goods, but it still has to suffer the cost of paying m.

$$\frac{\partial u_{c|tax}}{\partial m} = -\mu$$

As a result, when the goods are tax-provided, the central government maximizes its utility by providing as little money to the subnational government as it can while still obtaining that outcome.

Step 6 Now, consider the two possible outcome equations, $x = c(m + \tau I)$ when goods are tax-provided, and $x = mc + F_i$ when goods are firm-provided. As Figure B.2 shows, the value of tax-provided goods is the same regardless of m, as the subnational government will offset more money providing by lowering its tax rate. The two lines intersect only once. We can determine the value of m at which the two lines cross. Above that value of m (Equation B.3), the subnational government can always obtain a greater quantity of goods if it delegates to the firm than it can by taxing.

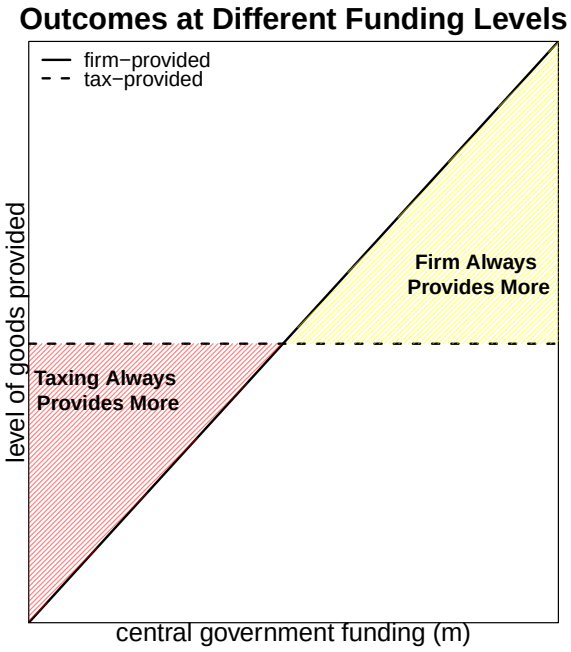


Figure B.2: Values of outcome goods provided if firm-provided and tax-provided at different values of m.

$$\bar{m_d} \geq \frac{G_i a}{c} - \frac{y}{2c^2 I} - \frac{I}{2c\sqrt{\beta}} \tag{B.3}$$

Step 7 Recall that the subnational government will prefer to tax than delegate to the firm

when $m > \bar{m_2}$. We also know that more goods are obtained by delegation than by taxing when $m \geq \bar{m_d}$. Because the central government strictly wants more goods provided[2], if $\bar{m_d} < \bar{m_2}$, the central government will never choose a value of $m > \bar{m_2}$.

It will be the case that $\bar{m_d} < \bar{m_2}$, and thus also that $m > \bar{m_2}$ will never occur in equilibrium, when Equation B.4 is true. Equation B.4 is always true, as all of the variables in it are positive and nonzero. This means that we do not need to consider any possible scenarios in which the central government provides $m > \bar{m_2}$.

$$2I\sqrt{\frac{cy}{2\sqrt{\beta}}} > 0 \tag{B.4}$$

Step 8 We must now ascertain that the maximum of the central government's demand utility, m^*_{firm} is indeed above the threshold in which the subnational government would, upon receiving that value of m, actually make demands of the firm. In other words, we need to make sure the central government and the subnational government are aligned, such that if the central government pays m^*_{firm}, the subnational government will actually comply and delegate to the firm.

This is true when Equation B.5 is satisfied.

$$G_i > \frac{\mu}{2c(1-a)} - \frac{\sqrt{\frac{cy}{2\sqrt{\beta}}}}{c(1-a)} - \frac{y}{2c(1-a)I} \tag{B.5}$$

Step 9 Assume $\frac{G_i a}{c} - \frac{y}{2c^2 I} > 0$, such that negative tax rates do not occur in equilibrium. This holds for y sufficiently small.[3] Then, we must test cases in the ranges of m to determine the central government's equilibrium behavior.

This means there are five relevant thresholds:

Thus, the cases we need to check are as follows:

Case 1 When m^*_{firm} is greater than $\bar{m_2}$ and both $\bar{m_1} > 0$ and $\bar{m_2} > 0$. Here, we

[2]This is true as long as the value of goods demanded by the firm does not exceed the central government's ideal point, which is satisfied as long as $m < \frac{G_i}{c} - \frac{I}{2c\sqrt{\beta}}$. This value is positive as long as $G_i > F_i$, which is true by assumption, and is increasing as the gap between the two increases.

[3]Note that because y sufficiently small here means that $y < 2G_i acI$, entailing multiplying together the total invested assets with the government's ideal provision level, for most values of the other variables, y can still be fairly large and satisfy this constraint. In Case 3, I note that y must be sufficiently large, but a wide range of values can satisfy both of those constraints.

G_1	$\bar{m_1} > 0$	$G_i > \frac{\sqrt{\frac{cy}{2\sqrt{\beta}}}}{ac} + \frac{y}{2acI} + \frac{I}{2a\sqrt{\beta}}$
G_2	$m^*_{firm} > \bar{m_1}$	$G_i > \frac{\mu}{2c(1-a)} - \frac{\sqrt{\frac{cy}{2\sqrt{\beta}}}}{c(1-a)} - \frac{y}{2c(1-a)I}$
G_3	$m^*_{firm} > 0$	$G_i > \frac{I}{2\sqrt{\beta}} + \frac{\mu}{2c}$
G_4	$m^*_{firm} > \bar{m_2}$	$G_i > \frac{\sqrt{\frac{cy}{2\sqrt{\beta}}}}{c(1-a)} - \frac{y}{2c(1-a)I} + \frac{\mu}{2c(1-a)}$
G_5	$\bar{m_2} > 0$	$G_i > \frac{I}{2a\sqrt{\beta}} - \frac{\sqrt{\frac{cy}{2\sqrt{\beta}}}}{ac} + \frac{y}{2acI}$

Table B.1: Five relevant thresholds

compare the boundary solution for taxation ($\bar{m_2}$) and the boundary solution for delegation (0). This decision occurs wen $G_i > G_4$ and $G_i > G_1$.

The central government is better off by providing $m = \bar{m_2}$ and receiving delegated goods than providing $m = 0$ and receiving tax-provided goods when the following is true.

$$G_i \leq \frac{-K^2 - \mu K}{c(2Ka - 2K + \mu a)} + \frac{2Ky + \mu y}{2cI(2Ka - 2K + \mu a)} + \frac{\mu I}{2\sqrt{\beta}(2Ka - 2K + \mu a)} \tag{B.6}$$

To be binding, this threshold must be larger than both G_4 and G_1. This threshold is above G_4 when

$$a > \frac{2\sqrt{\beta}IK^2 + c\mu I^2 + \sqrt{\beta}\mu y}{2\sqrt{\beta}IK^2 + 2\sqrt{\beta}\mu IK + c\mu I^2 + \sqrt{\beta}\mu^2 I}$$

That threshold is greater than G_1 when

$$a < \frac{4\sqrt{\beta}IK^2 + \left(2cI^2 + 4\sqrt{\beta}y\right)K}{6\sqrt{\beta}IK^2 + \left(2cI^2 + 4\sqrt{\beta}\mu I + 2\sqrt{\beta}y\right)K + \sqrt{\beta}\mu y}$$

Further, $G_1 > G_4$ when

$$a < \frac{2\sqrt{\beta}IK + cI^2 + 2\sqrt{\beta}y}{4\sqrt{\beta}IK + cI^2 + \sqrt{\beta}\mu I + \sqrt{\beta}y}$$

Beneath the threshold, firm-provided goods at a cost $m = \bar{m_2}$ are preferred over tax-provided goods at $m = 0$.

As long as μ is sufficiently large— such that $\mu > \frac{2K^2I}{2KI+y}$ — G_1 will always

intersect (and be greater than) G_4 before G_4 intersects the threshold in this case. Therefore, this threshold is greater than G_4 for the entire range of values of a for which it is the binding lower bound on the area. The central government prefers firm-provided goods when a is below the G_1 threshold, and tax-provided goods when a is greater than that.

Case 2 When m^*_{firm} is greater than $\bar{m_2}$, and $\bar{m_2} > 0$, but $\bar{m_1} < 0$, the subnational government's tax range does not exist. As such, the central government will choose the boundary solution for firm-provided goods of $\bar{m_2}$. This is the case when $G_i > G_4$, $G_i > G_5$, and $G_i < G_1$.

Case 3 When m^*_{firm} is greater than $\bar{m_1}$ and less than $\bar{m_2}$, and $\bar{m_1} > 0$. In this case, we compare the tax rate of zero to $m = m^*_{firm}$. $G_i > G_1$, $G_i > G_2$, and $G_i < G_4$

The central government's utility from firm-provided goods when providing $m = m^*_{firm}$ is greater than its utility from tax-provided goods when the following conditions are met:

$$G_i \geq \frac{\frac{y(a-1)}{cI} + \frac{\mu}{c} - \sqrt{\frac{8y(a-1)\mu I + 4I^2\mu^2 - 4(a-1)^2\mu^2 I^2}{4c^2 I^2}} - \frac{2(a-1)^2\mu I}{c\sqrt{\beta}}}{2(a-1)^2} \tag{B.7}$$

$$G_i \leq \frac{\frac{y(a-1)}{cI} + \frac{\mu}{c} + \sqrt{\frac{8y(a-1)\mu I + 4I^2\mu^2 - 4(a-1)^2\mu^2 I^2}{4c^2 I^2}} - \frac{2(a-1)^2\mu I}{c\sqrt{\beta}}}{2(a-1)^2} \tag{B.8}$$

The lower threshold for G_i is always less than the greater of G_1 or G_2, and the upper threshold is always greater than G_4.

Both thresholds only exist when

$$a > -\frac{\sqrt{2\sqrt{\beta}c\mu I^3 + \beta\mu^2 I^2 + \beta y^2} - 2cI^2 + \sqrt{\beta}\,(-\mu I - y)}{2cI^2 + \sqrt{\beta}\mu I}$$

$$a < \frac{\sqrt{2\sqrt{\beta}c\mu I^3 + \beta\mu^2 I^2 + \beta y^2} + 2cI^2 + \sqrt{\beta}\,(\mu I + y)}{2cI^2 + \sqrt{\beta}\mu I}$$

The higher threshold for G_i, as listed above, is always greater than G_4. This is true as long as the threshold exists, and as long as $a\left(\frac{y}{I} + \mu\right) > c\sqrt{X}$, where X is the equation within the square root in Equations B.7 and B.8. Because

the left side of that equation is increasing faster in a than is the righthand side, we can conclude that the threshold is always higher than G_4.

Similarly, the lower threshold for G_i in this case is always less than G_1 as long as y is sufficiently large. .

$$y = \frac{a(\sqrt{\beta}(-4IK - \mu I) - 2cI^2) + a^2(2\sqrt{\beta}IK + cI^2) + 2\sqrt{\beta}IK + \frac{a\sqrt{\beta}cI\sqrt{-\frac{\sqrt{\beta}((a^2-2a)\mu^2 I + (2-2a)\mu y) + (2a^2-}{\sqrt{\beta}}}}{|c|}}{a\sqrt{\beta} - \sqrt{\beta}}$$

Case 4 When m^*_{firm} is less than $\bar{m_1} > 0$, the central government's optimal price for firm-provided goods is within the subnational government's taxation zone. This means that the central government would receive tax-provided goods if it paid its optimal firm-provided price. In this case, there is a boundary solution at $m = \bar{m_1}$ for firm-provided goods. This is compared with $m = 0$ for taxation. This outcome occurs when $G_2 > G_i$, because $0 < m^*_{firm} < \bar{m_1}$. This outcome occurs whether m^*_{firm} is greater or less than zero.

When m is between 0 and $\bar{m_1}$, the central government gains greater utility from firm-provided good ($m = \bar{m_1}$) than from tax-provided goods ($m = 0$), when the following is true.

$$G_i \leq \frac{\mu K - K^2}{c(2K - 2Ka + \mu a)} + \frac{2Ky + \mu y}{2cI(2K - 2Ka + \mu a)} + \frac{\mu I}{2\sqrt{\beta}(2K - 2Ka + \mu a)} \tag{B.9}$$

where $K = \sqrt{\frac{cy}{2\sqrt{\beta}}}$.

Because G_i must be below that threshold in order for firm-provided goods to provide greater utility than tax-provided goods, that threshold must either be between G_2 and G_1 (the range of values in which this decision occurs) or greater than the upper threshold, G_2. It is, instead, always below G_1 as long as Equation B holds, which it always does between zero and one. Therefore, because all values of G_i are greater than that threshold, tax-provided goods are always preferred.

$$a < \frac{2\sqrt{\beta}IK + cI^2 + \sqrt{\beta}y}{\sqrt{\beta}IK + cI^2 + 2\sqrt{\beta}y}$$

Case 5 When m^*_{firm} is greater than $\bar{m_1} < 0$ and less than $\bar{m_2} > 0$, and $m^*_{firm} > 0$. Here we compare the empty set tax rate to $m = m^*_{firm}$. $G_1 > G_i > G_2$, $G_i < G_4$, and $G_i > G_3$. Because taxation is not an option (as the subnational government's tax zone does not exist), the central government will always choose to give $m = m^*_{firm}$.

Case 6 When m^*_{firm} is greater than $\bar{m_1} < 0$ and less than $\bar{m_2} > 0$, and $m^*_{firm} < 0$. Here we compare the empty set tax rate to a delegtion boundary solution at $m = 0$. $G_1 > G_i > G_2$, $G_i < G_4$, and $G_i < G_3$.

In this case, because $\bar{m_1}$ is less than zero, the delegation range spans all possible equilibrium values of m, and the subnational government will never choose to tax for any value of m. Thus, the central government's optimal m_{tax} is the empty set, in equilibrium, $m = 0$ and delegation occurs.

The same is true when $\bar{m_1} < 0$, $\bar{m_2} > 0$, and $m^*_{firm} < \bar{m_1}$. If $\bar{m_1} > 0$, the delegation boundary solution would be $\bar{m_1}$. Because $\bar{m_1} < 0$ and is therefore not a plausible value of m, the boundary solution for delegation is $m = 0$.

Case 7 When both $\bar{m_1}$ and $\bar{m_2}$ are less than zero, the subnational government's lower taxation zone does not exist, its delegation zone does not exist, and $m > \bar{m_2}$ never occurs in equilibrium. In this case, the central government provides $m = 0$ because it cannot provide less, and it receives tax-provided goods, regardless of the sign on m^*_{firm} or where m^*_{firm} is relative to either $\bar{m_1}$ or $\bar{m_2}$.

3 Corporate Public Services, Subnational Career Incentives, and Intergovernmental Fiscal Transfers

Introduction

No one really likes road construction. When safety barrels pop up in the road and signs warn drivers that the lane ahead is closed, people tend toward indifference at best and hostility at worst. Yet road construction is something we should celebrate. Whether the construction is actually improving the road — filling potholes, installing bike lanes, widening the road, or resurfacing — or serving another purpose, such as replacing sections of the long stretches of water or gas pipes that lay deep beneath the city streets, this minor inconvenience is something that improves the lives of citizens.

But road construction is not only worth celebrating because it makes our lives better, but also because of the sheer improbability that it happens at all. Tearing up a road to replace a water pipe or to resurface a street, for instance, requires maintaining expensive machinery, buying and transporting the raw materials necessary to do the job, and hiring, training, and paying workers.

If road construction were solely the responsibility of the city or county hosting it, it may never happen. Lower levels of government, such as cities and counties, simply do not have all the resources — financial, human, or otherwise — to make that work. Instead, road construction, like many other public services, is a multi-government process. Although the lower-tier governments bear the chief responsibility for carrying out the work, much of the money and some of the direction comes from higher levels of government. Most of the public services we use on a daily basis are the result of such a process — higher-level governments distribute money and general guidelines and

lower-level governments carry out the task.

Sometimes, however, local governments are aided in these tasks by businesses operating within their jurisdiction. Separate from privatizing — where the the local government pays a company to provide the service — instead local leaders entreat companies to voluntarily contribute as a way of serving the community. The Bolivian subsidiary of Birmingham, Alabama-based coal company Drummond, for instance, "contributes a significant percentage of the costs with equipment and tools, operators, equipment maintenance, fuel and the transport of the machinery to the communities" for road maintenance in the department (province) of Cesar. According to their estimates, in 2010 and 2011, they assisted more than 96 neighborhoods in the department, benefiting approximately 153,000 residents of the mining towns located within the department.[1]

The presence of companies and their ability to provide public services creates an opportunity for central governments to save money while still assuring that public services are provided. Because subnational governments can use companies as a resource — whether as a provider of services or a source of tax revenue — central governments can strategically create funding gaps in order to compel subnational governments to make use of these resources. In this chapter, I show that this leads to a prediction that conflicts with the existing literature. While many have argued that the central government's allies — subnational governments that have incentives to do what the central government wants — should receive the most money, my theory predicts that they should not. Instead, those with only moderate incentives to please the central government should receive the most. The reason is that, unlike the allies, there is a benefit to the central government of having an external actor provide, but also unlike those on the other extreme of the spectrum, the moderates are willing to ask for help.

In the next section, I briefly review some of the relevant literature, and explain why MNCs' provision of public goods should change how central governments allocate funds. Following that, I explain the intuition behind an implication of the formal model, and argue that transfers should only be monotonically increasing in the subnational government's incentives to please the central government if MNCs are not present to provide goods. If they are, instead, the relationship should be non-monotonic, with the most

[1] See $http://www.drummondltd.com/social-responsibility/public-service/?lang=en$ for more information.

and least incentivized receiving less than those in the middle. The key here is that governments on the extreme will tax the firm, which requires less money of the central government, while those in the middle will ask for help, which requires more. After I explain the theory, I describe my sample, some challenges with the data and modeling, and the specifics of the empirical testing. Because my data are too coarse to detect non-monotonic relationships properly, I indirectly the test implications of the theory, and am able to show that the monotonic effects of indicators of career incentives are present when corporations are not, but that these effects are nullified entirely when corporations are present. The penultimate section describes my findings, and the final section concludes with some implications of the findings, both normative and theoretical.

Background

Although often such behavior does not conform with common perceptions of large corporations, multinational corporations (MNCs) have historically been among the most notable non-government providers of goods and services. This type of 'welfare capitalism' reached its peak in the United States in the early twentieth century, with employers like Sears Roebuck, Endicott-Johnson, and Ford Motor Company operating cradle-to-grave welfare systems (Jacoby, 1997). In the developing world, foreign corporations have been engaged with service provision at the local level since investing abroad became a viable business option (Rothkopf, 2012). Although the most extreme and well-documented examples are large company towns such as Ford's (failed) Fordlandia in Brazil and Firestone's (still-operating) Harbel in Liberia (Grandin, 2010), much more common are examples of private firms filling gaps in the local service provision structure (Hönke and Thauer, 2014).

Unlike NGOs, which are inherently political and often exist with the stated purpose of improving welfare (Clarke, 1998; Brown, Brown and Desposato, 2002; Boulding and Gibson, 2009; Boulding, 2010), MNCs are typically neither political nor philanthropic organizations. Firms provide services when they believe that doing so is good business (Jacoby, 1997). Although these corporations can claim they are being good global citizens (Baron, 2001; McWilliams and Siegel, 2011), often these provisions occur not because of altruism, but simply because a local government official requested that the

corporation help fulfill a need (Lewis, 2005). Firms have incentives to satisfy these requests in order to ease tensions with stakeholders in the community (Henisz, Dorobantu and Nartey, 2014) and also because they are more profitable when public services and infrastructure are good (Jensen, 2006). Local governments, in particular, are stakeholders with leverage over the MNCs. Lower-level government officials are often more involved in the company's daily activities — issuing permits, conducting inspections, and so forth — than are central government officials. While MNCs would prefer, ceteris paribus, to avoid investing in countries in which the government may interfere in their business and pose threats to their profitability (Jensen, 2003, 2006), some MNCs may have only limited options in choosing their investment site, due to the need for certain location-specific assets (Markusen, 1995; Dunning, 1998). Further, some types of firms may face more risk of government interference than others by merit of their industry regardless of where they invest (Kerner and Lawrence, 2014). If firms are willing to pay to alleviate the risk or to buy access (Malesky, Gueorguiev and Jensen, 2015), it follows that they may also have incentives to provide public goods to satisfy the local government's requests.

When MNCs provide these public goods to their workers and surrounding communities, they take on roles typically associated with charities and governments. MNCs seldom take on the roles of central governments — for instance, they do not often[2] raise armies, regulate currency, or negotiate treaties. Yet they often take on the roles more frequently delegated to subnational governments, such as the provision of public goods and social services. Sometimes the corporate services complement the local government's provisions, and the two work together to provide services jointly or to coordinate their provision. Other times, the corporate services act as a supplement, providing the goods without government aid. In either case, the corporation is stepping into the role of a local government, and often doing so at the behest of that local government.

A far larger proportion of national spending is now done by lower-level governments than has historically been true, reflecting the increased service provision responsibilities of local governments (Figure 3.1). This spending is done by provincial, city, municipal,

[2]This is a relatively recent change. Historically, large companies did sometimes take on these actions. For instance, both Indonesia and India were originally private companies with their own militaries (Rothkopf, 2012). Similarly, in the not-so-distant past, company towns often had their own currencies, in the form of scrip that could only be spent in company stores.

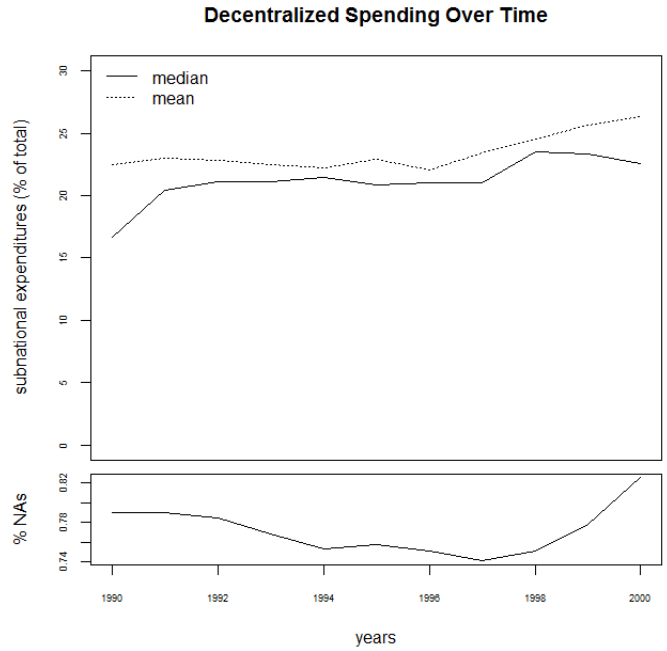


Figure 3.1: Increasing decentralization in subnational expenditures. Source: IMF Fiscal Decentralization indicators.

and village governments, and results in many of the social services citizens receive on a daily basis, such as schools, health clinics, and infrastructure. This increased spending requires increased revenue, and subnational governments are often unable to generate that revenue by themselves. Central governments may limit subnational governments' abilities to set the tax rate and base, stymie their ability to borrow, and require that all taxes be remitted to the central government (Bahl, 1998; Rodden, 2004). Further, even if they legally can levy taxes, the types of taxes lower-level governments typically can assess — business, property, and income tax — are among the most difficult to actually collect (Bird, 1989; Bird, Martinez-Vazquez and Torgler, 2008; Aizenman and Jinjarak, 2009). This leaves subnational governments heavily reliant upon transfers from the central government in order to provide the services expected of them (Falleti, 2010). If MNCs are having an effect on the local government whose services they are supplanting, as I will argue in the next section, the effect should be observed at the primary source of the funding for the government services: central government transfers.

While specific transfers— those transfers intended specifically to further central government objectives— explicitly allow the central government to maintain a hand in service provision, general transfers are also thought to be politicized (Case, 2001; Aru-

lampalam et al., 2009; Brollo and Nannicini, 2012). Specifically, much of the literature suggests that subnational governments led by "allies" of the central government — its co-partisans, for instance, who are have aligned preferences due to career concerns and a concerted effort to please the central government — should often receive more funding than non-allies. While not all of the literature focuses specifically on funding for public services, this argument still holds water in that specific application: allies are better agents and are more likely to spend the money as the central government would want it spent. By contrast, subnational governments that are not allies of the central government are not good agents, and should receive less funding.

In the section that follows, I explain why that straightforward logic does not always hold. Specifically, I explain why, when MNCs are willing to provide goods within a community, subnational governments led by the allies most eager to please the central government – co-partisans, appointees, and striving politicians early in their careers – should actually receive less funding than those who may be more indifferent about staying in the central government's good graces.

Theory

As a multi-government process, public service provision is sometimes characterized by conflicting goals. While all levels of the government may share the same broad goal — to keep the roads in working order, for instance, or to provide public education — different levels of government may diverge in what they conceive of as the ideal end result of that process. For instance, the central government may have a certain standard for road quality, while the local government may see road quality as less of a priority and be willing to accept lower quality roads if it means diverting resources toward improving waste management. Or the opposite may be true: the central government, with less local knowledge of the quality of the roads, may prefer that fewer resources be spent on them, while the local government instead views improving the roads as a serious public safety goal that requires a huge investment of resources.

Although any government's goals may driven by a number of factors, a useful and, from the central government's angle, consistent predictor of those goals is the local government's career interests. If a local government official sees pleasing the central

government as an important way to assure his future career success, the central government should be able to anticipate that the local government's service provision goals should match the central government's goals. This type of local government official can be termed an "ally". By contrast, if a local government official's future career success hinges in no way on being in the central government's favor ("uninterested"), the central government cannot in any way rely on that local government having aligned goals, and if the local government official is only moderately interested in pleasing the central government ("moderates"), the central government can assume the local government is somewhat aligned, but not perfectly. Thus, a local government's career incentives serve two purposes: they both shape the local government's goals and serve as a heuristic for the central government to help anticipate those goals.

The first category, local governments who are entirely uninterested in pleasing the central government, the uninterested, is made up of local governments that derive the source of their power from entities other than the central government and whose goals are unlinked, and perhaps even orthogonal, to the central government's goals. Local governments that are dominated by separatist groups – whether the government is actually from that group or whether the government is elected and the electorate heavily favors that group — for instance, may be the most extreme case in this category. Separatists governments, such as the Kurdish region of Iraq, the Transnistria region of Moldova, or even constituencies dominated by the Scottish separatists in the UK, have public service goals that may actually be quite deliberately the opposite of what the central government wants. In some cases this may be because they actually want entirely different things — they may want to run schools in a separate language and with a different curriculum, for instance — but they could also have public service goals that differ deliberately, as a statement of their own separateness. Less extreme examples may be local governments run or electorally dominated by parties that oppose the parties in power in the central government. The issue here is not that they do not want to provide clean water or trash pickup for their citizens, but that they may have entirely different policy priorities and, to the extent that spending is zero sum, they may want to allocate their resources in different ways. The central government may want them to fix up the roads, but they may prefer to focus on trash collection. More importantly, though, the central government can generally assume that these government's goals are not aligned

with theirs — they may sometimes correlate by chance or external influence, but the central government cannot rely upon their compliance, or even necessarily accurately gauge their goals.

The second category is local governments who are very interested in pleasing the central government, more succinctly called 'allies'. Local governments run by appointees of the central government have a very strong incentive to make sure they provide what the central government wants, because the central government can dictate their entire future. If these local officials want to secure a cabinet appointment or a future appointment in a nice location, or, conversely, avoid losing their job or being given an undesirable assignment, they ought to do as the central government wants. A slightly less extreme case is local governments who are members of the central government's party. These governments should have goals that are very close to the central government's goals, because the central government can serve as a source of valuable resources for them, and because they too may have an interest in being promoted to a cabinet appointee, for instance.[3] The central government can always rely upon these governments to have goals that are very closely, if not perfectly, aligned with the central government's goals.

The third group, the moderates, is the set of local governments that fit into neither of the above categories. They are neither extremely interested in pleasing the central government nor completely uninterested in it. Co-partisans of the central government that are in very electorally safe districts fit into this category. They may be able to foresee their future as lying entirely in politics within their own province just as long as they remain responsive to the electorate. Thus, they have some incentive to please the central government — remaining in good standing might help them in other ways — but they are not beholden to the central government's good graces. A similar story can be told of co-partisans of the central government in countries with weak parties. They have some interest in pleasing the central government, but they also are not doomed if they do not. From the central government's perspective, they may be a bit of a wild card — they are usually going to be at least partially aligned with the central government's

[3] Although it may seem that this should simply proxy for the interests of the electorate and thus not really be about career incentives per se, theoretically the career incentives of a party member may actually be strongest when they are in a district that does not have overwhelming support for the party. These officials may foresee less of a future governing in their own district, because a small electoral shift could knock them out of office, and may thus feel an even stronger incentive to look good in the eyes of the party so that they may be rewarded with an appointment or other employment elsewhere.

goals, but not necessarily reliably so.

When the central government delegates provision of a service to a subnational government, the end result can be unclear. Although the central government controls much of the funding for the services, the local government is actually on the ground, using the funds to do the work. Both levels of government have power, but in different ways. The central government can allocate more or less money, but ultimately the local government controls its own actions. Spending more only yields more services if the local government and the central government are in agreement about what should be provided, because the local government can always choose to raise less own-source revenue or not spend all of the money. Thus, if the local government's target is lower than the central government's, the central government can transfer more money, but is unlikely to result in more services provided than what the local government wants to provide.

In this way, over-funding local governments with lower provision targets is strictly irrational — local governments will only provide what they want to provide, regardless of whether the central government gives them exactly enough money or far more, and can reduce their contribution accordingly. Giving more funds to a region run by separatists is unlikely to persuade them to comply with the central government's wishes, for instance. Thus, we should generally expect that central governments will give the most money to provinces whose goals match best with their own, and that this funding should decrease as the subnational government's goals move further away.

Hypothesis 1: When companies cannot provide services (or there are no companies), central governments should transfer the most money to local governments run by allies.

Yet this dynamic changes when companies are willing and able to provide public services. Central governments can use their funding strategically to have companies contribute to public services by cutting funding and relying on subnational governments to use the company's resources to fill the gap. Subnational governments can use the company's resources by asking the company for help or by taxing the company. Which they choose hinges on how much they expect companies will provide. Although there is variation across firms — larger firms will provide more services, and firms will provide more if the service in question greatly improves their profitability, for instance — the

firm's contribution is generally fixed, in that the subnational government has no control over it. By contrast, the firm can control the resources it gets out of the firm if it sets a tax rate, although at the cost of having to impose and collect that tax.

Although the amount the firm will provide is not within the subnational government's control, how large it appears to the subnational government is relative. If its ideal service provision level is low, the firm's provision seems high, and if the ideal service provision level is high, the firm's provision seems very low. Because asking precludes the subnational government from taxing, such that the central government must pay all but the firm's contribution if the subnational government asks for help, this relative contribution proportion is the key to whether the central government will try to compel the subnational government to ask for help. The lower the proportion the firm will pay, the less money the central government saves by having the subnational government ask for help. Thus, when the subnational government's goal is very high, the firm's proportion is relatively small and the central government's expenditure commensurately large, so the central government is better off by giving the subnational government nothing and allowing them to tax the firm instead. As the subnational government's goal decreases, the firm's contribution makes up a much larger proportion, meaning the proportion the central government has to pay decreases. Thus, the greatest benefit to the central government would be having the uninterested seek out help, since the firm would pay for all or almost all of the provision, letting the central government off the hook entirely.

Yet the uninterested will not ask the company for help, precisely because the company's contribution is so large. This large contribution is overkill, and leads the subnational government to overshoot its goal. The uninterested province can instead hit its goal by levying only a small tax. It is willing to trade off this small cost of taxation to be closer to its service provision goal. Thus, although the value to the central government is greatest when the goal is low, subnational governments with low career incentives, and accordingly low service provision goals, can never be compelled to ask the company for help.[4] Instead, the central government gives them little to no money and has them tax the firm, just as they do for the high-goal subnational governments.

[4]The central government would actually need to take money from the subnational government to compel them to ask for help.

The result of these two conflicting processes — the benefit of compelling the subnational government to ask for help increases exactly as the willingness of the subnational government to ask decreases — is that moderation wins out. While high-goal provinces receive no money because asking for help does not benefit the central government, while low-goal provinces receive no money because they will not ask for help, moderate provinces will ask for help and the central government benefits from them doing so. This leads to Hypothesis 2.

Hypothesis 2: When companies are present and able to provide services, those with moderate incentives to please the central government should receive more funding than those on either extreme of the career incentives spectrum.

A third implication arises from the model, although somewhat indirectly, because these two hypotheses predict different relationships. In one world — where the corporate presence is insufficient to be relied upon to provide an adequate amount of services — the theory predicts that allies should receive the most funding, but in the other world — where the corporate presence *is* sufficient to provide services — the moderates should receive the most. Yet the theory does not provide a clear delineation between these worlds, although both worlds can co-exist within a single country. Some allies should receive a lot in funding, while other allies should receive nothing. Certainly, when there are no companies in a local government's jurisdiction, that local government exists in the first data-generating world, but how large must the corporate presence be for that local government to slip into the second world? Where should we expect to see a monotonic relationship between career incentives and where should we expect to see a non-monotonic relationship? Thus, we should expect there to be some threshold within each country, below which we expect allies to do better than moderates, and above which we expect the moderates to win out.

Hypothesis 3: There is a threshold level of corporate presence above which the central government considers strategic withholding to be an option, and below which it does not.

Sample

To test the three predictions of this theory, I look for evidence in multiple countries. Because my theory is not specific to any specific country or region, including multiple countries allows me to accumulate evidence, while ruling out country-specific variables. The choice of which countries is important, though, as the theory has three general scope conditions that underlie the structure of the model. First, the country must be decentralized. That means that at least some services must be provided by subnational governments. This rules out countries where the central government provides everything or the country does ot really have subnational governments, such as Singapore. Second, the subnational government must be somewhat reliant upon the central government for the funding for those services. This rules out highly federal countries, such as Belgium. Third, there must be enough large corporations operating within the country that anticipation of corporate philanthropy in some units is reasonable. f these three conditions are satisfied, the formal theory's structure and conclusions should apply.

As such, I limit my sample to the top ten developing countries in terms of inward foreign direct investment (FDI), as determined by the 2015 World Investment Report. Of these ten, I omit Hong Kong and Singapore on the grounds that they are very small and not decentralized. The remaining eight countries[5] are guaranteed to have significant corporate presence, and have decentralized service provision. Sufficient corporate presence is crucial both because it typically ensures there is within-country variation in corporate presence, and also because it means that corporate-provided public goods are likely to be an option in at least some provinces of the country. It also increases the likelihood that the central government and provincial governments are familiar with the operations and motivations of MNCs, and are aware that public goods provision is an option. To date I have collected data on China, India, and Indonesia, and so those are the sample used in this chapter. Although these countries satisfy my scope conditions, they differ in many other ways, including democracy, federalism, colonial background, and culture. Combining them allows me to rule out those variables as causes of the relationships I uncover.

For each of the countries, I examine the career incentives of the executive of the

[5]These countries are China, Brazil, India, Chile, Mexico, Indonesia, the Russian Federation, and Colombia.

highest-level subnational unit, the unit that is directly below the central government in the hierarchy. I refer to these generically as "provinces", although the names vary. All of the countries entrust their provincial governments with carrying out many of the same central government priorities: chiefly, infrastructure and development.[6] The countries vary in how many provinces they have, both cross-sectionally and temporally, with only China not adding at least one province over the time period in question.[7] Provinces are the ideal level of government to study for a few reasons. In each country they are the level of government most directly responsible to the central government, and in all countries they receive their funding directly from the central government. They tend to be responsible for similar types of services across countries, while this cross-national comparison becomes murkier when considering lower levels of government. Further, from a practical perspective, many data are not available disaggregated further than the province level. I look at executives because they direct the activities within their provinces and provide a single heuristic for the central government.

Data Challenges and Solutions

Studying subnational governments poses problems not only for theory and modeling, but also for data collection. Subnational data is often difficult to find and is typically not comparable across countries. Worse, even if data can be obtained, subnational data disseminated by governments— especially development data— may be ripe for manipulation (Wallace, 2016). At best, this renders its quality and reliability questionable, and at worst it means that the data may capture different concepts from what is intended. While within a single country this may sometimes be acceptable if the deviations are consistent across provinces (e.g., every province reports higher numbers but the ordering stays generally the same) or entirely random (e.g., just introducing noise into the process), this is a serious problem for comparing subnational units across countries because it renders the measures entirely unreliable. As a result, while I am constrained to use intergovernmental transfer data provided by governments, I aim to find measures

[6] There is some variation accounting for other country-specific priorities. For instance, Indonesian provinces are also entrusted with combating deforestation, which is a serious concern of the central government.

[7] Over the time period in my data, India added one, and Indonesia added five. China last added a province (Hainan) in 1988.

of other concepts of interest — such as development, damage done by natural disasters, and NGO presence — that do not rely upon government reporting and that are difficult for governments to manipulate. This should allow for the measures to be comparable across countries and time, which aids both in estimation and inference.

A second challenge of studying subnational governments across multiple countries and years is assuring that the relevant comparisons are being made and that the local context is taken into consideration. For instance, if I am interested in studying the effect of a given variable on fiscal transfers, using the raw data for that variable can lead to misleading inferences. This is because the distribution of the variable differs both across countries and within countries over time. Because I am interested in a decision being made in a given year by the central government, the relevant comparison is between the different provinces within the same country in the same year. What is going on in provinces in other countries, or what may happen in any given province in the future, is irrelevant to the choice at hand. Yet those are implicitly considered relevant comparisons when the data are not properly transformed. Not accounting for this feature of the data risks obscuring the relationship between variables and leads to making out-of-sample predictions.

Accordingly, I adjust all independent variables[8] in the model to reflect the geographic context. Instead of using raw numbers, I standardize each variable within its country-year to have a mean of 0 and a standard deviation of 1. This means that the value for each province is not its raw number, but rather how many standard deviations it is above or below the mean value for provinces within its country-year.[9] In addition to making sure that relevant comparisons are being made, this has a few other benefits. First, it makes the results more easily interpretable— a one-unit increase is a single standard deviation for each country-year, alleviating the difficulty of figuring out if an increase of $1000 USD in GDP per capita, for instance, means the same thing for each province. Second, it aids in setting the priors for the Bayesian model, because I know

[8] Following Gelman (2007), I standardize both dichotomous and continuous variables in order to put them on the same scale.

[9] Relative age is calculated slightly differently because the temporal context also matters— not only do people get older each year, but norms and laws about retirement/recruitment and expected life spans all change across time. A 60-year-old executive may be considered near the end of his career by the standards of 2000, but would have been considered in the middle of his career by the standards of 2014. To account for this, instead of measuring standard deviations from the mean in the country-year, I use standard deviations from the mean in the country for all years up to and including the current year to reflect an executive's relative age by the standards of both its country and time.

that all independent variables are distributed approximately $\mathcal{N}(0, 1)$ by construction and that the effect of any independent variable has clear and predictable bounds (i.e., a narrow prior is defensible because the effects are constrained to be very small[10]).

Data

In this section, first I discuss the source and nature of the dependent variable, transfers per capita. Then I discuss the different indicators of career incentives that I use as the independent variable, and the data that I use to estimate the threshold and separate the province-years into the two groups. Afterward, I briefly discuss the control variables included in the analysis.

Dependent Variable

The dependent variable in this analysis is *transfers from the central government to the provincial government* on a per capita basis ("transfers per capita").[11] There is variation in how intergovernmental transfers are carried out in these countries. China takes a 'trickle-down' approach to intergovernmental transfers: the central government transfers money to the provincial governments, which in turn dole out money to the counties, who determine funding for the prefectures, cities, and municipalities. As a federal country, India's system is similar, in that most of the money is transferred to states, which then handle most of the financing within the states. In Indonesia, by contrast, the central government allocates funds to the provinces and also to levels of government beneath the provinces, rather than the provincial governments determining allocations to the lower levels. In each country, some of the funding is, at least ostensibly, based on a formula, while either the residual or other streams of funding are more discretionary in nature.

To account for these variations, I only analyze transfers that are meant specifically to carry out central government objectives ('targeted transfers'). Many countries have some version of this type of transfer.[12] Often these types of funds are targeted toward

[10] A drawback to this is that very small effects may be statistically indistinguishable from zero, as all but very narrow posterior distributions are bound to overlap zero. This will be discussed in greater detail below.

[11] I thank Jorge Martinez-Vazquez and Yongzheng Liu for generously sharing their data for China. All other data are available from governmental websites of the respective countries.

[12] In Indonesia, it is the DAK. In India, it is money from the India Planning Commission meant to

developmental or infrastructure concerns, especially as more local-level public goods (e.g., schools, health clinics) are typically carried out by levels of government below the province. All values are measured in per capita single units of each country's currency.[13]

The scale and distribution of transfers varies within countries, between countries, and over time. The standard deviation of transfers per capita in each country-year is helpful to grasp how much within-country variation there is, and how it compares within a single country across time (Figure 3.2). Indonesia, which allocates funding to some provinces while allocating no targeted funds to others in certain years, exhibits the most variation when we compare the countries. This is true in any year in which data are available.[14] By contrast, China has the least within-country variation in its funding for most years, meaning that it tends to allocate resources more evenly.

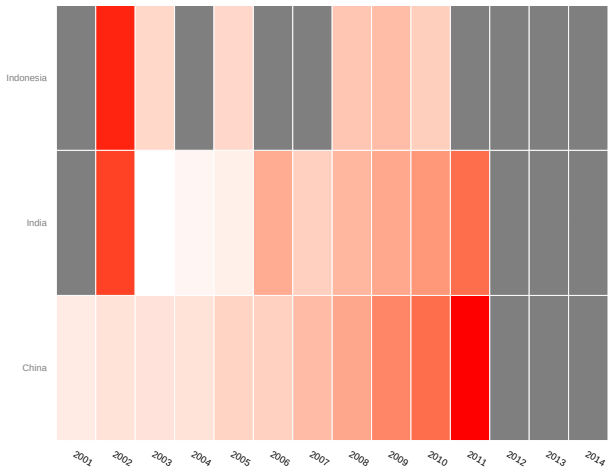


Figure 3.2: Standard deviation of transfers per capita per country-year. Darker colors indicate more variation.

Independent Variable: Career Incentives

The theory suggests that we should see two different data generating processes linking a provincial executive's career incentives with the amount of transfers per capita his province receives from the central government. When corporate presence is low, and

implement Five-Year development plans. In China, I assume that all money transferred is intended to carry out central government goals because of the nature of the governing system.

[13] e.g., Rupees per capita or Rupiahs per capita, rather than Rupees in crore per capita or ten thousand Rupiahs per capita

[14] In 2004 and 2006-2007, there were no funds transferred to any provinces in Indonesia, although targeted funds were allocated to lower-level administrative units. Although these are in the data as known zeros, not missing data, they appear gray on this plot just as years with missing data do because there is no variation.

strategic withholding is not an option, the relationship should be monotonic. When corporate presence is sufficiently high, however, strategic withholding becomes a viable option for the central government, and the theory predicts a non-monotonic relationship.

Measuring a provincial executive's career incentives, or the degree to which he has career-related reasons to please the central government by fulfilling its mandates, is not a straightforward activity because 'incentives to please the central government' has no natural measurement. It is conceptually continuous, but it has several observable manifestations, many of which are dichotomous. Its source and its manifestations are neither wholly institutional, nor wholly behavioral. As a result, instead of a single measure of the latent career incentives measure, I use four related variables: selection mechanism (appointed or not), co-partisanship, relative executive age, and whether turnover in the province has led to there being multiple leaders in a province in a given year. All of these should both shape the subnational government's goals and the central government's ability to anticipate those goals, which makes each of them a reasonable proxy for the underlying measure, although none of them captures it in its entirety. Each is discussed in turn below.

Some of a provincial executive's career incentives derive from the way they rise to and remain in office. Appointed provincial executives — such as the administrators of the union territories in India and the provincial governors in China — derive their authority strictly from the central government, and should be expected to face strong incentives to do as the central government says. For some officials, pleasing the central government may be a good way to assure that they will either be promoted or appointed to a higher-level position, or to assure their continued tenure in their current position. Yet there is variation among appointed officials in whether and how well they fulfill central government mandates. If selection mechanism were the sole determinant, all Chinese provincial governors should be equally likely to fulfill the central government's mandates, but we know that this is not the case. In part, this is probably because Chinese officials do not all face equal probability of ascending in the hierarchy (Shih, Adolph and Liu, 2012). In a similar vein, some provincial executives are directly elected by voters, while others are indirectly elected by the provincial legislature, and one (Yogyakarta, Indonesia) is a hereditary monarch. Thus, while being appointed tells part of the story, it does not capture the entirety of the concept. With that in mind, I include

a dummy variables for whether the provincial executive is *not appointed*.[15] This means that appointed officials are the reference category, as they have the greatest incentives to do as the central government says.

Partisanship is also likely to be a strong determinant of whether it is in a provincial executive's best interest to fulfill the mandates of the central government. Provincial executives belonging to the same party as the central government are likely to have an incentive to fulfill the central government's objectives. Doing so may allow them to advance in the party. Unfortunately, this too is not a perfect single measure of career incentives because it can be difficult to determine whether a co-partisan is carrying out the central government's mandate because they are told to or because they want to. In other words, it is difficult to distinguish career incentives from sincere policy preferences or the preferences of their electorate. Additionally, just as with appointed officials, there is variation within co-partisans — not all may be equally interested n pleasing the central government. To account for the effect of partisanship, I include a dummy variable for *co-partisanship*, or belonging to the primary governing party in the central government.

As a third measure, I include the *provincial executive's age*. However they come about, career concerns become less important as individuals near retirement (Lott, 1990; Davidson et al., 2007). As the shadow of the future shortens, provincial executives become less concerned with their career prospects – as they have less and less career left – and thus less likely to take actions that are driven by those concerns. For that reason, I use the age of the provincial executive at the time of serving as a proxy for career incentives. Younger provincial executives, for whom the shadow of the future is long, are driven more by considerations for their career, and these career incentives diminish in importance as the provincial executive ages and the amount of career they have remaining decreases. I adjust this variable to account for a provincial executive's age, within the context of his country and time. I do this by determining how many standard deviations his age is from the mean age of all provincial executives in his country, either in his year or preceding years. In other words, I compare each provincial executive with the contemporary and historical age distribution in his country, to determine if he is 'young'

[15] I group directly elected, indirectly elected, and hereditary governments together, since the theoretical prediction for each is only clear in so far as they are not appointed. That is, it is not clear whether directly elected or indirectly elected executives, for instance, have a greater incentive to please the central government. Indian state-years under President's Rule for more than one month are coded as appointed.

or 'old' by the standards of his place and time. Were I to pool all of these together, rather than standardizing them in this way, the scale would be incorrectly calibrated, because a Chinese governor near the end of his career[16] would not be considered 'old' in India and so they should not be compared on the same raw scale.

As a fourth measure, I include a dummy variable for whether a province had *multiple leaders* within a single year. This can come about as a result of an election, but also as the result of resignation, death, sickness, being appointed to another position, or arrest. This is related to the provincial executive's career incentives, as having multiple executives within a single year muddies the waters considerably. It disrupts the central government's ability to make judgments about what the provincial government is likely to do as well as what the subnational government actually wants to and can do. As a result, the expectation is that province-years with more than one leader in that time span have decreased career incentives to please the central government, relative to those with a single leader.

Threshold Variable: Corporate Presence

The third key variable for the analysis, other than transfers per capita and career incentives, is *corporate presence*. Corporate presence forms the threshold between the two data generating processes — when it is sufficiently high, we expect the relationship between career incentives and transfers per capita to be non-monotonic, and below that we expect it to be monotonic. The reason is that there must be a certain amount of corporate presence in the province for the provincial executive to even have the option of seeking out an MNC to provide— an executive in a province with few or no companies simply has no one he can ask for help. To determine the threshold, I use data on relative physical presence of plants: how much of a province's land is covered by factories of major multinational corporations. I do this by using Google Earth to measure the geographic size of each production facility campus of the twenty largest multinational corporations in the world.[17] (Table 3.1). I record both the size (in square meters) and the geographic location. I do this for every year in which historical data are available on

[16] Chinese governors are expected, but not required, to retire at 65 (Landry, 2012). Although they also face term limits, the data suggest they are not strictly followed.

[17] These include joint partnerships (where they can be identified), which is crucial in India and China, where investment is often limited by law and joint partnerships are an important way to serve the domestic market.

Google Earth in order to capture when factories are built or expanded[18] Then, for each province, I determine the sum of total plant size in that province as a percentage of the province size. The larger the physical spread of corporations within the provinces, the more people they are likely to employ, the more government support they are likely to require, and the greater their incentive and ability to engage in service provision.

A few patterns become immediately apparent when looking at these data. First, in many provinces there are no plants from these companies (Figure 3.3). This is most striking in Indonesia, which receives a lot of investment that is clustered in only a few provinces. In Indonesia, only six provinces have investment from the top 20 MNCs. Riau and Kalimantan Timur both have oil and natural gas investment, while most of the manufacturing investment from these companies is in Jawa Barat and Jakarta. A second observable pattern is that manufacturing facilities tend to cluster in and around major metropolitan areas. Because these provinces are typically dramatically smaller than others, it means that their plant density (plant size relative to province size) is much larger than for other provinces. For that reason, Figure 3.3 omits Shanghai[19], both of which have investment that so dwarfs the other provinces that all variation is obscured, or collapsed into the binary of "Shanghai" and "Not Shanghai". That said, the distribution of investment is much broader in India and China than in Indonesia. Although most of the investment in India outside of Delhi is in Karnataka state — home of Bangalore (Bengaluru), India's technology hub — plants are spread across most of the central and western parts of the country, as well as in Calcutta (Kolkata) in West Bengal and in Uttarakhand state.[20] In China, most of the investment is along the coast, in keeping with general perceptions of investor behavior, as well as in well-known investment hubs like Dalian (in Liaoning), Harbin (in Heilongjiang), and Changchun (in Jilin) in the Northeast.

Looking at the top 20 largest transnational corporations by foreign assets has a number of benefits. First, by construction, these companies are the largest drivers of foreign investment in the world. MNCs may also tend to draw other companies — suppliers, competitors, and related industries, sometimes foreign but often domestic — to invest

[18] For most plants, the earliest available satellite images are from 2002.
[19] Much of the corporate presence in Shanghai is driven by a very large BP plant.
[20] It was the Nestle plant in Uttarakhand that was the center of the summer 2015 Maggi noodles scandal in India, in which high levels of lead were found in samples of the popular instant noodle brand, that briefly made the news worldwide.

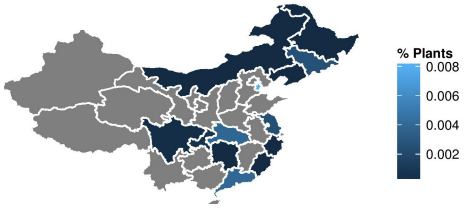


Figure 3.3: Plant density: area of plants from Top 20 transnational corporations as a percentage of total provincial land area in China, as an example.

in the same geographic location and create markets for local subcontractors, in order to reduce transaction costs and to benefit from externalities created by the large investor (Schmitz and Nadvi, 1999; Doner and Hershberg, 1999). This makes MNC investment a good heuristic for broader investment trends. Second, because many of them are clustered in industries characterized by high levels of fixed-cost investments, such as petroleum extraction or utilities, their investment can reasonably be considered exogenous to the variables in the model (i.e., petroleum and liquid natural gas extraction is limited to investing in places where there is petroleum or liquid natural gas, so it is unlikely they can avoid areas in which they might be asked to provide goods). Third, very large corporations are most likely to have the institutional structure in place to contribute successfully to service provision (Hönke and Thauer, 2014).

This measure is more appropriate than foreign direct investment (FDI) for three reasons. First, looking at physical plant size provides a fairly direct measure of the concept, as it is reasonable to expect that larger plants are more likely to see it in their interest to engage with the community. This measures activity on the ground in a very practical way, rather than looking at balance of payments measures, which do not measure whether or how the assets are deployed and can be rendered misleading by the presence of tax havens (Kerner and Lawrence, 2014). Second, this measure is not necessarily limited to investment by foreign companies, although in practice none of the large multinational corporations in my data are based in these countries. This is important because foreign and domestic corporations are not necessarily different for my purposes— as long as they have sufficient presence and incentives to engage in service provision, it matters little where they are headquartered.

Name	Home Economy	Industry
General Electric Co	United States	Electrical & electronic equipment
Royal Dutch Shell plc	United Kingdom	Petroleum expl./ref./distr.
BP plc	United Kingdom	Petroleum expl./ref./distr.
Toyota Motor Corporation	Japan	Motor vehicles
Total SA	France	Petroleum expl./ref./distr.
Exxon Mobil Corporation	United States	Petroleum expl./ref./distr.
Vodafone Group Plc	United Kingdom	Telecommunications
GDF Suez	France	Utilities (Electricity, gas and water)
Chevron Corporation	United States	Petroleum expl./ref./distr.
Volkswagen Group	Germany	Motor vehicles
Eni SpA	Italy	Petroleum expl./ref./distr.
Nestlé SA	Switzerland	Food, beverages and tobacco
Enel SpA	Italy	Electricity, gas and water
E.ON AG	Germany	Utilities (Electricity, gas and water)
Anheuser-Busch InBev NV	Belgium	Food, beverages and tobacco
ArcelorMittal	Luxembourg	Metal and metal products
Siemens AG	Germany	Electrical & electronic equipment
Honda Motor Co Ltd	Japan	Motor vehicles
Mitsubishi Corporation	Japan	Wholesale trade
EDF SA	France	Utilities (Electricity, gas and water)

Table 3.1: Top 20 largest non-financial transnational corporations, ranked by foreign assets, 2012. (Source: UNCTAD)

Control Variables

Much of the variation in fiscal transfers can be accounted for by other factors that have been discussed at great length in the literature. Because my theory predicts patterns in fiscal transfers that indicate that corporate presence alters central government strategy, but does not aim to provide an overarching theory of the determinants of fiscal transfers, I include these variables in my analysis to allow my theory to explain that variation that remains after they are accounted for. Those other factors can be broken into two broad categories. The first are practical or political characteristics of a province that may result in a provincial government warranting larger transfers. The second are characteristics of the provincial executive that may lead them to carry out the central government's mandates without explicit career incentives to do so. As discussed before, all variables are standardized to have mean 0 and standard deviation 1 within each country-year.

There are many practical and political considerations that would lead a central government to want to provide more funding to a provincial government, regardless of the characteristics of its executive or any strategic withholding. Some provinces, for instance, may just need more funds than other provinces do for reasons exogenous to my

theory. For instance, provinces that have been hit by natural disasters may receive more infrastructure and development transfers. To account for that, I include a measure of the cost of the damage wrought by *natural disasters* in each province-year, measured in US Dollars. This measure is constructed from data from EM-DAT, the International Disaster Database, from the Centre for Research on the Epidemiology of Disasters. From their country-level data, I code the province(s) or state(s) in which each disaster occurred. Each disaster is associated with a total cost at the country-level. Because the disaggregated location can be identified, but the cost cannot be disaggregated, I assign the total amount of damage to each province in which the disaster occurred.[21] This produces a measure that shows where each disaster occurred and what the overall severity of the disaster was.

Lower levels of development also may warrant a provincial government receiving more in funding. Many government-reported development measures, such as GDP per capita, although commonly used are also likely to be subject to government manipulation (Wallace, 2016). Instead, assuming that higher levels of development can be inferred from populations with greater amounts of disposable income, I use the presence of Western fast food restaurants as a measure of development. Specifically, because of their popularity in the region, I use the number of *Yum! Brand franchise restaurants* (KFC and Pizza Hut) per square meter. I gather this data by scraping both the company websites in each country to gather store locations, as well as the Wayback Machine for the time-series data. This measure has a few benefits over using more conventional measures like GDP per capita. In addition to not being easily manipulated by governments, it accounts better for the distribution of income within a society. For example, if the wealth in a society is concentrated among a small number of people, this measure will be a better representation of the level of development if those people live near one another, as there is a natural cap on the number of fast food establishments that can be in any geographical area. Thus, the measure will account for the high number of restaurants in the small area, and note the dearth of restaurants elsewhere, and draw different inferences than would a measure that assumes the wealth is evenly distributed.

[21] This may not necessarily correlate well with actual disaster severity, as damages are likely to be greater in more populated areas where there is more to be damaged and more people likely to report said damage. Because I am interested in the central government's incentives to transfer funds on the basis of disaster relief, damages is thus a more appropriate measure than the number of dead or injured.

The same applies if the wealth in a province is driven by an industry that neither employs nor enriches many citizens of the province (for instance, natural gas extraction)—if disposable income does not increase, the measure will not conclude the province is highly developed, but dividing the GDP evenly would. A clear downside is that while it distinguishes well between the developed and the underdeveloped, it discriminates poorly among the underdeveloped provinces, many of which have zero franchises.

Some provinces may, independent of their need, have a greater ability to provide for themselves. The ability to generate own-source revenue through tax collection ("*tax capacity*") may make a provincial government less dependent upon transfers from the central government and also less likely to receive them. Being less dependent upon central government transfers may also make them less accountable to the central government (Malesky, 2008). I use the amount of taxes collected per capita as my measure of tax capacity. By necessity, these data are collected from governments.

Many countries, both within this sample and apart from it, have provinces that have some official degree of *autonomy*. Often, these provinces are home to ethnic or religious minority groups. Although they typically receive funding from the central government and are still responsible for carrying out the central government's mandates[22], they often have slightly differently laws and may have different governing structures. I have no theoretical expectations about whether they should receive more funding — for instance, if central governments try to use funding to retain some control over the province, which it lacks legally — or less funding – because often autonomous provinces have somewhat rocky relationships with the central government and tend to be populated by minority groups. Moreover, the effect of autonomy may vary by country, as central governments in different countries may regard their autonomous provinces differently or grant autonomy for different reasons. In any case, because autonomy is likely to have an effect on funding, I include a dummy for autonomous or semi-autonomous status and allow its effect to vary by country.

Fiscal transfers can also serve an explicitly political purpose in electoral democracies. Many studies have shown that central governments transfer more funds to their co-partisans in advance of elections (Arulampalam et al., 2009; Brollo and Nannicini, 2012). Assuming that central governments would prefer having their co-partisan officials

[22]This is not true in Hong Kong, Macau, and Taiwan, and so I omit those from my sample.

in power at the lower levels of government, providing them with more fiscal transfers in advance of an election may be a good way to do that. This sort of spending can improve the electoral prospects of co-partisan incumbents and, eventually, of the central government itself. Arulampalam et al. (2009) finds this to be the case in India, with an especially large benefit going to swing districts. Brollo and Nannicini (2012) finds evidence of politically-motivated transfers in Brazil by analyzing districts in which aligned incumbents either narrowly won or lost in the previous election, and finds that the municipalities with aligned incumbents in the current election receive far more funding than do others. It may also be the case that governments just generally dole out more money in the lead up to national elections, as part of a strategy of shifting macroeconomic policies in order to secure a central government electoral victory (Tufte, 1978; Hibbs, 1987; Franzese, 2002). Accordingly, I include a dummy variable for whether there is a *provincial election* in the coming year and whether there is a *central government election* in the coming year.

NGO investment may also have an effect on intergovernmental transfers. If NGOs invest in them, provinces may receive fewer intergovernmental transfers because NGOs are replacing government activity, or because NGOs are more likely to locate in places that are poorly off because they receive few intergovernmental transfers. I measure *NGO investment* using data on NGO placement from NGO Aid Map.[23] The data tell us in which provinces NGOs' projects were active and for which years. From this, I determine how many dollars in NGO aid in total was present in each province-year.

In addition to characteristics of the provinces themselves that may influence the amount of transfers they receive, there are characteristics of provincial executives other than their career incentives that may affect the amount of transfers their province receives. These are important to include because it can be difficult determining whether a provincial executive engaged in an action because he is following directions or because he agrees with the goal. As my goal is to isolate the effect of career concerns, I account for variables that may fall into the latter category. In particular, I control for ethnicity and religion. Because none of these countries had a central government run by minority groups, I include a dummy variable for whether the provincial executive belongs to the *dominant ethnic group* in the country[24], and one for the *dominant religious group*.

[23] I am grateful to Amanda Murdie for pointing me toward this valuable data source.

[24] I do not have ethnicity data for Indonesia. Excluding ethnicity entirely does not alter the substantive

Model Specification

The theoretical model suggests a monotonic relationship between the career incentives variables and funding per capita below a threshold, and a non-monotonic relationship above that threshold. The threshold value itself is unknown, I write the entire theoretical data-generating process as a Bayesian model with an endogenously-estimated ex ante unknown threshold. The Bayesian model is a linear model that estimates a threshold of corporate presence, sorts each province-year into the group either above or below that threshold, and then fits quadratic and linear age terms, along with a constant, and the other career incentives variables to each of those groups separately. Thus, I allow the effect of the career incentives variables to differ based on whether the province-year is above or below the threshold. The control variable coefficients are the same for both groups.

The point of running the model this way is to test the hypothesis that there are two groups of province-years, that what separates them is the level of corporate presence, and that the effect of career incentives on funding differs between the groups. The ideal test of the theory would be to have a single, continuous measure of the latent career incentives dimension and estimate its functional form in the different groups. Then, the model could estimate the threshold, sort the province-years into groups, and the resulting parameter estimates would yield a clear test of the prediction: a monotonic and increasing relationship below the threshold, and a non-monotonic relationship above. Unfortunately, the data are too coarse to permit this strategy. Instead, I test an indirect implication: a suite of predictions for each career incentives variable. The pattern in the suite of predictions reflects a penalty to the allies and the uninterested that is consistent with the theory (Table 4.1).

A key difficulty with observing manifestations of the latent dimension rather than a measure of the continuous variable itself is that we do not know exactly how the variables map to the underlying continuous scale. This is particularly fraught when the variables are dichotomous. If the function of the latent dimension is monotonic, this is fine — no matter where the dichotomous variable maps onto to the latent dimension, a one-unit increase in that variable will uncover a positive slope (Figure 3.4) and we

interpretation of the results.

infer the relationship between the variables is positive. By contrast, when the function is non-monotonic, the relationship we observe between the variables is dependent upon the mapping to the latent variable's scale. As Figure 3.4 illustrates, picking dichotomous variables such that "1" can be assumed to be near the top of the continuous latent dimension is necessary for the predictions in Table 4.1 to hold, because it assures that we uncover either a negative relationship or no relationship. This means the results are most reliable if we beliee high values of the variable are fairly extreme indicators. If, instead, the dichotomous variable maps to a segment of the latent dimension that corresponds to a part of the function that is increasing, we would uncover a positive slope and be unable to reject the relationship is linear. Thus, for each of the three dichotomous variables I use in the model, I assume that a "1" is near the high end of the dimension. No matter where the "0" falls – e.g., how low on career incentives is an official who is elected? All we know is that they are lower on the scale than if they were appointed – the prediction should be either a negative coefficient or no effect, depending on the span of a one-unit increase and the shape of the curve.

Although there are predictions for each of the career incentives variables (Table 4.1), ultimately it is the suite of predictions taken together that is important for supporting the theory. Because there are different measures of career incentives and the theory speaks to the broader concept but none of the variables in particular, the null hypothesis does not apply to any particular variable. The null hypothesis is that there is only one group— that is, corporate presence does not separate the data into two groups, and career incentives function the same way in all provinces. Thus, a null result on co-partisanship does not suggest a rejection of the theory since it implies the groups are not distinct. Instead, observing no difference in parameter values between the two groups would lead to rejecting the theory. In order to test this, I estimate the difference between the above-threshold and below-threshold groups for each of the career incentives variables. This produces not only a point estimate of the difference between the two groups, but also a posterior distribution that gives a statement of uncertainty. Thus, if the theory is correct, the outcome should be that the difference between the two variables is in the predicted direction, and sufficiently unlikely to be zero. In that way, the null hypothesis test is on the difference in the coefficients between the groups, rather than the estimate for any group.

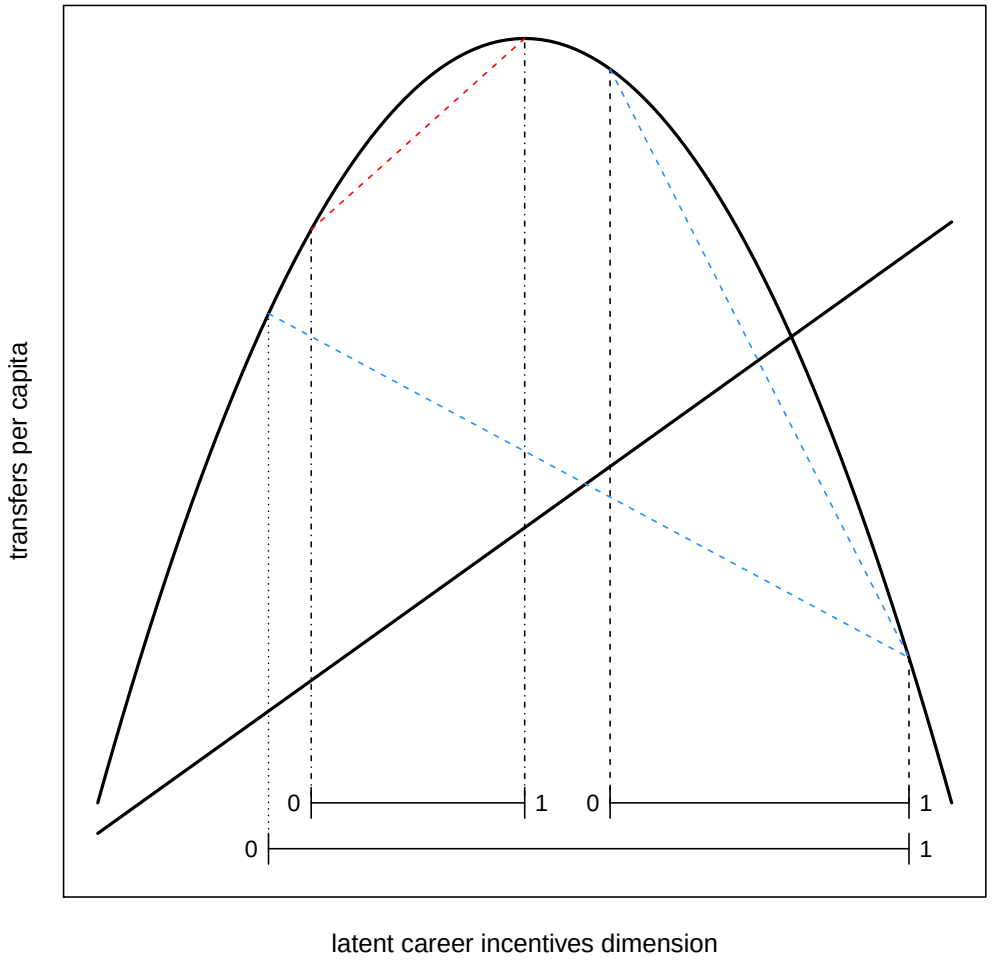


Figure 3.4: Stylized plot illustrating the difficulty with using dichotomous variables mapping to a continuous latent dimension. When a function is monotonically increasing, an increase of one in the dichotomous variable — regardless of how much of an increase it maps to on the continuous indicator — will result in a positive change in the function. This is not necessarily true with a non-monotonic function. As the far right and bottom lines indicate, if "1" in the dichotomous variable is anchored on the far end of the dimension, an increase of one will always result in a negative change in the function, or no change if "0" is the mirror image of "1". On the other hand, if the dichotomous variable maps to the increasing side of the function — if the indicator maps to moderation — the resulting change in the function when the variable increases is positive.

Variable	$z > z^*$	$z \leq z^*$
Age^2	-	+
Age	?	-
Not Appointed	+	-
Copartisan	-	+
Multiple Leaders	+	-

Table 3.2: Sign predictions for each of the career incentives variables.

All continuous missing data have a standard normal prior, and all parameters have a normal parameter with a mean of zero and an inverse variance parameter of ten. Standardizing the dependent variable to have a mean of zero and standard deviation of 1 allows me to set a fairly narrow prior on each parameter, as the effect of any individual variable should be smaller than the range of the dependent variable, which is also constrained to follow a standard normal distribution. Missing dummy variables have a Bernoulli prior with endogenously estimated success parameters. The model also estimates the variance term on the normal prior for the dependent variable, rather than assuming it.[25] The prior on the age-squared variable is left-truncated at zero to aid in convergence, as a squared term cannot be negative. The prior on the threshold, z^*, is standard normal, bounded on each end by the minimum and maximum corporate presence that province has received throughout time. The model is run using JAGS for R, and each model is run for 100,000 iterations with three chains. The first half of the iterations are discarded as a burn-in period. Convergence is assessed using the R-hat parameter, and convergence is deemed sufficient when all R-hat parameters equal 1.01 or 1.00. All models converge fully according to this criterion. All independent variables are coded with a one-year lag, accounting for the circumstances in the country-year when the central government is making its budgetary decisions, rather than contemporaneously with the funding being allocated.

Results and Discussion

Overall, the results suggest that there are patterns in the fiscal transfers data that support the theory (Figure 3.5). Although the estimates are imprecise[26], the signs on

[25] This allows me to check that the distribution from which the missing observations are estimated is the same as the known parameter for the empirical distribution.

[26] Although standardizing all of the variables had many benefits that were discussed above, there is one major drawback: constraining the range of the dependent variable makes small effects even smaller, and very small effects can be statistically indistinguishable from zero without extremely narrow

each of the career incentives variables are consistent with theoretical expectations, with the exception of the age variables. It is very clear to see that, while the career incentives variables reflect the relationships suggested by the literature for the province-years that are below the corporate presence threshold, these relationships disappear entirely above the threshold. Although the theoretical expectations for the age variables are flipped between the two groups, age seems to have no effect on transfers, while the other variables have a very pronounced effect, but only below the threshold.

The difference between the two groups is stark. When corporate provision is not an option, and the province is below the country-year threshold, provinces run by non-appointed officials receive half a standard deviation less in funding relative to appointed officials within the same country, and provinces that have multiple leaders within a single year receive a quarter of a standard deviation less relative to provinces with only a single leader. These effects disappear entirely when corporate provision is an option. When central governments deem the corporate presence sufficient to engage in strategic withholding, there is no benefit to provinces with appointed leaders, co-partisans, or those who have a single leader in a given year.

Additionally, the differences between the two groups are not driven by chance. For most of the career incentives variables, the difference in the estimates between the two groups is non-zero (Figure 3.6). Rather than looking just at the coefficient estimates for each group, estimating the difference between the two groups as a separate parameter produces point estimates of the difference between the groups and a statement of uncertainty in the form of a posterior distribution. Looking at these posterior distributions permits an assessment of whether the groups truly are distinct, and how certain that distinction is. If they were the same, the expectation would be that the posterior distributions of the difference parameters would be centered around zero.[27] What this shows instead is that the two groups are statistically distinct from zero for most of the parameters— for the co-partisanship parameter, the upper group has a lower coefficient than the lower group (a negative sign), and zero is only in the right tail. This suggests that co-partisans receive less funding when corporate presence is high.. For

posterior distributions. More succinctly: with the standardized dependent variable, small effects are very likely to have posteriors that contain zero in their tails.

[27] Indeed, in simulations where I sort the data into two groups at random, the posterior distributions are centered almost exactly at zero. See Appendix B.

non-appointed, the upper group has a positive coefficient, while the lower group has a negative coefficient, and the posterior distribution does not include zero at all, meaning that non-appointed leaders receive more funds when corporate presence is high. The result for having multiple leaders per year is similar — this is positive for the upper group, negative for the lower group, and has zero only in the far left tail. This means that provinces with turnover receive more money when there are companies present.

By contrast, there is almost no difference between the two groups as far as the age variables are concerned. As mentioned before, the quadratic term is positive and larger in the below-the-threshold group than in the below-the-threshold group — the opposite of what I predicted — and the difference between the groups in this regard is distinctly non-zero. This suggests that the non-monotonic relationship is present, but flipped, with the young and the old both receiving the most money.

One reason why the results may be weak is because the thresholds are estimated fairly imprecisely. As a consequence, the model struggles to consistently delineate the two groups— while about half of the data are sorted consistently into one of the two groups, the other half are inconsistently sorted, sometimes above and sometimes below. The plant density data is useful in that it is indicative of broader trends, but in only looking at plants from the top twenty MNCs, it creates a false dichotomy: provinces with major industrial activity, and everywhere else. This creates a sharply bimodal distribution of data where there should instead be more of a normal curve: a few provinces with major activity (Figure 3.7), some with fewer, and tapering off to those with negligible investment. What the results suggest is that a threshold exists[28], but it is somewhere between major activity and no activity, where there are little data. As a result, the model struggles to precisely estimate a value where no data exist, and instead, as occurs in these results, the credible interval spans the range of investment values where those missing values would be. This is clear from tracking the assignment of the province-years into the two groups — while the model has high certainty about some of the province-years, others it sorts somewhat haphazardly, sometimes placing it in the upper group and sometimes in the lower group.[29] More colloquially, the model knows the threshold is

[28] The model can reject the existence of the threshold. In simulations, where no threshold exists, the model estimates a threshold at either the maximum or minimum values. That is the opposite of what the model is doing here, so imprecise estimates should not be confused with a null result.

[29] Because this implies that the model is falsely assigning province-years to the below-threshold group, using the assignment results to hand-sort and re-run the model — that is, assigning only the province-

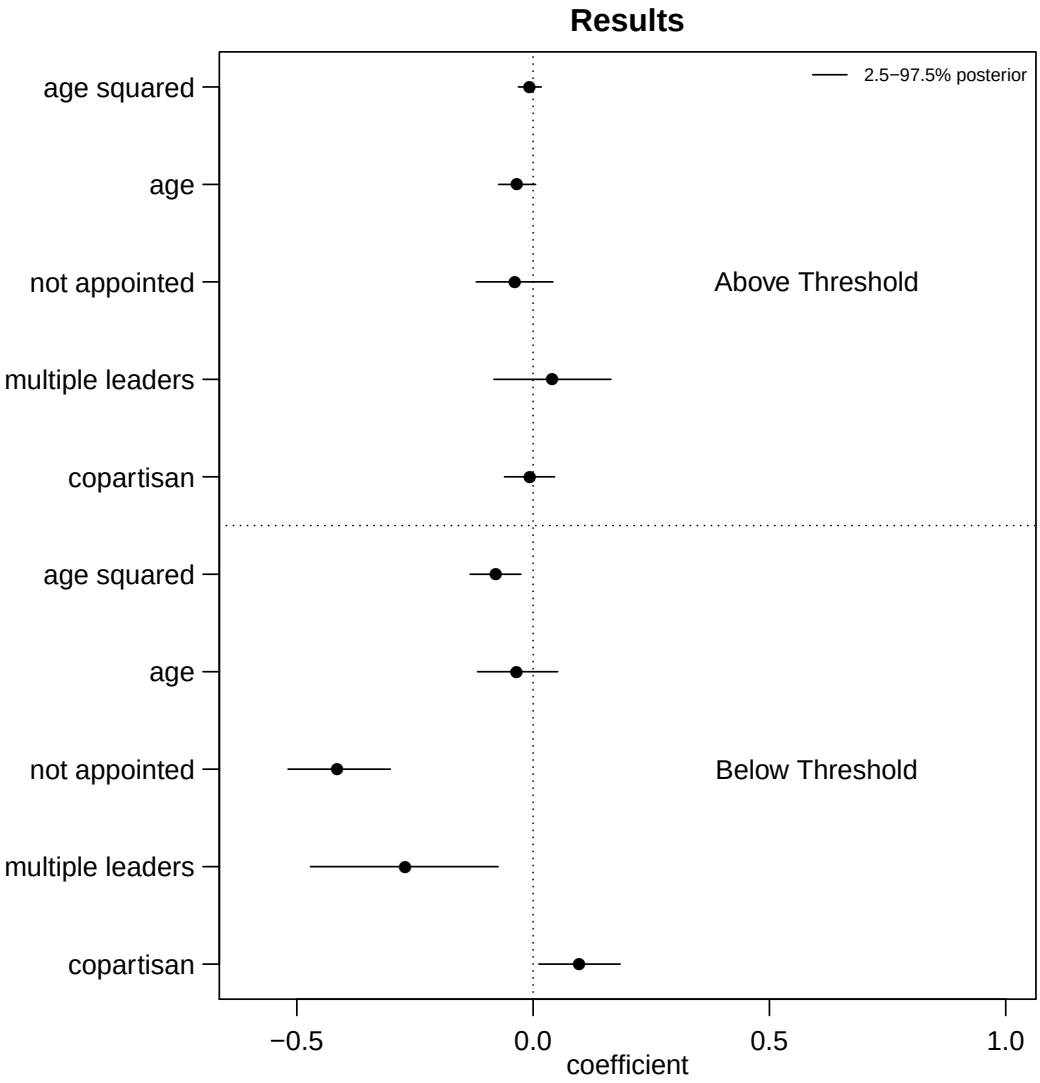


Figure 3.5: A dot plot depicting the results of the model. Dots are the mean of the posterior distribution, and the solid lines show the 2.5-97.5% bounds of the posterior distribution. Full results are in Appendix D. Forty-one percent ($N = 633$) of the province years are sorted consistently into the above-threshold group, and 7% ($N = 121$) are always sorted into the below threshold group. The remaining 51% ($N = 774$) are sometimes designated as one group and other times as the other.

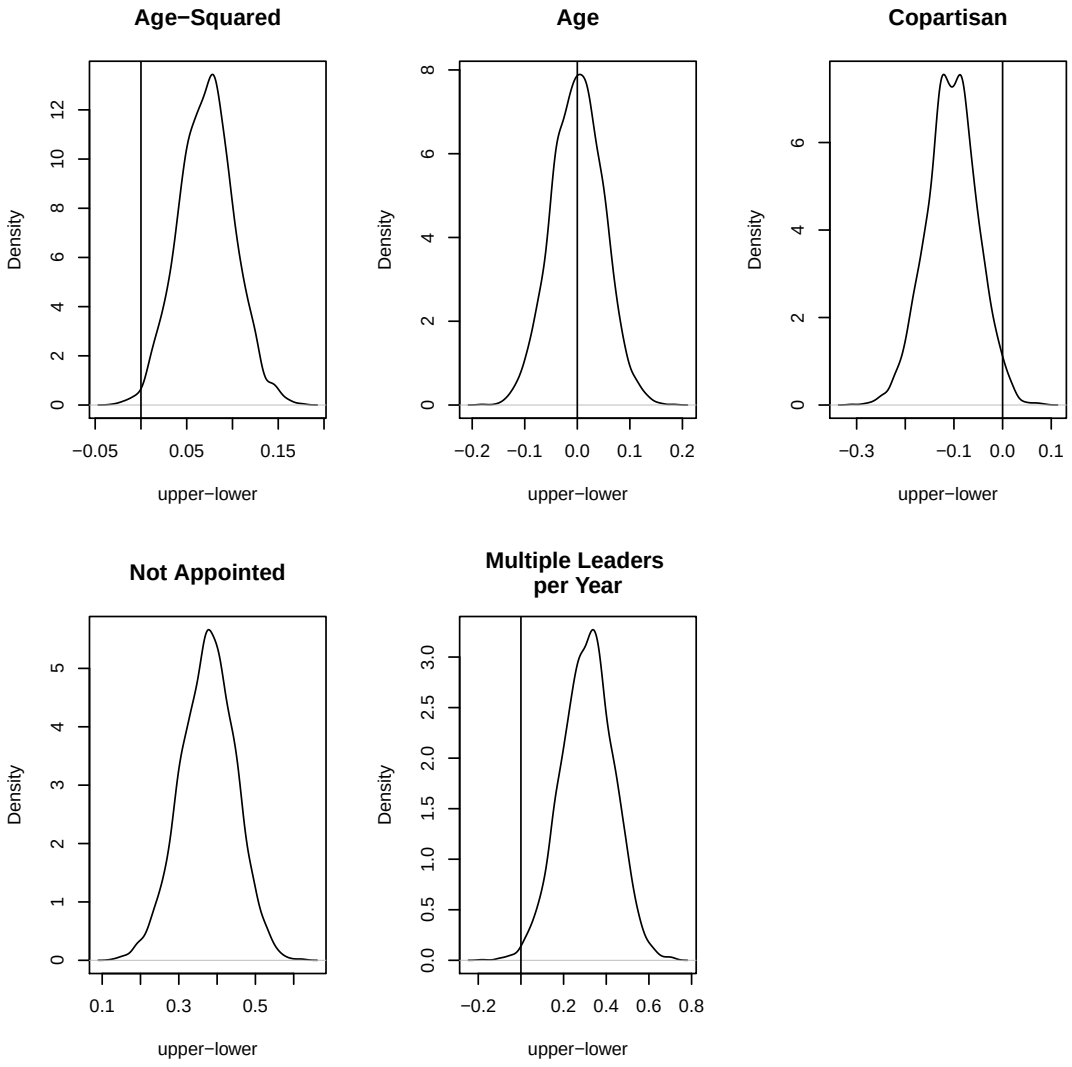


Figure 3.6: The posterior distributions of the estimated difference between the upper and lower groups. The vertical line sits at zero, which would indicate that the two groups are not distinguishable.

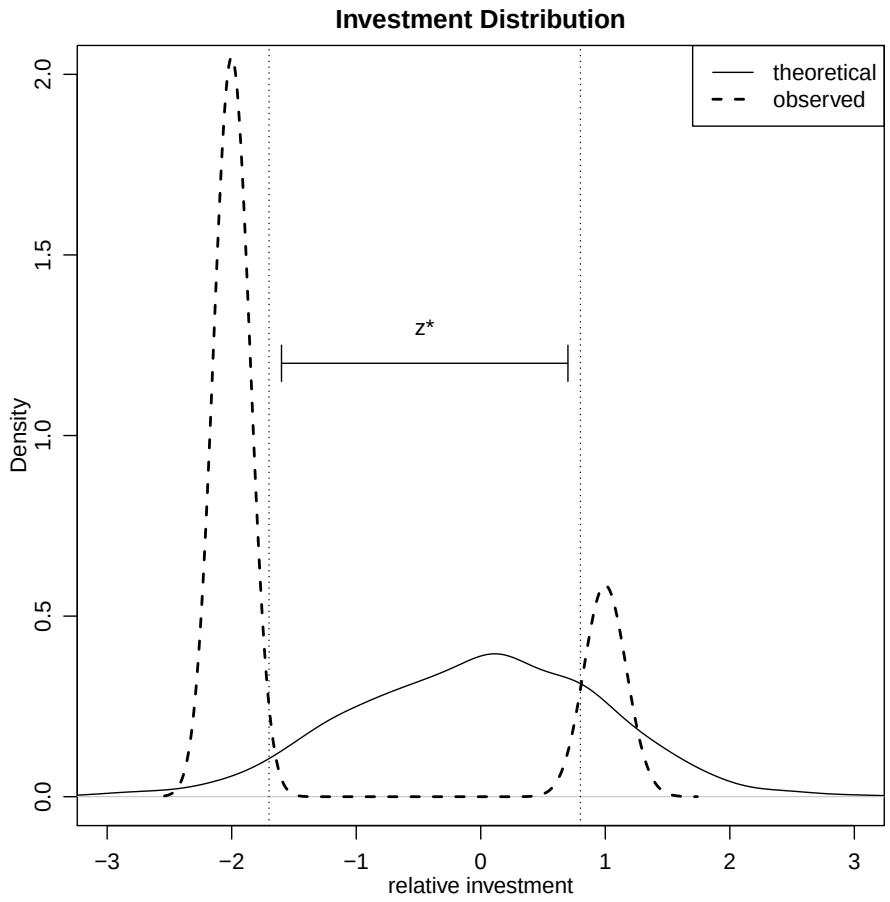


Figure 3.7: A stylized illustration of the problem with the paucity of investment data. Although the actual distribution of relative investment should be roughly normal — with a few provinces receiving a great deal, most receiving a little, and a few receiving none — the observed data pulls only from the tails, creating a sharply bimodal observed distribution of those with major investment and those without major investment. This creates a problem for estimating the threshold.

below the high-investment provinces, and above no investment, but cannot tell us more without more information. The few observations that are between those extremes can end up in either group at each iteration of the Monte Carlo simulations, which makes the estimates of the quantities of interest fuzzy when those estimates require the groups to be split. This can be easily addressed by collecting additional firm-level data. As that gap is filled in with data, and fewer provinces are classified as having no investment, the precision of the threshold estimates should increase substantially.

Much about the broader trends in the politics of fiscal transfers can be learned from this model, some of which conforms to the expectations of the literature and some of

years the model always sorts into the lower group into the lower group, and all others into the upper group– produces slightly more precise estimates. See Appendix C.

which merits additional theorizing. For instance, the results suggest that provinces with more natural disaster damage than their neighbors also receive fewer transfers per capita than do those other, less damaged, provinces. This is counterintuitive: common sense suggests that central governments should be moving in with disaster relief in the year following a natural disaster. Yet there are also good reasons to believe this is not a fluke. Disaster relief may come more quickly and through different channels than the standard yearly funding allocation. It would make sense for this money to come from a separate fund and be dispensed in a different and more ad hoc fashion, as disaster relief funds are needed immediately after the disaster occurs. Once the disaster relief is underway, central governments may then choose to allocate fewer funds in the coming year, to offset the money spent on disaster relief. Although the results suggest no independent effect of NGO investment, it may also be the case that NGOs rush in after a disaster, and then substitute for government activities, leaving the government to provide fewer funds. This second explanation seems the less likely of the two, as the data suggest that the provinces with the most NGO investment are not the same provinces that experience the most natural disaster damage.

In general, the results suggest a dominant religion penalty: provinces with an executive who belongs to the dominant religion in the country (assumed to be co-religionists with the central government) receive less funding than those belonging to minority religions. The dominant religion penalty may suggest that an alignment in preferences between the central and provincial executives results in a decreased need to provide funding, because the central government knows the provincial executive has similar goals and will use its own-source revenue to carry those tasks out. On the other side, the dominant religion penalty could, instead, be part of a strategy of catching flies with honey: central governments provide more funding to minority executives, in the hopes that this will sway them toward doing as the central government wishes. Perhaps due to the lack of variation in the data, the results suggest no effect of belonging to the dominant ethnic group.

I find evidence of heterogeneity among the countries in their treatment of autonomous provinces. This heterogeneity was expected, as the process resulting in autonomous status of provinces varies greatly across countries and across time, and as such I allowed

the effect of autonomous status to vary.[30] The results suggest that autonomous provinces receive more funding that non-autonomous provinces in China and in Indonesia, and that there is no discernible effect of autonomous status in India (where there is only one autonomous province, Jammu and Kashmir). I find no meaningful effect of tax capacity, NGO investment, or development on transfers, but the uncertainty estimate for development is exceptionally wide, possibly suggesting differences across or within provinces or insufficient data.

Conclusion

Corporations often seize any opportunity to improve their profitability. In particular, corporations will often provide public services to their workers and communities if gaps in public service provision harm their profitability. By funding provinces strategically when they have the option of enlisting the company's help to fill this gap, central governments can indirectly enlist corporations in providing public services. This can help central governments benefit from the presence of investment and save money, while still assuring that adequate public services are provided.

In this chapter, I discuss how this dynamic influences how central governments allocate funds to their subnational units. While those that are eager to please — the central governments' "allies" — are usually expected to be the favored provinces when funds are doled out, this changes when companies are present. Because allies have high service provision goals and asking for help precludes taxation, the benefit to the central government of having the firm provide a modest amount of services is simply not that large because the central government has to pay for the entirety of the subnational government's contribution. Instead, central governments prefer to give these governments nothing, trusting that they will instead tax and provide the right amount of services. Instead, provinces with moderate career incentives should receive the most funding, since there is a benefit to the central government of having them ask the company for help, and they can be persuaded to actually ask.

I test this theory using data on intergovernmental transfers and geographic presence

[30] Expected is not the same as hard-wired in. The estimates easily could have come out to be roughly the same, which would have led me to reject that the countries differ in their treatment of autonomous provinces

of businesses in India, China, and Indonesia. Although the evidence I find in support of the theory is not especially strong — chiefly attributable to a lack of data about provinces with only moderate corporate presence and insufficient measures of career incentives — the evidence does support the theory. At the very least, the evidence shows that factors that are associated with increased funding when companies are not present — such as being a co-partisan of the central government, and being appointed by the central government — have no such benefit when they are. In the context of the theory, this suggests that being a central government ally is not beneficial when companies are sufficiently present and can provide services. Future work on this chapter will aim for more complete and rigorous tests of this implication.

One important conclusion of this chapter is that corporate public service provision is not an equally attractive option in every province: it is most attractive in provinces with the lowest provision goals. Although this may seem counterintuitive initially, it makes sense. The firm's contribution is relatively small and not within the government's control. Taxation, by contrast, can be much larger and can be controlled by the subnational government. That suggests that taxation is a more appealing strategy for provinces with high goals and high career incentives, since it can generate more revenue and thus save the central government from paying for most of the provision, while asking for help is more attractive when goals and career incentives are low. Corporate public service provision should only occur in provinces that are not the central government's allies — provinces the central government would prefer not to spend money on in the first place — and it should save money, but not as much as is saved by allowing the subnational government to tax.

A second conclusion is that the central government cannot always get what it wants when it relies upon the subnational government's compliance. This is not counterintuitive, but it is important. The central government, according to my theory, would particularly like to offload service provision to companies entirely within the provinces that have no interest in pleasing it. This would save money and produce a level of services that it closer to the central government's ideal. Yet that never happens in equilibrium because there is no sum of money, including zero, that is low enough for those governments to be willing to ask for help. The central government would actually need to *take* money from these governments in order to make them ask, and that is a viable

option. Thus, the central government ends up needing to settle for services that are quite far from what it wants, and the subnational government has complete control over what it provides.

In the next chapter, I will further discuss how providing public services can serve to protect investors, and perhaps make them invest in places they otherwise would not and stay longer than they otherwise would. In the chapter following, I will elaborate on the idea that staring a government of resources does not necessarily make provinces any worse off, but show that having companies provide services also does not make them any better off.

Appendices

C Empirical Testing of Complicated Implications

My argument suggests that the functional form connecting a subnational executive's career incentives and fiscal transfers is conditional upon the level of corporate presence. Specifically, that there exists some level of corporate presence above which corporate provision is a viable strategy and the non-monotonic method predominates, and below which it is not a viable strategy and the relationship is monotonic. To test this, we need to accommodate a data-generating process (DGP) in which the functional form is contingent upon some external variable, z. Above some unknown threshold z^*, the functional form is quadratic, and below that threshold it is monotonic and increasing.

$$y = \begin{cases} f(\cdot) & \text{if } z < z^* \\ g(\cdot) & \text{if } z \geq z^* \end{cases} \tag{C.1}$$

The difficulty with this theoretical DGP is that it is difficult to model using canned models. Both a linear model and a quadratic linear model are only partially right, and although the relationship is a conditional one, it is the functional form rather than the effect of a single variable that is conditional upon z. To demonstrate that these models are insufficient, I generate data that follows the theoretical process I describe above. I create an independent variable, x, by taking one thousand random draws from a normal distribution with mean 10 and standard deviation 5. The conditional variable, z, is generated by taking one thousand random draws from a uniform distribution bound by 0 and 100. The dependent variable, y, is created using the process in Equation C.2 with the addition of a noise parameter that is a single pull from a normal distribution centered at ten and with standard deviation of 40. The true values of the parameters are the same for each equation.

$$y = \begin{cases} b4 + b5x & \text{if } z < z^* \\ b1x^2 + b2x + b3 & \text{if } z \geq z^* \end{cases} \tag{C.2}$$

Each time I generate a new data set, I run four different models: a linear regression ($y \sim x$), a linear regression with a quadratic term ($y \sim x + x^2$), a linear regression with an interaction term ($y \sim x + z + xz$), and a quadratic relationship with interaction terms ($y \sim x + z + xz + x^2 + x^2z$). I record the coefficient and t-statistic for each regression. I repeat this process for each $z^* \in [0, 25, 50, 75, 100]$.

In these simulations, the coefficients I estimate are almost always statistically significant at conventional levels (Table C.1). In fact, regardless of the model specification, each of the one thousand estimations of $b1$, $b2$, and $b3$ is statistically significant at the 95% confidence level. In the standard quadratic model, all of the $b1$ coefficients are statistically significant when $z^* \in [0, 25, 50]$, or when the majority of the data are generated from the quadratic process.

Although nearly all of the coefficient estimates come out statistically significant, in very few of the simulations is the true value of the parameter recovered within the 25-75% bounds, or even in the range of estimated coefficients at all (Figure C.1). The coefficients on the quadratic parameters are closest to correct when the majority of the data are generated by that process, but stray further from their true value as a larger proportion of the data are generated according to the monotonic process.

	z^*				
	0	25	50	75	100
b1 standard	100.00	100.00	100.00	84.80	6.20
b1 interaction	100.00	26.50	36.30	53.20	5.30
b2 standard	100.00	100.00	100.00	100.00	100.00
b2 interaction	100.00	100.00	100.00	99.70	99.90
b3 standard	100.00	100.00	100.00	100.00	100.00
b3 interaction	100.00	100.00	100.00	100.00	100.00
b4 standard	100.00	100.00	100.00	100.00	100.00
b4 interaction	100.00	100.00	100.00	100.00	100.00
b5 standard	100.00	100.00	100.00	100.00	100.00
b5 interaction	100.00	100.00	100.00	100.00	100.00

Table C.1: Percent of coefficient estimates in each of 1000 simulations that is statistically significant at 95% confidence level.

What this reveals is telling: in short, given these data and any of these seemingly-

reasonable model specifications, nearly everyone would conclude they were "right" when, in reality, nearly everyone would actually be "wrong". Whether someone expected the relationship to be positive, or quadratic, conventional methods would lead the analyst to reject the null hypothesis, incorrectly, and conclude that there was evidence in support of their hypothesis. Unless all the data are generated using one process or the other ($z^* = 0$ or $z^* = 100$), the analyst would be, at best, 75% correct, in this example. A quarter of the data— a non-negligible amount— would be generated by an alternative process, that the analyst would not pick up on.

If z^* were known — for instance, if we knew or had good theoretical reason to assume that $z^* = 60$ — none of this would be a problem. The analyst could simply split the sample into two subsamples, run the theoretically-specified regression on each subset of the data, and report those coefficients. Unfortunately, the theoretical model produces no intuition about the value of the threshold, apart from specifying that it is non-negative because the nature of the concept forbids negative values.[1] Knowing only that the model predicts that the threshold exists does not lend itself easily to splitting a sample. Any split would be inherently arbitrary. It is possible to run the model many times, each time splitting it at a different value of z, then checking model fit at each iteration, and from it inferring the "correct" z^* and, accordingly, the values of all the other parameters. This is inefficient if there is a single threshold, as specified in these simulations, but this process of estimation-by-iteration quickly becomes unfathomably inefficient if many thresholds may exist (e.g., a separate threshold for each country or each province). Similarly, a finite mixture model might be a solution, but that too would require more information than the theory provides, as those models require very specific and informative priors.[2] (Wasserman, 2000)

To address the problems that arise in testing these implications, I estimate a Bayesian model that estimates the threshold along with all the coefficients[3]. I program the theoretical data generating process into JAGS, and then estimate each coefficient, as well as z^*. I specify that the dependent variable is normally distributed, centered around a

[1] It need not be constrained in this way, but it is unclear how one would interpret a negative value of corporate presence.

[2] An additional mark against the finite mixture model arises because, in simulations, these two data generating processes can and do result in distributions with so much overlap that they have nearly identical means.

[3] I estimate a Bayesian model because Bayesian estimation allows for more flexibility in the way estimators are written and do not require deriving a closed-form solution.

mean μ that follows the monotonic process if $z < z^*$ and the quadratic process if $z \geq z^*$. I put a uniform prior on z^*, bounded by the minimum and maximum of the known distribution of z, and I put a relatively flat prior centered at zero on each of the five parameters. I generate a new data set, and run the JAGS model for 10,000 iterations once for each $z^* \in [0, 25, 50, 75, 100]$. I record the mean and highest posterior density estimates for the distribution of each estimated parameter.

When we are able to estimate the theoretical data-generating process, the model recovers the true values with much greater frequency (Figure C.2). Although the model systematically misses b4 and b5 when $z^* = 0$ (when all data are generated with the quadratic process), it correctly recovers b1, b2, and b3 well on average, even when $z^* = 100$ (the data are all generated linearly). For the thresholds in between, in which part of the data is generated linearly and the other part are generated quadratically, the model does, on average, produce coefficients that are either correct or very close, and are much closer than the coefficients produced by any of the OLS models. What is more, the model produces the correct estimates for z^* for $z^* \in [25, 75, 100]$, and deviates only slightly when z^* is zero or one hundred. This means that we should not only be drawing reasonable inferences from the coefficients on the two DGPs, but that we should also get a fairly accurate idea of what threshold is necessary to produce the quadratic process.

In robustness checks[4], I run the model on data generated according to different DGPs. When the data are not generated according to the theoretical process detailed here, the model is not prone to producing false positives. The posterior distributions of each coefficient include zero, except z^*, b4 when $z^* \in \{0, 50\}$. Many of the coefficients are estimated as zero, fairly precisely.

[4] Available upon request. In other robustness checks, I check the sensitivity of the estimates to many different confounding processes, and find the estimates to be fairly robust even when un-modeled confounding is present in the DGP.

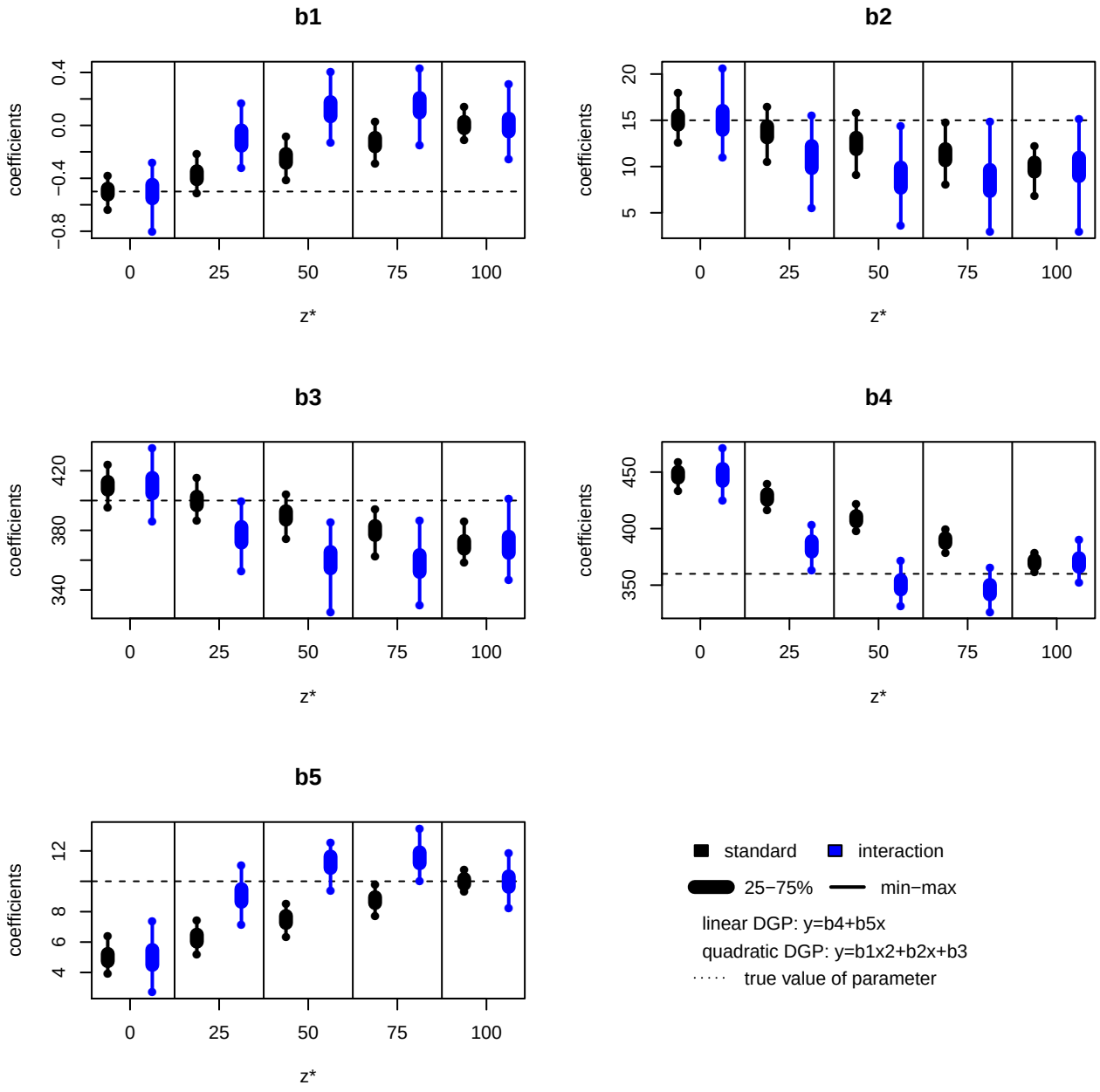


Figure C.1: Data generated, according to process in Equation 2, one thousand times. Each time, both an OLS regression and an OLS regression with a quadratic term were run and the coefficients on the variables recorded.

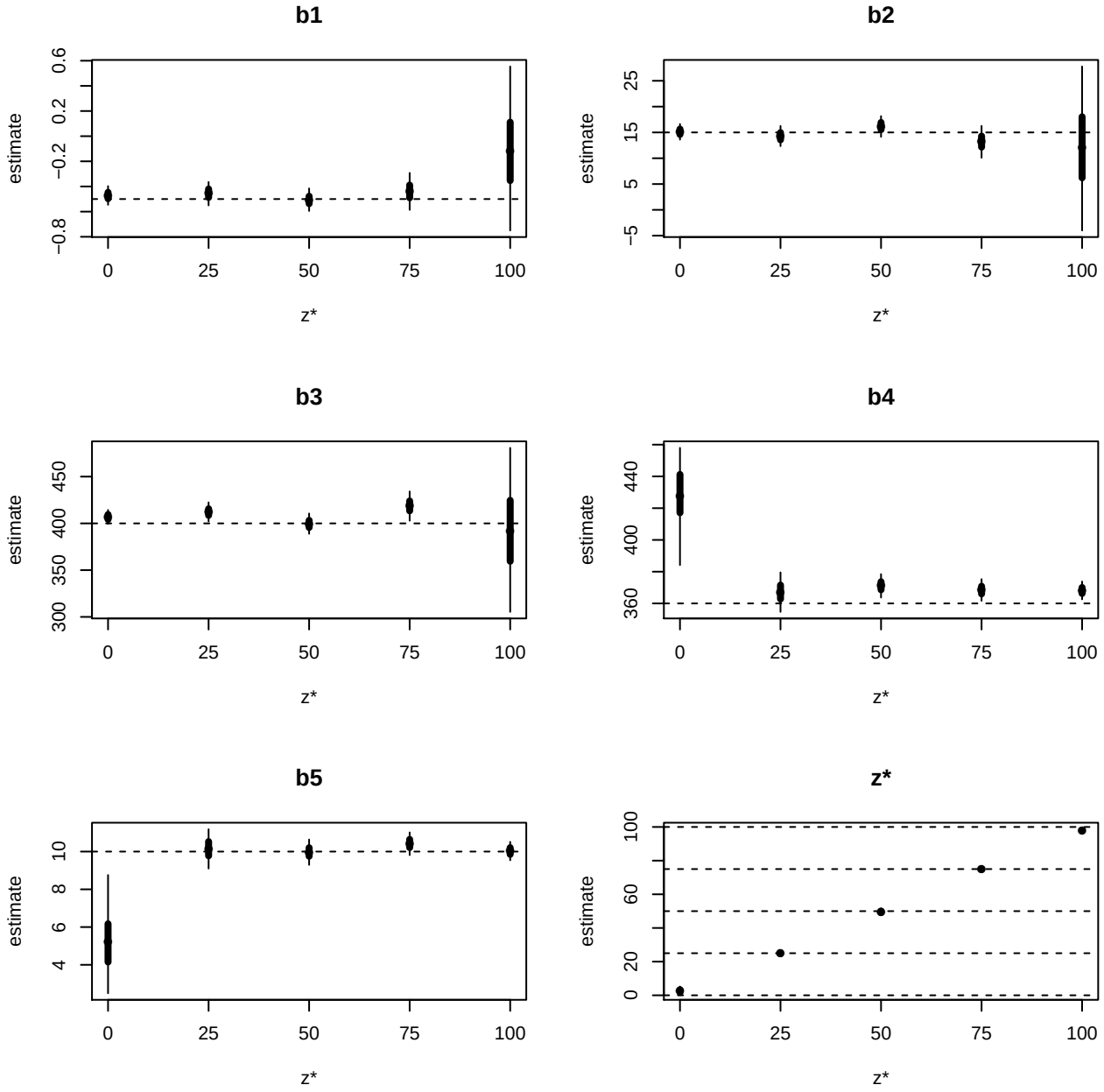


Figure C.2: Results of five Bayesian models estimating coefficients and z^* cutpoints for the data-generating process above. True values of parameters denoted by dotted lines. Model converges– one hundred percent of parameters have an R-hat of 1.01 or 1.00– after 25,000 iterations, and half of those iterations are discarded as a burn-in period when forming the posterior distributions. Thick lines are 25-75% bounds, and thin lines are 2.5-97.5% bounds.

D Hand-Sorting Robustness Checks: Sorted at Random

In this robustness check, I check to see if the results can really be attributed to different groups with different effects or only arise by chance. I run the same model as in the paper, but instead of splitting based on an endogenously-estimated threshold, I split the groups at random. I repeat this many times to see if significant effects arise in any random sortings. Significant effects for any variable never arise when groups are split at random. Figure D1 shows the posterior distributions of an example effort. This suggests the groups are being split based on a meaningful threshold, and that difference leads to the effects I uncover.

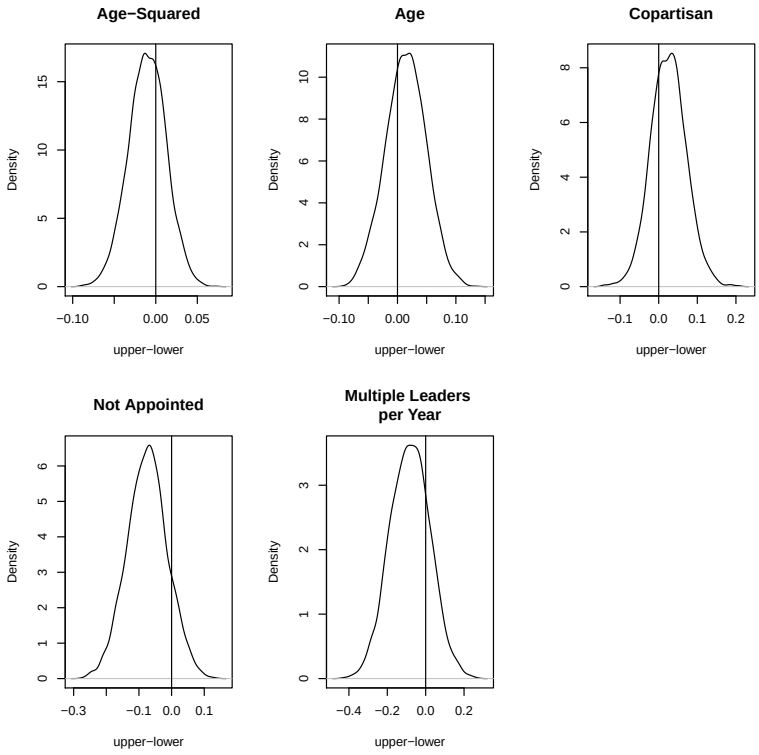


Figure D.1: Posterior distributions of differences in career incentives coefficients when the model is run with the data split into the two groups at random.

E Hand-Sorting Robustness Checks: Assigning Only the Definite Lower-Assignees to the Lower Group

In this robustness check, I take all of the observations that are consistently sorted into the lower group (after discarding burn-in simulations) and assign all of those to the lower group, and all remaining observations to the high group. The results are substantively similar, but slightly stronger, suggesting that the imprecisely estimated threshold may be systematically incorrectly assigning high-group observations to the lower group.

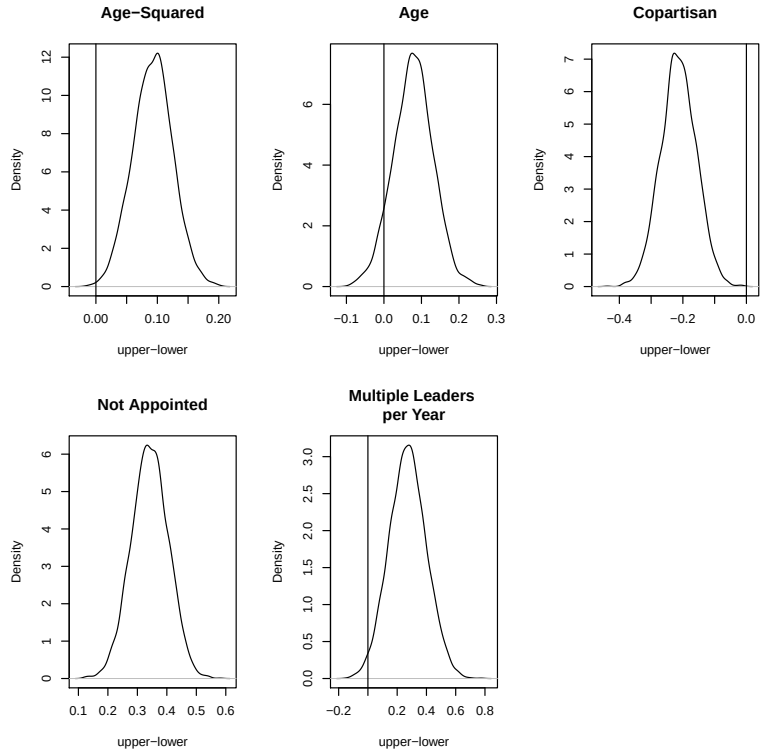


Figure E.1: Posterior distributions of differences in career incentives coefficients when model is run a second time, with only those always assigned to the lower group in the first run of the model assigned to be in the lower group.'

F Full Model Results

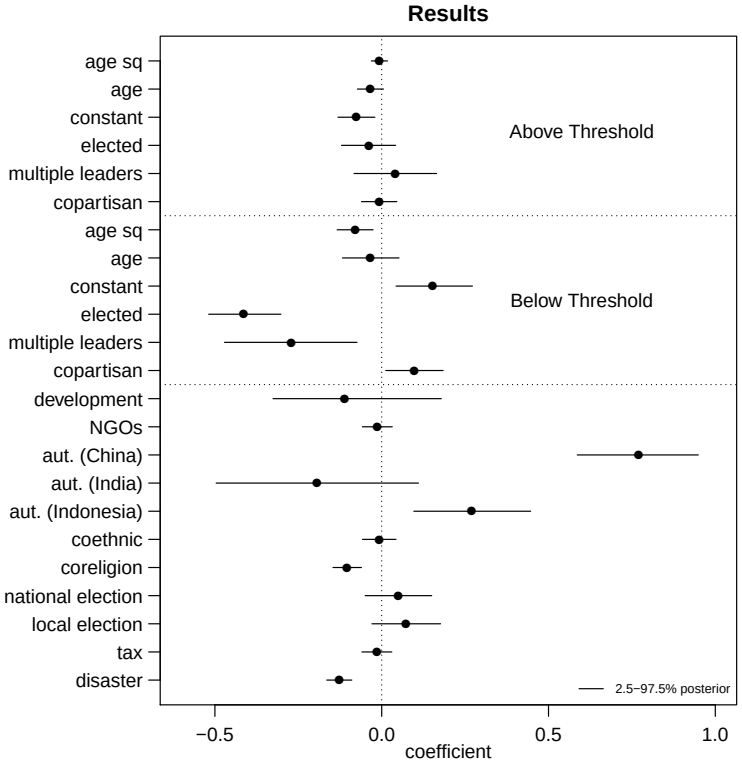


Figure F.1: A dot plot depicting the results of the model. Dots are the mean of the posterior distribution, and the solid lines show the 2.5-97.5% bounds of the posterior distribution.

4 Corporate Public Services, Subnational Spending Capacity, and Within-Country Political Risk

Introduction

When corporations choose to invest in overseas production, they open themselves up to a variety of different threats. From the threat of all-out expropriation of assets to paying off officials to threats to their intellectual property, investing abroad can be fraught with danger. While these threats are minimal in some countries, due to democracy, treaties, or other institutions, production often cannot be limited to those countries. Instead, corporations often have good reasons to invest in production in countries that pose greater risks because of the need to serve a large domestic market, avoid tariffs, or access natural resources.

This raises the question of how companies can protect themselves in situations where they cannot trust the governing institutions to protect them. There are a variety of things that companies can do to decrease the risk of the government violating their rights (Frye, 2006; Markus, 2012; Johns and Wellhausen, 2016). In particular, anything that companies can do to convince the government the company is more valuable if left alone should help to protect them. As Johns and Wellhausen (2016, p.37) put it, "The willingness of the host government to honor its contract is driven in a large part by its temptation to take value from the firm." The reverse is also true: if companies provide value the government cannot take, they are less desirable targets. This simple idea suggests a myriad of strategies for companies: even within a single country there are many host governments, and value can be taken (and generated) in many ways.

While national governments tend to violate property rights in the most dramatic and

newsworthy ways, lower tiers of governing hierarchies – provincial governments, district governments, city governments, and the like – also engage in expropriation or acts tantamount to it (Markus, 2012). Although these violations of rights are typically less severe and garner less attention, they can still add up to degrade the profitability and worth of the firm. Just as local governments predate in different ways than national governments, so, too, do they differ in the value they derive from investment. Although local governments also benefit from the economic benefits of foreign investment — economic growth, jobs, and so on — they may also benefit in other ways. One benefit that local governments may enjoy the public services that companies can provide. In places where the subnational government is expected to provide public services, having a non-state partner to shoulder some of that burden may be valuable, especially if the government can potentially claim some of the credit for the company's contributions. If it is valuable, local governments may prefer to leave these companies alone, rather than pester them for bribes or otherwise predate, lest the company choose to stop providing.

In this chapter, I will explain why this means we should expect local governments that struggle to provide public services to attract the most foreign direct investment, even though we also know that foreign investors tend to prefer to invest in places with good public services (Jensen, 2006). The reason is that governments that struggle to provide public services — governments that are especially inefficient in their spending or that lack the capabilities necessary to provide services for their citizens — are also the governments who should value most highly companies that can help them provide those services. Local governments that are more adept at providing public services, however, should value the corporate contributions less, and be more likely to seize assets or extract value from the firm in more predatory ways.

In the next section, I explain the literature and theory in more detail. The section after that explains the research design and the choice to look for evidence in China. After that, I explain my measurement techniques. The penultimate section explains my findings, and the final section concludes.

Political Risk and Corporate Public Service Provision

The obsolescing bargain is well-trod territory in political economy (Vernon, 1971; Jensen, 2003, 2006; Kerner, 2009). Although many other considerations about potential host governments are important when companies choose to invest in overseas production (Markusen, 1995), when picking between two otherwise similar countries, companies often choose to invest where they most trust the government to respect the terms of their contract. This fear of the government – known as political risk – is well-founded, as governments have strong incentives to promise to protect investors' rights and assets when they are courting the investment, and often equally strong or stronger incentives to break those promises ex post when the investor is unlikely to leave and the spoils of renegotiation are large.

While there are a variety of institutional arrangements that are thought to make countries appear more trustworthy in the eyes of investors — institutions such as democracy and different types of international agreements (see, e.g., Jensen, 2006) — many countries fulfill none of these criteria, and yet still receive foreign direct investment (FDI). Some governments even have an established and publicized history of failing to respect investors' rights, and often they still continue to receive FDI. This is because sometimes, despite the known risks of doing so, the location-specific assets of a host country make it difficult to avoid investing there. For instance, many countries with abundant natural resources also pose threats to the companies that extract these resources, but those companies have little choice but to invest where the resources are. Similarly, countries with large domestic markets or especially inexpensive labor may be hard to pass up as investment opportunities, despite the threats to assets.

If MNCs have good reasons to invest in a country with a government whose promises may not be trustworthy, they must instead protect themselves from predation. By my definition, predation can take many forms, ranging from bribery to wholesale expropriation: predation occurs any time the government uses its position of relative power to enrich itself at the expense of the company. That means that MNCs need not protect themselves only against the central government, but also from the many other levels of government within the country, because all levels of government have some relative power they can exercise over investors and so all levels of government can predate. Al-

though predation by lower tiers of government may be smaller and less newsworthy than actions of central governments — for instance, lower tiers of government may be less likely to engage in full-scale expropriation (although see Markus, 2012) – lower levels of government still have the tools to predate. Lower-level governments and their officials are often able to steal property (intellectual or physical), raise taxes, impose fines, and collect bribes. In fact, one might expect that lower levels of government may be even more likely to engage in predatory behaviors than higher levels of government, since the lower the level of the government, the less visible they are, and the more likely it is that their transgressions will go unnoticed. So despite (or perhaps because of) their lower profile, local governments still pose threats to companies, and companies still need to protect themselves against these threats.

One way companies can protect themselves from government predation, especially at the subnational level, is to generate value for the government. If companies provide something that governments need or otherwise value, governments should be less likely to predate upon them, for fear of losing this value. Companies can generate value in a variety of ways — for instance, companies that employ a large proportion of an area's residents generate value for the government, which we would expect the government to be loath to upset. Yet many of the ways that companies can generate value are largely out of the firm's control or can take years to secure: not all companies can be especially large, employ a substantial number of people, or operate in an important industry. Most companies, however, can engage in some form of corporate public service provision. Corporate public service provision can create value by shouldering some of the local governments' public service provision burden. This may allow local governments to provide more or better services than they otherwise could have, shift resources to service other priorities, and claim some credit for the direct provision of the goods and the externalities the goods create (Johns and Wellhausen, 2016).

Although corporate public service provision ought to generate value for governments generally, how much value it generates is variable. As discussed in the previous chapter, local governments with weak career incentives can achieve their service provision goals by levying only a small tax — as a result, they place no value upon having the corporation provide. Governments with strong career incentives to please the central government, on the other hand, should be more reliant upon corporate resources, as the central

government can under-fund those governments while still expecting they will fulfill their mandates. Conditional upon having strong career incentives, though, the value they assign to corporate provision varies based on each local government's ability to provide public services independently (Table 4.1).

	Low Career Incentives	High Career Incentives
Low Capacity	Taxes corporation at low rate	Relies upon corporate provision
High Capacity	Taxes corporation at low rate	Taxes corporation at high rate

Table 4.1: Predictions based on capacity and career incentives.

All local governments provide public services, but not all of them do it equally well. While some of this can be attributed to certain governments spending more than other governments, a more important component is how well governments spend the money they have. Not all governments have the same return on investment for their public service provision spending — that is, the same one dollar spent on education does not translate to the same provision the world over, or even among different subnational governments within a single country (Bosch, Pedraja and Suárez-Pandiello, 2000; Gupta and Verhoeven, 2001; Balaguer-Coll, Prior and Tortosa-Ausina, 2010; Loayza, Rigolini and Calvo-Gonzalez, 2014). Some governments are better at spending than others. These governments have high public service capacity: they spend their money efficiently, and are able to generate more and better public services than can other governments for the same amount of money. That means that the answer to subpar public service provision and social welfare is not always (or often) allocating more money to these governments so that they can spend more (Gupta and Verhoeven, 2001). Instead, the crucial issue is spending better.

The ability of a government to provide public services is tremendously important for many reasons. It is normatively important, since we care about citizens receiving public services and should be troubled when they do not. It is also theoretically important. Much of the debate surrounding decentralization, for instance, hinges on whether there are in fact efficiency gains from devolving service provision to lower levels of government. In the context of my theory about corporate public service provision, capacity matters because local governments are aiming to hit a target for public service provision. Whether they can do so, and how close to the target they can come on their own, is a function of how well they spend the money they have. Governments that spend their

money inefficiently should have a harder time hitting their public service targets and are more costly for central governments.

When subnational governments struggle to hit their public service provision goals, they are put in a position of needing to somehow bridge the gap between what they can provide and what they want to provide. For any given amount of funding and goal, the gap is larger when spending efficiency is lower because the government's ability to translate the funds into services s lower. Not only is the gap a function of the government's capacity, but so too is the desirability of its options to close that gap.[1] When the government's public service capacity is high – when it spends its money well and is able to produce the outcomes it wants, and the primary obstacle is the amount of money available – the desirability of extracting financial resources from companies, whether in the form of taxes, fines, or bribes, is greater. The government can then use the financial resources it extracts to provide the public services it wants. For these governments, companies providing public services are less valuable, because the government can provide for itself if it can extract financial resources.

By contrast, when the government's provision capacity is low, they cannot marshal these financial resources as productively. Instead, the resources are used more productively and provide a greater value to the government when the company provides services directly. As a result, companies that provide public services create a substantial amount of value for the government. Unlike with the higher-capacity governments, this is not value the government could replicate by instead extracting financial resources from the company. This means that governments that struggle to provide public services on their own should be far less likely to predate upon companies that may be willing service providers, and in fact have incentive to protect them. This is because anything that hurts the company would also destroy value for the government that it could not easily recreate independently.

Since we expect foreign investment to flow to the safest places it can, this would suggest the following hypothesis.

Hypothesis: Subnational governments with low public service provision capacity

[1] In my theory, I assume that local governments know their level of capacity. While the argument can accommodate some uncertainty, and can certainly accommodate a mean shift (i.e., all governments believe they are better than they are), I cannot speak to the case in which a low-capacity government mistakenly believes it is high-capacity, or vice-versa. Accommodating incorrectness rather than uncertainty may be a fruitful angle for an extension to the model in the future.

should attract more foreign direct investment than their higher-capacity neighbors.

The Case of China

I focus my empirical analysis on China. Focusing on Chinese provinces is helpful for two reasons. First, focusing on a single country allows me to hold constant country-level institutions and focus instead on explaining within-country variation, and China is an especially important and fitting case. According to the Delcredere Ducroire (formerly ONDD) country risk measure, China is among the riskiest potential host countries for foreign direct investment. Unlike many other risky countries, that risk is driven entirely by the 'risk of expropriation and government action', rather than the potential for war.[2] Unlike other countries that are considered high-risk, however – a group that contains Venezuela, Iran, and Russia, as well as Indonesia, Myanmar, Bangladesh, and most of Africa – China receives a large amount of FDI despite its high risk status (Figure 4.1).[3] Because of its inexpensive labor and large domestic market, many foreign investors find themselves in the position of contemplating investing in China even though its risks are no secret. This makes it an ideal case to study within-country FDI allocation, as China's inexpensive labor is mobile within the country, and we should expect foreign investors to attempt to flock to the safest places within the country.

A second benefit of focusing on China is that the assumptions I have made in establishing the theory — that subnational governments often receive less in funding than they require to carry out service provsion, but still have strong incentives to fulfill their service provision goals — are established and well-documented realities in China. First, local governments in China often experience budgetary shortfalls, where the amount of funding they have to carry out their tasks pales in comparison with the expected costs of fulling the tasks. The tax reforms of 1994 altered the abilities of local governments to raise revenue, stipulating that nearly all revenue be remitted to the central government rather than being used locally (Guo, 2009). These funds are then redistributed, but the amount transferred back is often less than what is needed, as local governments perform

[2] For all current assessments, see `http://www.delcredereducroire.be/en/country-risks`. Accessed April 2016.

[3] Roughly half of China's reported FDI comes from Hong Kong and Macao, which may make for misleading comparisons between it and other countries. Even if half of China's FDI is discounted, however, it still receives vastly more FDI than all of the other countries except for Russia. (I'd like to thank Yuhua Wang for alerting me to the Hong Kong and Macao FDI issue.)

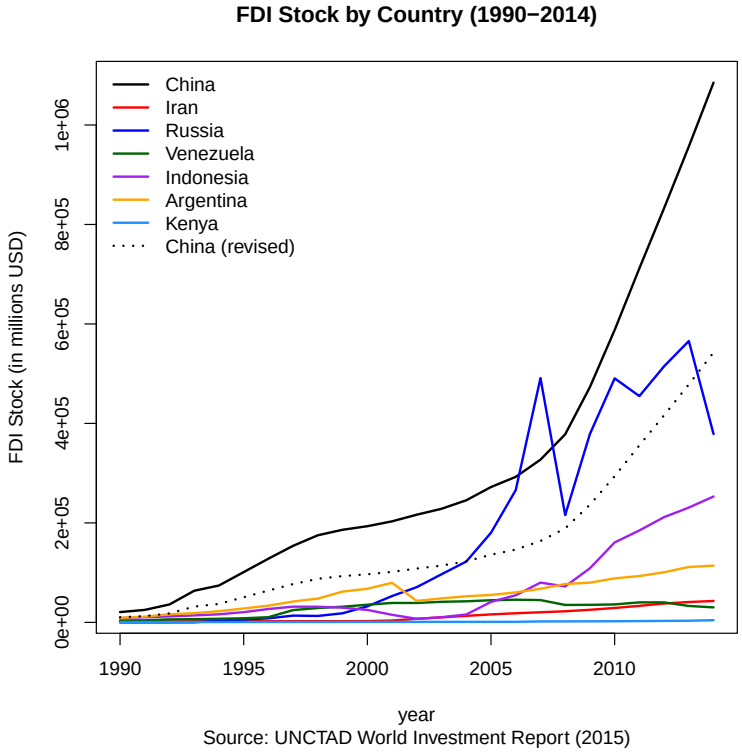


Figure 4.1: Trends in FDI stocks over time in a selection of countries ranked among the riskiest by Delcredere Ducroire. Dotted line represents China's FDI with a rough estimate of Hong Kong and Macao's share removed.

most government functions (Tsai, 2002; Guo, 2009; Landry, 2012). The amount transferred back is also not proportional to what is remitted nor is it proportional to need (Wang and Hu, 2001). The ability of local governments to raise own-source revenue for their own purposes is limited. One of few options local governments have is the ability to levy an income tax, but a high exemption rate results in a tax base so small that "for all practical purposes China does not have a personal tax" (Bahl, 1998). This system of decentralized service provision and centralized tax collection often results in budgetary shortfalls. Often these budgetary shortfalls (or 'unfunded mandates') lead officials to "seek alternative sources of revenue, lawful or otherwise" (Lu and Landry, 2014, 720).

Local officials have a strong incentive to meet their revenue targets and provide what they are charged with, even if they have budget gaps. Their career incentives predispose them to want to please the central government: provincial leaders in China rely for their continued tenure upon being promoted by their superiors to a higher position within the government or the party (Landry, 2012; Shih, Adolph and Liu, 2012; Lu and Landry, 2014). Performance in office is judged on a number of quantifiable dimensions, including

generating revenue and living outcomes. Although Shih, Adolph and Liu (2012) find no evidence that improving standards of living improves provincial leaders' promotions aspects, provincial leaders also face no incentives to underperform. That is, while they may have no incentive to go above and beyond, they are likely to aim to at least do what they are expected to do, which requires filling budget gaps.

In fact, there is some evidence that filling revenue gaps with alternative sources, including land sales and private provision, may be a way local leaders can signal their quality to their superiors. As Guo (2009) notes, doing so signals "... the desirable competence, ingenuity, and/or diligent effort of local leaders to extract more resources from local people and businesses." Although promotion prospects may not be equal in all provinces, as networks and personal characteristics carry substantial weight in promotion of provincial officials (Shih, Adolph and Liu, 2012), budget gaps and political necessity of fulfulling them are constant across provinces (Wallace, 2016). With this need for revenue held constant, then, we can analyze the effect of variations in capacity across districts directly.

One concern about testing the hypothesis in China, however, is the fairly well-documented tendency of Chinese officials to alter their data, or "juke the stats" (Wallace, 2016). Although this is a serious obstacle for those who wish to use provincial GDP data, this poses a less severe problem here, for two reasons. First, although subnational political leaders have been shown to manipulate GDP data and are likely to manipulate other visible data as well in order to improve their promotion prospects, "the pressure to perform economically should affect all provinces at all times" (Wallace, 2016). As a result, this should produce a mean shift in the distribution of the data, but should not make one province appear to have more FDI or higher capacity than others. Second, the data that I use to determine a region's capacity are not the most visible and politically salient data— that is, I am looking at expenditures in education and related outcomes, rather than GDP— so the temptation to manipulate these data may be less than for other data.[4]

[4]This is the also the basic idea behind The Economist's Keqiang Index: that measurement of concepts in China should be based on indicators that are difficult to manipulate. While reporting can always be manipulated, things that can be directly counted — the number of students n schools, for instance — are easier to audit than fuzzier estimated quantities such as GDP and growth.

Measuring Subnational Public Service Provision Capacity

Conceptually, capacity captures how well a government translates spending into services. Provinces with high capacity produce a strong return on their investment— that is, for every dollar they spend, they have better outcomes (however those are measured), compared with lower-capacity provinces. Low-capacity provinces do not spend their money as well. Because of waste, corruption, ineptitude, or a lack of other necessary resources, such as trained specialists, low-capacity provinces produce less for each dollar spent (Loayza, Rigolini and Calvo-Gonzalez, 2014). High-capacity provinces spend money well. Low-capacity provinces do not.

The difficulty is that capacity is latent: we can observe the implications of it, but we cannot observe it directly. Further, unlike other latent concepts — such as democracy, ideology, or personalism — measuring capacity requires more than simply inferring from observable outcomes. While it is tempting to infer that a region with a plethora of public services has high capacity, for instance, this is an incorrect inference: without knowing how much money the government spent in pursuit of those services, or who or what provided those services, we cannot draw inferences about capacity. Similarly, we cannot infer that a government that spends a lot, or a little, is necessarily low or high capacity, without also understanding their service provision level. This means that measuring capacity requires quite a bit of looking under the hood to try to detect the machinations of the system.

While capacity is neither completely captured by service provision or spending, both are necessary to estimate it. The government that is the most efficient in its spending (or has the highest capacity) is the one that spends the least and produces the most. A good example of this is the criticism often leveled against the United States' education system: although the United States spends far more than most other countries on public education, many countries produce better-educated students while spending less money. Thus, the United States can be considered to be less efficient, and have lower public services capacity, than, for instance, most of northern Europe.

Measuring capacity, therefore, requires measures of how much is spent, as well as data on outcomes that would be related to that spending. By analyzing these data together, I can estimate the capacity of a government. To measure subnational public service

provision capacity, I focus specifically on the domain of primary education, and I allow this to proxy for public service capacity more generally.

Education has a number of benefits for measuring capacity, as compared with other service provision domains. First, education is straightforward to compare across provinces. Primary education is compulsory and universal in China, whereas other types of education are merely 'promoted' (Constitution, Article 19). Thus, the primary factor driving the demand for education should be the number of students. By contrast, demand for infrastructure or health spending depend upon a number of other considerations. For instance, how many roads are built, how they are paved, and where is dependent in part upon geography. Rates of disease, and thus the need for healthcare, may vary based upon a number of factors, including climate, diet, and culture. This makes comparing health and infrastructure outcomes across provinces both more difficult and less informative, relative to primary education, because a dearth of services provided could imply that the government is doing a poor job of providing or it could imply that the service is not needed. For instance, having many health clinics could be indicative of high capacity, or it could be indicative of a very unhealthy population that requires many health clinics, perhaps an indicator of low-capacity. Because primary education is compulsory and the government is required to provide it, I can assume away many of these other considerations, and infer that a lack of educational provision, relative to the spending level and after accounting for the number of possible students, is a function of the government's low-capacity, and not a lack of demand.

Second, education is more immediately responsive to government capacity than are other service provision domains. That is, in order to measure capacity properly, it is important the the outcomes from which we are trying to infer capacity will actually decrease if capacity decreases. Infrastructure, for instance, often will not. It tends to be sticky — a government that has 900 kilometers of paved roads in year t will probably have at least 900 kilometers of paved roads in year $t+5$, barring catastrophe, even if the government's capacity plummets. Thus, while we may be able to infer relative increases in capacity from infrastructure, we are unable to detect decreases. This is important theoretically, but also empirically: a measure that can only increase and thus can only detect increases in capacity does a poor job of discriminating between governments, since it produces a very compressed scale. It also artificially inflates the capacity estimates

for areas that have been heavily built-up in the past. Education outcomes, however, are highly responsive to government capacity — if the government messes up its payroll and fires instructional staff, the student-to-teacher ratio will immediately respond. Similarly, if the government opens a new school, both the student-to-teacher ratio and the number of students that are serviced will quickly change. This allows me to not only detect both increases and decreases in capacity, but also it produces a measure that can much more easily discriminate between high- and low-capacity provinces because the measure can vary so much from unit to unit and year to year.

The data I use on expenditures and outcomes in primary education are from the Chinese Statistical Yearbook and cover the years 2007-2010.[5] Data are collected at the provincial level, which is the finest level of disaggregation for which spending data are available. The expenditure variable is expenditure on education[6], measured in 100 million yuan and divided by the population of the province.

There are five outcome variables: the number of primary schools, total enrollment in primary schools, number of graduates of primary schools, number of teachers in primary schools, and number of full-time teachers in primary schools. Each of these measures is divided by the school-age population in the region, roughly measured as the population of the region under the age of 18, in order to account for the need for schools in a province.[7] That is, having one hundred primary school teachers means something very different in a province with a million students than it does in a province with one hundred students. Thus the youth population must be taken into account.

I use all five of these outcome variables and the one spending variable to measure subnational capacity. I measure subnational capacity using two different techniques. These techniques are described in more detail in the following sections. The first measure, absolute capacity, uses simple bivariate linear regression to capture the relationship between spending and outcomes in each province, without taking into account the performance of other provinces. The second measure, relative capacity, uses free disposal hull (FDH) methods to capture how each province is doing relative to other provinces.

[5] Classifications of revenue and expenditures were changed for years 2007 and onward, and are not comparable with the previous years (China Statistical Yearbook).

[6] A third benefit of using education is that its spending is very nicely and clearly earmarked. Infrastructure and healthcare, by contrast, pull from different parts of the budget, making it difficult to discern which pool of money is really used to fund which service.

[7] "Under-18" is the lowest age bracket for which population data are published in China.

These two measures capture slightly different but related facets of capacity, although they are correlated. A province can be low-capacity in different ways. For instance, a province that spends its funds well, but is surrounded by provinces that are similarly high-performing, might be said to have low relative capacity despite high absolute capacity. This is similar to the idea of grading on a curve: although the unit is generally doing well, the performance of its neighbors suggests that it could be doing better than it is. Similarly, a province could be doing well relative to other provinces (have high relative capacity), but still be spending its money poorly (have low absolute capacity). Both of these are important for testing the hypothesis at hand, because both are likely to influence investors in the way the theory suggests.

Absolute Capacity

Absolute capacity is how well a province translates expenditures into outcomes, regardless of how other regions perform. I estimate this by modeling outcomes as the dependent variable in a series of linear models, where the sole explanatory variable is the province's expenditures. I interpret the coefficient on that variable as the absolute capacity. In other words, this is the slope of the line that relates expenditures to the various outcomes. There is one slope estimated for each province-year, and five dependent variables. There is also an outcome-specific intercept to the line, α_k, that tells us the average level of each outcome across all province-years.[8] (Equation 4.1).

I estimate this using a Bayesian bivariate linear model.[9] There are K outcomes, N provinces,and T years. Each province, $i \in [1...N]$, in each year $t \in [1...T]$ has an associated outcome, y_{itk}, for each of the outcomes $k \in [1...K]$. I specify that each of the outcome variables, y_{itk}, for each region in each year, is drawn from a normal distribution that centers around some mean, μ_{itk}, and has an item-specific precision of τ_k. This represents that each realized observation is probabilistic. That mean is the equation of the line described above, with the item-specific intercept (α_k) and the province-year-specific slope (β_{it}). β_{it} is capacity, the quantity of interest. The intercept of the line (α_k) is specific to each outcome measure, and reflects that some outcomes

[8] Including this improves model fit because it does not force every equation to go through the origin, but the substantive results remain the same if it is not included.

[9] I use a Bayesian model because it makes it easier to have a single coefficient measured for multiple DVs and IVs. This could be done in an ordinary least squares or maximum likelihood framework without changing the results.

are higher or lower on average (e.g., total enrollment is bound to be a take on higher values than number of schools).

$$y_{itk} = \alpha_k + x_{it}\beta_{it} + \epsilon \tag{4.1}$$

Because this is a Bayesian model, any unknown parameters (including any known parameters with missing data) are estimated and require a specification of prior distributions. The dependent variable in this model are the outcome variables, which I log such that they are approximately normal, and, accordingly, I assign them normal priors. Both the mean and the precision of this normal distribution are estimated by the model rather than set exogenously. I do this because the distribution of each outcome variable is different, although they are all approximately normal. Estimating these parameters separately, rather than giving each a fixed value, allows me to let them vary by measure and gives me the ability to check them against the observed distribution of the data to check model fit.

Capacity, β_{it}, is estimated for each province-year. Because many facets of a province remain the same from year to year, it is highly unlikely that a province's capacity in any year is independent from its capacity in the previous year. Rather, it is probable that there is a relationship between a province's capacity in a given year and its capacity in the previous (and subsequent) years. Accordingly, I estimate capacity in a a dynamic fashion, specifying that the capacity of a province in any given year is drawn from a normal distribution that is centered on its capacity in the previous year (Martin and Quinn, 2002). This means that a province's capacity from year-to-year is a random walk. The distribution of capacity is truncated to be between zero and one, such that a score of zero indicates that there is no relationship between spending and outcomes, and a score of one indicates a one-to-one relationship.[10]

I also put a normal prior on the expenditure data that is used as the sole independent variable for each province in the model. The data are logged to approximate that normal distribution. However, because expenditures per capita is very small, logging it produces a negative number. To make interpretation of the capacity scores more intuitive, I perform a linear transformation, adding twenty to each outcome, such that

[10] When the distribution is not truncated, very few province-years are actually over one and none are below zero, so this primarily helps with convergence.

each logged expenditure is greater than zero.[11] The mean of that normal distribution as a parameter of the model. In part this is because the mean of the distribution can vary from outcome to outcome, but also, as before, it serves as a check on the model— if this estimate does not come out to be roughly the mean of the spending data, it would call for a reassessment of the model specification.

All of the unknown parameters in this model, including any missing data, are estimated simultaneously in JAGS, with five chains exploring the posterior distributions of each of the parameters for 100,000 iterations. Ten thousand of those iterations are discarded as the burn-in period. After 100,000 iterations, the five chains have converged.[12] This produces posterior distributions of each parameter, which produces an estimate of capacity as well as a statement of uncertainty around that estimate.

Relative Capacity

The second measure of capacity, relative capacity, is calculated rather than estimated.[13] This measure looks not at how well each province translates funding into outcomes in absolute terms, but rather how well they do relative to the other provinces in that year. This is an efficiency score, using the free disposal hull (FDH) analysis process as described in Gupta and Verhoeven (2001). In this process, the expenditure and outcome variables produce a "production possibility frontier" for each year — the set of regions for which no other region produces greater outputs with fewer inputs. This is set as the most that can possibly be produced for every level of spending. I can then quantify the relative inefficiency of provinces that fall within that frontier.

In practice, this means that for every province-year, I subset the data to include only other province-years that have lower expenditures and, for all outcome variables, greater outcomes. If this subset of the data is the empty set — that is, if there are no province-years that satisfy this criteria — then this province-year is said to be on the

[11] I do this for ease of comparison and interpretation. If I do not, having a negative independent variable forces the coefficient to also be negative and flips the interpretation.

[12] I use the R-hat to assess convergence, and the R-hat for each estimated parameter rounds to zero at three decimal places.

[13] The chief difference here for my purposes is that calculation does not produce uncertainty, while estimation does. However, uncertainty bounds can be derived using a bootstrapping technique. To do this, I choose K of the N outcome variables with replacement, do the calculation for those variables, and record the estimates for each province-year. By repeating this process several hundred times, I can produce some type of uncertainty in the measure. I do not do this here because there are only five outcome variables, but in robustness checks run with infrastructure data, where there are 45 outcome variables, this procedure can be implemented.

frontier and is assigned a relative capacity score of 1.[14] If the subset is not the empty set, the provinces-year is assigned a score that corresponds with its distance to the frontier. This distance is determined by calculating how much worse the province-year in question did on each output measure as compared with each province in the subset, as a ratio. For each more-efficient province-year, the greatest of these ratios is selected, indicating the output that brings the province closest to the frontier. In other words, for each more-efficient province, the score is selected for the output where the province in question does best relative to each province-year. Of those remaining scores, of which there are as many as there are more-efficient provinces, the lowest value is selected to be the efficiency score (Gupta and Verhoeven, 2001).[15]

Each capacity score is relative to other provinces within the same year, producing a relative score for each province-year. Unlike in the absolute capacity estimation process, there is no explicit link in this method between a province's capacity in different years and there is no statement of uncertainty around the measure.

Differences Between Measures

On average, the two measures are correlated at .83. The two measures capture related, but different, aspects of capacity. Figure 4.2 shows the average capacity for each province. A province that has have high relative capacity but low absolute capacity suggests that that province is more efficient than its neighbors, but it could be performing even better than it is. This is the case in Qinghai, as well as, to a lesser extent, in Inner Mongolia and Jilin. These provinces all perform better in relative capacity than they do in absolute capacity. The reverse situation, in which a province's absolute capacity outstrips its relative capacity is indicative of a pool of very highly performing provinces at the same level of expenditure. That is, although the province is doing a very good job translating its expenditures into outcomes, there are others at a similar level of expenditure who are performing better. This appears to be the case in Sichuan, Heilongjiang, and Hubei. Theoretically, both of these are important and relevant aspects of capacity.

[14] By construction, this sets the lowest spending province, as well as the highest-capacity province, as observationally equivalent. No province can produce more with fewer inputs than the province that spends the least.

[15] The simpler measure, a proportion of which provinces provide more with less correlated with this measure with a Pearson's r of .95, but provides less information and has less variation, as it gives a sense of how many are better, but not by how much.

Because investors are only choosing where within the country to invest, the relative capacity is important — it captures relative risk, and we should expect investors to prefer the areas with the lowest relative capacity, all else equal. On the other hand, if there are many provinces with low absolute capacity, they may be attractive investment locations regardless of their relative capacity.

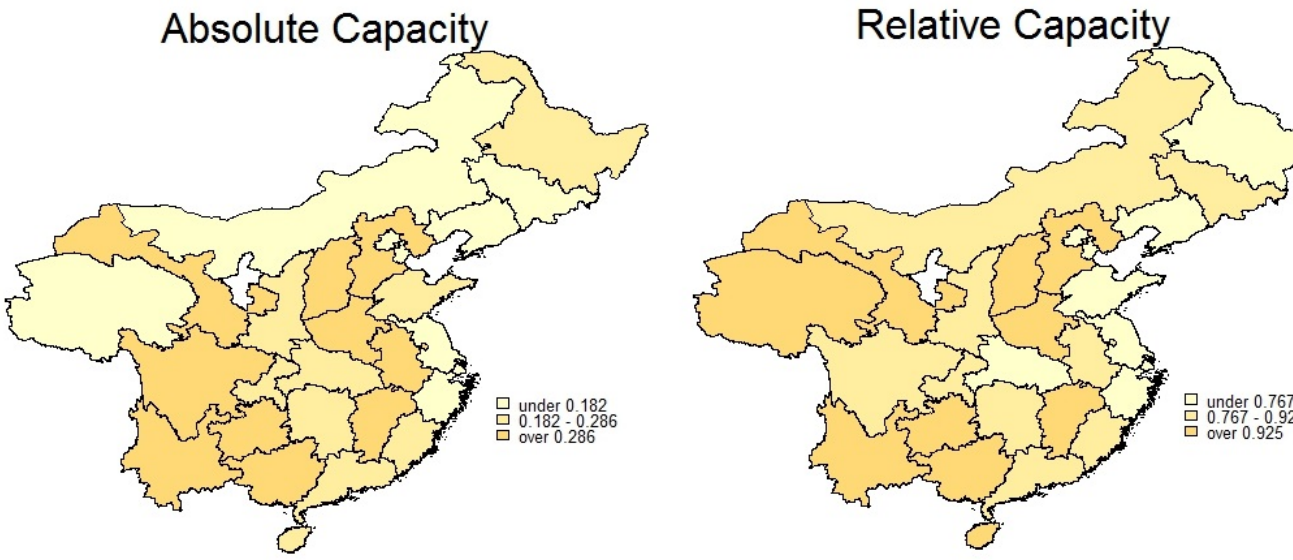


Figure 4.2: Absolute and Relative Capacity

Research Design and Data

To test whether low-capacity provinces do indeed receive more foreign direct investment than higher-capacity provinces, I run a series of fairly simple multivariate linear regressions. The expectation is that, if FDI is regressed on capacity and a series of control variables, the coefficient on capacity should be negative, indicating that province-years with higher levels of capacity attract less FDI than province-years with lower levels of capacity, all else equal.

I again use data from the Chinese Statistical Yearbook, as I did for estimating capacity. The data are measured at the province-year level. The dependent variable for all of the models is fixed capital investment by businesses that are registered as foreign-funded units, which I will use as a proxy for (and will henceforth refer to as) FDI.[16] Importantly, this excludes investment in more-mobile capital, which faces less political risk and thus

[16]This measure excludes investment from Hong Kong, Macao, and Taiwan.

may not be influenced by the protective influence of low-capacity than I argue for (Kerner and Lawrence, 2014).

I estimate two different sets of models. The first is two Bayesian linear models, where I estimate the model in Equation 4.2. I account for the temporal nature of the data with year fixed effects. The prior distributions on the coefficients are normally distributed and centered at zero with a precision of 1. The prior distributions placed on each independent variable is normal, and the mean around which it is centered is estimated as a parameter in the model. FDI is modeled as having a normal distribution and is logged to approximate that normal distribution. In this model, the absolute capacity measures are estimated simultaneously with this model in Equation 4.2, which allows all the parameters to account for the error in estimation. The rest of the models are frequentist linear models, modeling Equation 4.2. These models omit the uncertainty in the capacity, but sometimes include logged FDI.

$$\text{FDI log} = \beta_{t0} + \beta_1 \text{capacity} + \beta_2 \text{logpop} + \beta 3 \text{logwages} \tag{4.2}$$

For all of the models, I use two key control variables to account for alternative explanations of FDI allocation in China. The first is the population of the province. This is a confounding variable on the grounds that firms may be more likely to invest in more populous provinces, both for the sake of serving markets and for the abundance of workers.[17] More populous provinces may also have higher capacity, as having more people living within a province may mean the district has access to people with a wider variety of skill sets that may help them be more efficient with their spending[18].

The second alternative explanation to contend with is that lower-capacity provinces may also have lower average wages, and low wages may draw foreign investment. To account for this explanation, I include in the model the average wage of workers in the province.[19] The going wage in the province can also be considered as a proxy for the overall level of development within a province, which should have an influence on the attraction of FDI.

[17] I say 'may' because labor is especially mobile in China, and thus this may not actually be true.

[18] For a good example of why this may matter, see Loayza, Rigolini and Calvo-Gonzalez (2014)

[19] For 2007 and 2008, these wages are for the province as a whole. For 2009 and 2010, it's only for urban areas. Ideally, these data would capture the hourly wage of the average manufacturing worker as well, as a highly unequal society is likely to have a bimodal income distribution. Unfortunately, those data are not available.

One important point about all of these models is that measuring subnational capacity in providing primary education is not a proxy for the quality of the education system. It is easy to imagine that provinces with better-educated workers may attract more foreign investment, or that better-educated workers attract more investment in fields that require research and development, while perhaps less-educated workers may attract investment in low-skill occupations. Although my measure of capacity does derive from spending and outcomes of primary education, it is not itself a measure of the quality of the education system, but instead how efficiently the province translates spending into outcomes.

Results

Table 4 reports the results of the Bayesian models. The mean of the posterior distribution serves as the coefficient estimate, and I also report the standard deviation of the posterior distribution and the 2.5% and 97.5% quantiles of the posterior distribution. The primary benefit of this approach is that simultaneous estimation allows for the uncertainty in the capacity estimates to be taken into consideration when estimating the other parameters in the regression equation, although the results of both processes hold when estimated separately.

The first model in this table reports the results for the full sample, while the second model in the table reports the results for the partial sample that excludes the autonomous provinces of Tibet, Xinjiang, and Ningxia. In both models, the entire posterior distribution of capacity is negative, indicating that the effect of capacity on FDI is reliably negative and can be considered statistically significant. Similarly, the effect of logged population is positive in both models, indicating that more populous provinces attract more FDI. The posterior distribution of logged wages overlaps zero, suggesting that we cannot be certain of the effect of wages on FDI in Chinese provinces during this time period.

Table 4.3 reports the results of the frequentist models, estimated as linear models. For absolute capacity in these models, the uncertainty in the measure is omitted, and instead the mean of the distribution is used. This should not be problematic, for two reasons. First, these results are substantively similar to the results of the Bayesian

Table 4.2: Results of Bayesian linear models.

	Full				Partial			
	mean	sd	2.5	97.5	mean	sd	2.5	97.5
capacity	-3.83	0.64	-5.11	-2.59	-2.76	0.68	-4.10	-1.42
logpop (logged)	1.36	0.10	1.16	1.55	0.80	0.13	0.54	1.07
logwages (logged)	-0.68	0.15	-0.98	-0.39	-0.04	0.18	-0.40	0.30

models, which incorporate the measure of uncertainty[20], and second, this uncertainty in measurement is seldom taken into account in regression models although it is almost always present. All independent variables are lagged by one year.

Models 1 and 2 in Table 4.3 present the results of the model, using the relative and absolute measures of capacity respectively, and include year fixed effects. In both models, the effect of capacity, however it is measured, is negative and highly statistically significant, meaning that increasing capacity is associated with less FDI. Larger provinces are associated, on average, with more FDI. In the relative capacity model, the effect of wages is positive, but not statistically significant, while in the absolute capacity model it is positive and statistically significant. This suggests that provinces with higher average wages are associated with more FDI, but does not indicate the direction of causality. Although wages are lagged by one year here, suggesting that higher wages in the previous year predict higher FDI in the current year, that need not necessarily imply that FDI is attracted to higher-paying provinces. It is likely that a one-year lag is insufficient to disentangle any endogeneity between wages and FDI. A further discussion of that is beyond the scope of this analysis, but suffice it to say that the effect of capacity remains negative and significant when a measure of wages is accounted for in the model.

In Models 3 and 4, I replace the year fixed effects with the lagged dependent variable as a way to capture the temporal structure of the data and the presence of autocorrelation. Although the previous year's FDI is far and away the strongest predictor, both substantively and statistically, of the current year's FDI, both absolute and relative capacity retain their negative sign and statistical significance, although the magnitude of the effect diminishes substantially. When lagged FDI is included in the model, the positive effect of population size disappears, but average wage has a negative and statistically significant effect. By including the lagged FDI variable, the existing model

[20]The Bayesian models do not lag the independent variables, which will cause the results to differ slightly.

explains nearly all of the variation in provincial FDI allocation.

In Models 5 and 6, I run the same model specification as in Models 3 and 4, but I omit Beijing and Shanghai from the sample. Although Beijing and Shanghai are typically included in lists of provinces, they are technically municipalities and have a legal distinction that make them in some senses qualitatively distinct from the other provinces. As the largest and most cosmopolitan cities, it may also be the case that they attract FDI in systematically different ways than do the other provinces. The results are robust to the exclusion of Beijing and Shanghai. In fact, the substantively and statistical results change hardly at all, although the standard errors are larger, consistent with the smaller sample size.[21]

Table 4.3: Results of frequentist linear models.

	Dependent variable:				
	FDI (logged)				
	(1)	(2)	(3)	(4)	(5)
Relative capacity (lagged)	-4.13^{***}			-0.36^{*}	
	(0.54)			(0.20)	
Absolute capacity (lagged)		-3.87^{***}	-0.33^{**}		-0.34^{**}
		(0.81)	(0.14)		(0.15)
Average wage (lagged)	0.27	0.99^{***}	-0.16^{**}	-0.22^{**}	-0.15
	(0.32)	(0.34)	(0.08)	(0.09)	(0.12)
Population (lagged)	0.92^{***}	1.25^{***}	0.07^{*}	0.06	0.07
	(0.11)	(0.15)	(0.04)	(0.04)	(0.04)
FDI (lagged, logged)			0.92^{***}	0.91^{***}	0.92^{***}
			(0.02)	(0.03)	(0.03)
Constant	-3.86	-17.18^{***}	1.47	2.54^{**}	1.37
	(3.81)	(3.66)	(1.00)	(1.04)	(1.31)
Year FE	Y	Y	N	N	N
Observations	84	84	84	84	78
R^2	0.66	0.54	0.97	0.97	0.97
Adjusted R^2	0.64	0.51	0.97	0.97	0.97
Residual Std. Error	0.71	0.83	0.20	0.20	0.20
	(df = 78)	(df = 78)	(df = 79)	(df = 79)	(df = 73)
F Statistic	30.67^{***}	18.53^{***}	722.60^{***}	704.89^{***}	680.36^{***}
	(df = 5; 78)	(df = 5; 78)	(df = 4; 79)	(df = 4; 79)	(df = 4; 73)
Note:					*p<0.1; **p<0.05;

[21] One benefit of the Bayesian model is that its uncertainty estimates are not a function of sample size. Here they are, but the N should still be large enough to infer significance from a normal distribution.

Discussion

The evidence strongly supports the hypothesis presented in this chapter. When accounting for other contending explanations of provincial FDI, capacity has a negative effect on FDI. That is, even when I account for the effect of population and wages, higher-capacity provinces are associated with less FDI than lower-capacity provinces, on average. This holds for both relative and absolute capacity.

One issue with the interpretation of these results is that there may be reverse causality or endogeneity. That is, it may be the case that investment may have an effect on capacity, just as I theorize that capacity has an effect on investment. In particular, the way my capacity variable is constructed, it is likely that investment artificially inflates capacity — if companies are indeed providing public services, then these provinces will appear to have higher capacity because more services are being provided for less money (since the government is not paying for them). In some sense, this is not a problem for my analysis. If low capacity attracts investment, but investment increases the capacity measure, this only biases against finding a negative effect of capacity on FDI. Since I do find a negative effect of capacity, and that effect is fairly large, statistically significant, and robust to different model specifications, this concern suggests, if anything, that the coefficient I recover may be understating the true effect.

Even so, I conduct a robustness check to address this concern. The method I use to do this is an instrumental variables approach that is, in a sense, the opposite of a standard two-stage least squares regression. I find an instrument for my *dependent* variable — a variable that is very highly correlated with FDI, but not correlated with capacity except through FDI. I then run a first-stage regression using this instrument to predict the DV. In the second stage, I use the predicted values ($\hat{y}$) from the first stage as my dependent variable in lieu of FDI. This should rule out the potential for the feedback loop, isolating the causal mechanism in question. If the results are indeed driven by the feedback loop, we should see no effect of capacity on the instrument.

In this case, I use data on the number of patent applications filed in a province-year as my instrument. This is very likely to be highly correlated with FDI, but should have no effect on subnational government capacity. This is true for two reasons. First, patents are filed directly with the central government, and so the process bypasses the

provincial and other subnational governments entirely. Second, while foreign investors may be especially likely to provide public services, and this could inflate capacity, there should be no direct link between patent applications and increased capacity, except through FDI.

Table 4.4: First-Stage Regression (Robustness Check)

	Dependent variable:
	FDI (logged)
patent applications filed	0.927^{***}
	(0.047)
Constant	-3.773^{***}
	(0.435)
Observations	124
R^2	0.762
Adjusted R^2	0.760
Residual Std. Error	0.839 (df = 122)
F Statistic	390.976^{***} (df = 1; 122)
Note:	*p<0.1; **p<0.05; ***p<0.01

First, as expected, there is a strong relationship between FDI and the number of patent applications filed (Table 4.4). The coefficient on patent applications is 0.927 and is highly statistically significant. The R^2 of the regression is 0.762, meaning that patent applications alone accounts for about three-quarters of the variation in FDI. The instrument thus satisfies the inclusion restriction, in that it is strongly related to the variable of interest, and also satisfies the exclusion restriction in that there is no obvious relationship between the instrument and the error term in the model. A potential omitted variable is industry composition of the FDI, for which I do not have data, but the instrument and the residuals of the first-stage regression are entirely uncorrelated ($\rho = -4.74 \times 10^{-18}$).

I then use the predicted FDI values from that model ($\hat{y}$) as the dependent variable in the second stage, in lieu of using FDI as the DV directly. The results from the previous analysis are substantively similar to the original analysis (Table 4.5). The coefficient on absolute capacity and on relative capacity are both still negative and still highly statistically significant. This would seem to suggest that, while the reverse causality argument is plausible, the evidence still strongly supports my hypothesis. The differences between the robustness checks and the original models also suggest that the endogeneity

may be operating differently than how I originally thought — the coefficient on absolute capacity is greater in the original than in the robustness check, suggesting that FDI may actually decrease government capacity. If, as the rest of my theory suggests, governments withhold funding in tandem with corporate service provision, it stands to reason that we should not expect corporate provision to increase capacity. Instead, this seems to suggest that a government's ability to provide services by itself actually decreases. This could mean that the central government withholds too much money relative to the services that are provided, which would deflate the capacity measure as it is constructed, or it could mean that governments become dependent upon companies and begin to lose their ability to provide services efficiently on their own. I leave further testing of this to future research. In this second regression, the control variables all have very precisely estimated null effects.

Table 4.5: Second-Stage Regression (Robustness Check)

	Dependent variable:			
	$\hat{FDI}$			
	(1)	(2)	(3)	(4)
Relative capacity (lagged)		-4.135^{***}		-4.093^{***}
		(0.372)		(0.367)
Absolute capacity (lagged)	-3.533^{***}		-1.771^{***}	
	(0.694)		(0.511)	
Average wage (lagged)	0.00005^{***}	0.00003^{***}	0.0001^{***}	0.00003^{***}
	(0.00001)	(0.00001)	(0.00001)	(0.00001)
Population (lagged)	0.0001^{***}	0.00004^{***}	0.00005^{***}	0.00004^{***}
	(0.00000)	(0.00000)	(0.00000)	(0.00000)
Constant	2.226^{***}	6.016^{***}	1.845^{***}	5.999^{***}
	(0.309)	(0.455)	(0.301)	(0.451)
Year Fixed Effects	Y	Y	N	N
Observations	90	90	90	90
R^2	0.742	0.863	0.704	0.862
Adjusted R^2	0.727	0.855	0.693	0.857
Residual Std. Error	0.712 (df = 84)	0.518 (df = 84)	0.754 (df = 86)	0.515 (df = 86)
F Statistic	48.337^{***}	106.051^{***}	68.079^{***}	178.792^{***}
	(df = 5; 84)	(df = 5; 84)	(df = 3; 86)	(df = 3; 86)
Note:				*p<0.1; **p<0.05; ***p<0.01

Since I have shown that both absolute and relative capacity decrease FDI, and that the two measures are fairly highly correlated, that raises the question of whether one measure is better than the other. Empirically, neither is a "better" measure of capacity, in that

they both capture the underlying concept, but in slightly different ways. Theoretically, whether absolute or relative capacity should be expected to matter more for deterring FDI depends upon the decision calculus of the investor. Different types of capacity may weigh differently for different investors. If an investor is certain that it wishes to invest in China, then relative capacity will be a more important measure than absolute capacity. If the relevant comparison is other provinces, an investor will wish to invest in the province least likely to expropriate its assets, which will be the relatively low-capacity provinces. Placing the absolute capacity measures on a scale of zero to one, for instance, and deciding that all of the Chinese provinces are low capacity will mislead— even among all low-capacity provinces, or all high-capacity provinces, the smart investment decision is still to invest in the province with the lowest relative capacity.

If, however, an investor is interested in investing somewhere in Asia, but not necessarily in China, then the absolute capacity measure may be more important. Looking at a relative capacity measure of Chinese provinces may mislead, because a province with high relative capacity in China may still be low or high relative to subnational units within neighboring countries.

The implications of these results for policy and developmental outcomes is unclear. On one hand, it implies that efforts to increase subnational state capacity may have the unanticipated effect of deterring much-needed investment. On the other, this implication only holds if companies are willing to provide public services, subnational units face budget gaps, subnational governments have very high and approximately uniform incentives to please the central government, and subnational governments can coerce companies into providing public services. While these are plausible assumptions in China, they may not hold n other countries.

Conclusion

A truth that holds in many facets of life and politics is that if someone needs you, they are often unlikely to try to hurt you. In this chapter, I have argued that this general principle applies to foreign direct investment (FDI) and subnational governments. If a company creates value for a government, they are unlikely to predate upon that company. One way that companies can create value for governments is by providing public services. Yet

providing public services is not equally valuable everywhere – governments that struggle to provide public services on their own, but still have strong incentives to assure that the services are provided, will value this contribution far more than will governments that do not struggle. Thus, if companies wish to manage their risk when they choose where to invest within a single country, they should aim to invest in the place that is least likely to predate upon them, which should be the regions that have the lowest public service capacity.

I test this hypothesis using data on provincial foreign direct investment in Chinese provinces. China is an especially good case for testing this hypothesis, as the China is known to be a risky country to invest in, and yet investors have strong incentives to invest there anyway. Thus, we should expect investors to aim to manage the risks they face, and one way they can do this is by strategically selecting their investment location within the country. The theory suggests, then, that we should see more FDI going into regions with lower public service capacity, and less FDI going into regions with higher public service capacity.

To test the hypothesis, I develop two different but related measures of subnational service provision capacity. I find strong evidence that increasing capacity is associated with less foreign direct investment— that is, that lower capacity provinces, those that should value corporate public service provision most, attract more investment. This holds for both measures of capacity.

Both theoretically and empirically, this research contributes to our body of knowledge. First, my theory suggests that companies can use public service provision as a way to protect themselves against predatory governments, and thus can actively manage the risk they face when they invest abroad. This changes how we think about the obsolescing bargain in certain ways, because it suggests that companies are less-passive actors in this model than is often assumed — by creating value for subnational governments in the form of public services that governments might otherwise struggle to provide, the company can increase the cost the government will face if it engages in predatory behavior. This is especially useful for companies that are not especially well-connected with government elites, popular with the people, protected by treaties, or economically crucial. While many of the ways companies can protect themselves from governments are either immutable characteristics of the firm (its industry and economic activity, for

instance) or may be difficult to secure (making friends and influencing people), providing public services is something that nearly all companies above a certain size can manage.

The less positive implication is that, under certain circumstances, attempts to improve the capacity of subnational governments may have the unintended consequence of driving away investment. Yet the conditions under which this holds are not exogenous. That is, if governments can improve their treatment of investors, or take pains to assure that subnational governments' mandates are fully funded, then improving subnational capacity should not deter investment. Yet this does mean that improvements in subnational capacity ought not be altered individually, but rather as a portfolio of reforms aimed at improving governance.

5 Corporate Public Services, Anticipatory Compensation, and Access to Public Services

"So my advice to African leaders is to make sure that if, in fact, [Chinese foreign investors are] putting in roads and bridges... that the roads don't just lead from the mine, to the port, to Shanghai."

- Barack Obama (interviewed by The Economist, August 2014)[1]

Introduction

When asked by the Economist in 2014 about Chinese investment in Africa, United States President Barack Obama was generally favorable about the idea. Noting that Chinese investors have an outstanding potential to contribute to the development of infrastructure in Africa while pursuing their own natural resource extraction goals, he nonetheless advised African leaders to be very careful to assure that they benefit from this Chinese investment in infrastructure, and that it did not just serve the needs of the resource extraction companies building it.

President Obama's advice is emblematic of the broader debate surrounding corporate public service provision. As public opinion and government action increasingly favor companies playing a larger role in service provision in their host communities, a debate is slowly awakening about whether this is normatively desirable. Does corporate public service provision actually improve the standard of living, when compared with the counterfactual government provision, or does it not?

[1] See http://www.economist.com/blogs/democracyinamerica/2014/08/economist-interviews-barack-obama-1

On one hand, as President Obama points out, there are some very real concerns about corporations engaging in service provision. Based on where within their communities they provide and the characteristics of the goods they provide, corporations may end up effectively providing private rather than public or club goods — that is, they may provide services that are theoretically open to the community, but really only beneficial to the firm. A related concern is that companies will be less accountable to citizens than governments will be, leading to the provision of services that are not responsive to the needs and desires of the community.

On the other hand, as is also reflected in President Obama's comments, if those concerns are addressed, multinational corporations have tremendous potential to improve public services in their host communities. This is particularly true in the context of infrastructure, which is the focus of Obama's comments — in areas where the infrastructure is poor or nonexistent, community investment by multinational corporations represents an inflow of resources and expertise that may otherwise be lacking in the host community. Multinational corporations are likely to be more efficient at public service provision. Relative to international NGOs and aid organizations that may lack local knowledge and context, multinational corporations are well-situated to assess shortcomings in their host community and provide innovative solutions. Their interests are often linked to the interests of the citizens, since companies are most profitable when infrastructure, education, and healthcare are good, which are also in the interest of citizens. If leaders can assure that companies provide services more broadly, they should have a positive effect on the level of public services available in the communities.

A third perspective, which I introduce in this chapter, is that corporate public service provision should not affect the level of public services and infrastructure in a host community at all. Implicit in the previous argument is the assumption that corporate public services always supplement existing government public service activity. Instead, if governments anticipate corporate public services, they will condition their behavior accordingly. What this means is that increases in public services provided by corporations should be met with corresponding decreases in efforts by the government to provide those public services.. The result is that, on net, we should always expect to see roughly the same level of public services provided, regardless of whether the government or companies are providing.

To test this hypothesis, I leverage the 2013 Indian Corporate Social Responsibility[2] (CSR) law (Section 135 of the Companies Act of 2013), which mandates that companies provide 2% of their after-tax profits on developing their host communities, in conjunction with a fine-grained data set of geographic location of all companies within India. This law alows me to see what happens when we can assume companies are providing, which allows me to overcome identification issues with respect to where, when, and how much public services companies are actually providing. It also allows me to account for preexisting conditions in each district. That means I can compare districts before and after the law takes place, control for other contemporaneous changes in those districts, and attribute any change in service provision before and after to corporate provision of public services. As my measure of public service provision, I look at toilet construction in schools under the *Swachh Vidyalaya* (Clean Schools) program under the broader *Swachh Bharat* (Clean India) initiative. This is a particularly useful measure because of its importance to the lives of citizens in India, and also because it is an activity companies have been explicitly encouraged to engage in to fulfill their CSR requirements. In other words, as I will explain in more detail later, if we should see any effect of corporate public serice provision, we should see it here. I find an effect of service provision in the year immediately following implementation of the CSR law — a year in which evidence suggests that both companies and governments were unsure as to whether the law would remain in place — followed by the null effect my theory predicts.

In the next section, I provide more background about public service provision and development. After that, I explain in greater detail why we should expect corporate service provision to have no effect on the overall level of service provision within a district. In the section following that, I provide more background about the benefits of focusing on India – including more information about the 2013 CSR law and the Swachh Bharat and Swachh Vidyalaya initiatives — and detail the data I use for my empirical testing. After discussing the source of my data, I outline my research design and discuss my results. The final section concludes with broad takeaways, normative implications,

[2]So far I have avoided using the term corporate social responsibility, a term that is conceptually fuzzy and often laden wth sometimes-unintended meaning. I have preferred instead to use the more specific and accurate 'corporate public service provision'. Section 135 uses the term 'corporate social responsibility' (CSR), defined very specifically in a way that adheres to my definition of corporate public service provision. For the purposes of this chapter, I will use CSR when I refer to the law, but CPSP otherwise.

and a more thorough discussion of the further questions raised by this analysis.

Human Development and Levels of Service Provision

Fundamentally, an interest in service provision — how much, of what, to whom, and why — is born of an interest in human development. The lives people can live, the services they have access to, and the freedoms they enjoy are equally as important to understanding development as are economic indicators, such as average wage or GDP per capita, which tend to prevail in studies relating corporations and development (Sen, 1999). Shifting from macroeconomic measures to public services allows us to see the variation obscured by the economic measures: wealthy areas can have areas of relative poverty and deprivation, pockets of underdevelopment in otherwise developed areas, that are illuminated by a study of public service delivery.[3] This also allows us to divorce access from income, as one could theoretically have a relatively high income but low access to services, or high access to services with a low income. By this service-oriented definition of development, the latter — a person or an area who is poor but has access to quality schools, health care, and infrastructure – would qualify as more 'developed' than the former.[4]

This matters because, fundamentally, the focus of my theory is on public services and what happens when corporations provide them instead of governments. Where do we expect to see companies filling the potholes and filtering the water instead of the government, and why? In this chapter specifically, I ask: how does corporate public service provision contribute to the government's own efforts? Are citizens systematically better off if companies contribute to public service provision?

Often we implicitly assume that governments are the sole providers of public services, and that colors how we think about the distribution of those services. When governments provide public services, we often expect them to provide services in a way that is "basi-

[3]The cases of Detroit, Michigan and Flint, Michigan are bright, glaring examples of this. In Detroit, many residents had no access to water for many months in the early 2010s, and many residents of Flint still have access only to water that was unsafe to drink, cook with, or bathe in. Notably, both of these cases of very clearly under-developed areas, where residents' access to public services mirrors what we might see in particularly poor areas of developing countries, are located in a relatively rich state in a very rich country.

[4]The high income but low services cell of the typology is not empty, although it may sound implausible to some, since one would expect that those with higher incomes could afford services. Again, Flint, Michigan is a notable example, where residents have no drinking, bathing, or cooking water, regardless of their income.

cally equitable and sustainable" (Cammett and Maclean, 2014, 2). In other words, we generally expect that goods and services will be provided to all citizens, in roughly equal amounts, and indefinitely or for a very long time. After all, as Cammett and Maclean (2014, 2) write, "the state is the only institution that can be mandated to provide universal access to services". Still, a mandate is only a mandate, and does not always translate to empirical reality. Political institutions shape the provision of public services within and across states, as governments differ in their time horizons, preferences, and incentives (Lake and Baum, 2001; Besley and Coate, 2003; Ross, 2006; Malesky, Nguyen and Tran, 2014). Provision (and spending) can also become inequitable or unsustainable if citizens' preferences are taken into account (Alesina, Baqir and Easterly, 1999; Ostrom, 2003; Habyarimana et al., 2007; Owens and Sumner, Forthcoming), if governments are clientelistic or otherwise have inequitable preferences (Magaloni, Diaz-Cayeros and Estévez, 2007), or if governments are inefficient in their spending (Rose-Ackerman, 1999; Loayza, Rigolini and Calvo-Gonzalez, 2014).

Despite the relative dearth of discussion in the literature, private (or non-state) actors also play a large role in the provision of public services worldwide (Ostrom, 1996; Adida and Girod, 2011; Cammett and Maclean, 2014). These non-state providers include NGOs (Boulding and Gibson, 2009; Boulding, 2010; Brass, 2014), individual citizens (Adida and Girod, 2011; MacLean, 2014), rebel and sectarian groups (Cammett, 2014; Heger and Jung, 2016), religious groups (Jennings, 2014), and businesses (Frye, 2006; Jing, 2008; Polishchuk, 2009; Teets, 2012; Hönke and Thauer, 2014; Jones Luong, 2014).[5] Unlike governments, non-state providers cannot be mandated to provide for all and forever. They are not directly responsible to citizens. They are not constrained by votes or political institutions. Their aims are their own, and they often have fewer resources than governments do.

Although there is some debate about whether non-state public service provision is beneficial for social welfare and development in general (Cammett and Maclean, 2014), there is some optimism about the abilities of corporations to contribute to the public good. If fears about corporate service provision are allayed — chiefly that they will

[5] Businesses that provide public services can be separated theoretically based on whether the public service is their business (e.g., private schooling companies running schools, utilities companies filtering water) or ancillary to their business (e.g., oil companies providing health clinics, car companies building latrines). The former group responds to a clear profit motive, while the latter is less straightforward. In this analysis, I focus on the latter group.

provide goods that do not reflect the community's developmental needs — corporations may be particularly well-situated to aid in human development (Jones Luong, 2014). Corporations have resources and capabilities that local service-providing governments may lack, and thus they can contribute to public service provision in a way that can be valuable if it is properly channeled. Some worry that it may actually be a problem that companies can improve public service provision with their contributions, since companies tend to cluster in areas with good public services, and thus contributing in those areas and not others may exacerbate existing regional inequalities (Subramanya, 28 July 2015).

Yet the assumption that corporate public service provision actually contributes to, and improves, public service provision may be misplaced. For that to be true, we have to believe that corporate provision always adds to existing governmental efforts. In a mathematical sense, that is always true — the overall level of service provision is the sum of what the local government provides and what the corporation provides. But those two components are not independent. My theory predicts that instead of adding to one another, they should offset one another, and that corporate social provision should not have a positive effect, but instead have a negligible effect. In the next section, I explain the reasoning behind this in more detail.

Theory

In the simplest terms, the public service provision in any given area is a combination of what the government provides and what other, non-governmental actors provide. With the belief that corporations should be contributing to social welfare, some have suggested mandating "corporate social responsibility", such that all corporations be required to use some of their profits to improve their communities.[6] The idea that corporations should use their resources to provide services for the communities that host them seems reasonable, driven by the idea that companies have the ability and the responsibility to improve the lives of the people who work for them and those who live in the area.

[6]Public opinion seems to support this notion. In a survey conducted by Kerner and Sumner (2016), 86.9% of respondents reported that they thought multinational corporations should have a positive impact on their host communities. About half of those believed it should be required by law, while the other half believed that multinational corporations should try but not be legally required to have a positive impact. Perhaps most interestingly, this belief held regardless of political belief, although those who self-identified as Republicans or Libertarians tended to be more supportive of the voluntary measure.

This relies upon the tacit assumption, however, that corporate public service provision will actually improve public services, which in turn relies upon the assumption that corporate public service provision will always be something extra — the public services cherry on top of the existing public service provision sundae. Indeed, if corporations contribute to the existing effort governments are making to provide public services, that should be true. Yet it is hard to imagine that corporate public services and government public services are really independent: companies seldom provide services that are already present and sufficient, and governments are not going to spend money to duplicate services that corporations provide. A district can only have so many schools, or roads, or health clinics before the supply outstrips the demand. The result is that corporate service provision should not always be something extra. Corporate public service provision should not contribute to existing government efforts. Instead, governments will anticipate corporate public service provision and respond by reducing their own efforts. So instead of being something extra, corporate service provision merely maintains the status quo. Instead of expecting that corporate public service provision should contribute to and improve existing public service provision, corporate service provision should actually have a negligible effect.

In this situation, the local governments are crucial actors. They are chiefly responsible for carrying out service provision, and are the most immediate point of contact for the corporations. They are most aware of what is going on in their district – which companies operate there, how well they are doing, whom they employ, what they want and need, and, importantly, which public services they may be willing and able to provide. Because they provide public services and have the best vantage point of their business community, they are the actor who immediately respond to what the corporation does. It is important, therefore, to understand what the local government wants and what they can do.

The local government is entrusted with providing public services, and for any given service (e.g., schools, roads, water treatment), it has a goal for that service provision. This goal comes at least in part from the central government's goals. Even if this goal is qualitative in reality (e.g., "keep the roads in working order"), we can conceive of it as being a numerical target (e.g., "on a scale of 1-10, keep road quality at about 7").[7]

[7]The model in Chapter 2 is written for a single goal, but we can either think about the local government

While the local government does not want to fall short of its goal, because then it is providing less than it wants to, it also does not want to overshoot the goal. Building more roads than it needs or covering the whole town in latrines costs money and confers no additional benefit. So the local government aims to hit its target, and no more.[8]

To reach its target, the local government must provide public services. How much the local government can provide is a function of a few things: the central government's financial contribution, the local government's own spending capacity, and the tax revenue the local government can generate from the corporations in its jurisdiction.[9] In this framework, the local government has two potential sets of revenue, and has direct control over only one. The local government is a passive recipient of whatever the central government chooses to give it[10], but it can set the rate at which it taxes the corporation. Then, with whatever money it cobbles together, it provides the public services, although how well that money translates into actual public services is a function of its ability to spend the money efficiently and well.[11] If the local government cannot meet its goals, it can instead turn to the corporation, to ask if they will provides additional public services. In the model in Chapter 2, the corporation has the ability to decide how much it will provide if the local government asks. The local government anticipates what the company can provide when it chooses to ask them for help. In this chapter, the company provides a set percentage of its profits instead of making a strategic choice. This is to adhere to the dictates of the Indian CSR law, and thus limits its external validity. On the other hand, this provides a good test of the theory, since having a law in place that requires specific percentages of provision should be the best possible scenario for the

as playing this game several times simultaneously with different goods, or as the "goal" being less specific, and more related to overall service provision in the city.

[8] I only consider the situation in which the goal is exogenous. If the goal were endogenous – say the local government were to adjust its stated target based on its progress — some of the outcomes may be different. Exogenous goals are a realistic assumption, however, since governments make promises to their voters and are often given targets by the central government. I leave endogenous goal setting to future research.

[9] In this chapter, I relax the assumption that the subnational government has a choice of either taxing or asking the firm, and allow them to both ask the firm for help and tax the firm. The result ends up being similar to the dichotomous choice, because the subnational government's tax rate is constrained by what the firm provides. In other words, if it asks the firm, the tax rate must be low, although it does not need to be zero.

[10] I do not consider lobbying by the local government or how representation in a national legislature may influence this outcome. I assume it is exogenous to the model and that once the money has been allocated, the local government has no control over it.

[11] Although much of the research on public goods provision in political science uses spending as a measure of public goods, this neither captures non-state provision nor, typically, accounts for the fact that a dollar spent in Region A may not translate to the same amount or level of services as the same dollar spent in Region B, because of the relative capacities of the districts.

local government to be able to anticipate the company's level of provision.

Thus, the local government really only has one choice. It has money from the central government, which it can spend on public services, and it expects that the corporation will provide a certain level of public services based on the law. It can estimate how close to its target those two things bring it – with a rough idea of how much of the service it will be able to provide with the central government's money, and a similarly rough idea of what a given percentage of the corporation's investment would provide — and then it sets the tax rate appropriately to make up the difference.[12] If the combination of the corporate provision and what the local government can provide with only the central government's money brings it very close to its target, the difference the local government has to make up is smaller and it can set a low or negligible tax rate. If that combination does not bring it close to the target — for instance, if it knows from past experience that it will probably spend the central government's money inefficiently, or if the central government's financial contribution is really low — it has to set a higher tax rate in order to hit its goal.

It is this drive to meet, but not exceed, its goals that renders the corporate public service provision ineffectual: when it sets the tax rate, it reacts to all the other contributing actors and always sets its tax rate to assure the total provision level is approximately at its goal.[13]

This means that neither the central government's spending nor the corporation's provision of public services has an effect on the overall level of public service provision — if the corporation provides more, the subnational government sets the tax rate lower, and if the corporation provides less, it sets the tax rate higher. Rather than exacerbate existing inequalities, as Subramanya (28 July 2015) worries, it should preserve them. In equilibrium, for every additional dollar the central government gives to the local government, the subnational government lowers the tax rate by a set fraction of the

[12]The local government does have one other concern when setting the local tax rate, which is the opportunity cost of setting the tax rate, but that is less important here and is discussed in more detail in Chapter 2.

[13]Here I discuss the district government setting taxes to make up this funding difference, but we can equivalently think of the district government needing to take some other costly step – taking on debt, asking for more money, levying a tax on citizens, having a bake sale, etc. – to raise money to make up the difference and the logic does not change. The local government will not take the costly fundraising measure if it does not need to, and so it will not if the company provides services. These are logically equivalent because the company's choice to provide is not a direct function of taxation.

value of the investment.[14] The overall level of service provision is entirely inelastic – it will always be about at the subnational government's target. In equilibrium, we should see no effect of corporate service provision on overall levels of public services, and we should never see governments failing to approximately hit their target.[15]

This is true in equilibrium — that is, if the subnational government anticipates the level of service provision and the corporation provides that level of service provision. In the case of India, the argument can more easily be made that the subnational government can anticipate the firm's provision level after the law takes effect, since the law dictates that the corporation will dedicate 2% of its profits to service provision. If that happens, we should see no effect of corporate service provision. However, a problem arises if the corporation does not follow through — if the local government anticipates the company will provide, and then the company shirks. Although there appear to be no concerns of widespread noncompliance with the law[16], there are reasons to think there could be errors made immediately after the law takes effect. First, when the law was passed there were doubts as to whether the law would be immediately repealed. The law was passed in 2013, when the government was led by the Indian National Congress (INC) party, and shortly thereafter a new government was formed by the Bharatiya Janata Party (BJP). Some companies may not have follow the law immediately after the change for this reason. Second, there is some evidence that companies were initially unclear on whether they actually needed to follow the law and what was considered a CSR contribution under the law (see Appendices H and I, and note that most of these prohibitions were published in June 2014, two months after the law took effect). The much-publicized Wikileaks Sony Hack uncovered, in addition to its more salacious materials, a fairly long email chain that illuminates some of this confusion.[17]

If, for any of those reasons, the government expects that the company will provide

[14] Formally, the equilibrium tax rate is $\tau* = \frac{aG_i}{cI} - \frac{m}{I} - \frac{p}{c} - \frac{y}{2c^2I^2}$, where aG_i is the target, c is the subnational government's capacity, I is the value of the investment, m is the money it receives from the central government, and p is the percentage of assets the corporation is supposed to provide. For every additional unit of m that is provided, the equilibrium tax rate decreases by $\frac{1}{I}$.

[15] It is important here to remember that while the central government's goals influence the local government's goals, they are not necessarily the same and may be quite different. Thus we should expect to see local governments failing to hit central government targets on a fairly regular basis.

[16] Although noncompliance with Section 135 itself imposes no fines or punishments, firms can be punished for noncompliance with the Companies Act itself.

[17] An interesting quote points out a potential shortcoming in the law. Because the 2% profit rule is based on average annual net profit over three years, Sony legal counsel notes that, "it's possible that you could be subject to the obligation but then end up not paying anything if [the company] has wild swings in gains and losses." See `https://wikileaks.org/sony/emails/emailid/109223`.

services, but the company does not follow through, there may be negative consequences for social welfare. In this scenario, we should expect to see gaps in public service provision, where the government cut back its efforts, but their expectations of the companies were not fulfilled, and the consequences should be worst where the amount of investment is high. That would create the greatest gap between expectations and reality. Where there are fewer companies or fewer assets, the penalty of non-provision should be less severe, as the government will have cut back its own efforts less.[18] By the same token, if governments were uncertain of the company's likely contributions immediately after the law took effect, they may not have adjusted their own contributions immediately. Thus, we may see no effect, a positive effect, or a negative effect for the 2014-2015 fiscal year. Because this does not happen in equilibrium, if it does occur, it should be temporary. We should expect any effects to be immediately followed by a return to the equilibrium expectation of no effect.

This all produces a testable hypothesis that stands in direct contradiction to some of the fears about the corporate social responsibility laws. While they would predict that corporate service provision would have a positive and increasing effect on service provision levels, such that areas with corporations get better over time while those without do not, my expectation is that corporate service provision should have either no effect or only a temporary effect. If corporations actually fulfill the expectations, and provide the services that are anticipated of them, the law should have no effect because the government's withholding should offset the provision. If corporations do not fulfill obligations, however, then my theory predicts the effect should be negative: governments are withholding in anticipating of provision that does not occur, and thus there is a gap in service provision. Since I am not able to empirically identify where and when corporations do and do not fulfill their obligations[19], the expectation is that there should be no benefit to having companies in a district after the law's implementation.

[18] Formally, the level of service provision should be $x^* = cm + c\tau I + F_i$, where c is subnational capacity, m is funding from the central government, τ is the tax rate, I is the value of the investment, and F_i is the corporation's contribution. If the subnational government anticipates that $F_i = .02I$, or that the corporate contribution will be two percent of the value of the investment, but the corporation does not provide, the level of service provision is $x^* = aG_i - \frac{y}{2cI} - .02I$. That last term cancels if the corporation provides as it should, but if it provides less than that, this negative term persists and service provision is decreasing in investment.

[19] Companies are required to fill out an additional section on their annual reports if they do not fulfill their legal obligations, but these forms are available chiefly from the companies' own websites, which makes collecting and analyzing them a Herculean task.

Hypothesis: Corporate service provision should have no effect on the level of public service in an area in equilibrium.

Background

To test these hypotheses, I focus on India. India provides a good test case because it has passed the first, and, as of May 2016, only national law mandating that medium- and large-sized companies provide public services. Section 135 of the Companies Act of 2013 provides a perfect venue to investigate the welfare effects of corporate public service provision. This is true for a few reasons, apart from it being the only law so far enacted. First, it specifies an exact amount that companies must aim to spend on their provisions (2% of their pre-tax profits, averaged over three years). This eliminates the necessity of tracking and estimating what companies provide. Second, it is very detailed as to what does and does not count under the law (see Appendices H and I), and both the inclusions and exclusions make it an almost perfect representation of my formal theoretical model. Third, the law was passed in 2013, meaning that I can compare service provision levels before and after the law's implementation.

A further benefit of the case of India is that a program implemented by the recently-elected Bharatiya Janata Party (BJP) led government provides a good and intuitive measure of service provision level. The Swachh Bharat ("Clean India") Mission was enacted in October 2014, just four months after the CSR law came into effect, during the same fiscal and calendar year. Much of the initiative focuses on building latrines, indoor toilets, separate toilets for girls in schools, and eliminating open defecation. This initiative is ideal for testing the theoretical model because it adheres very strongly and clearly to many of the assumptions of the theoretical model. Each district has explicit quantitative goals for each component of the mission, these goals are issued by the central government, and they are made public. The components of the mission are carried out by districts, and the majority of the funding for this initiative comes from the central government, with a smaller portion coming from the state, and none from the district or household.[20] Companies have been explicitly encouraged to contribute to the initiative as a way of fulfilling their CSR mandate. Additionally, the total actual public service

[20] See `http://sbm.gov.in/sbm_new/AboutSBM.aspx`.

provision for each component is published each month, including for years before the implementation of the initiative and before the implementation of the CSR law.

Another benefit of testing in India is that India is a very large country with a tremendous amount of within-country variation along most dimensions and is very forthcoming with data even for lower-level governments. This allows me to conduct my analysis at the district level. Districts are the administrative unit beneath the state, which is the highest-level administrative unit, and are responsible for the bulk of public service provision in India. Districts are led by members of the federal civil service who are chosen and appointed by the state government and entrusted with implementation of both state and federal law, especially as pertains to development, service provision, and maintenance of order. In addition to being the most relevant government unit for testing this hypothesis, conducting my analysis at the district level also allows for a fairly large sample size. I am able to collect data on 638 districts.

Data

Although the theory speaks to public service provision more broadly, I focus my analysis specifically on the construction of school toilets, which is part of the Swachh Vidyalaya (Clean School) component of the Swachh Bharat Mission. I focus on school toilets for two reasons. First, school toilets (or the lack thereof) are a serious developmental problem in India. Many schools in India lack toilets entirely, and many that have toilets do not have separate facilities for boys and girls, despite a 2009 Supreme Court directive requiring both. In 2006, for example, only 37% of schools had girls toilets and only 31% had boys toilets. Of those that exist, a sizable portion are not functioning. The lack of functioning toilets and lack of separate girls' toilets in particular is an obstacle to school attendance, as many girls leave school permanently when they hit puberty or do not attend school when they are menstruating.[21] Access to toilets and proper sanitation also stem the spread of disease. The Indian government has made the construction, maintenance, and compliance of school toilets a key component of their Swachh Bharat

[21] "Educating girls is my priority. I have noticed that girls drop out of schools by the time they reach class 3rd or 4th just because schools don't have separate toilets for them. They don't feel comfortable. There should be toilets for boys and girls in all schools. We should concentrate on girl students not quitting schools." - Prime Minister Narendra Modi, 5 September, 2014 (Indian Ministry of Human Resource Development, 2014)

initiative, with the goal that every school in India should have separate toilets for girls and boys by August 2015 (Indian Ministry of Human Resource Development, 2014).

The second reason I focus on school toilets in this analysis is because, unlike other areas of the Swachh Bharat initiative (such as the construction of toilets in homes), corporations can and do engage in this type of service provision. Further, the government has explicitly encouraged companies to construct toilets to fulfill their corporate social responsibility requirements. This encouragement is so direct and explicit as to require no interpretation — in the speech officially launching the Swachh Bharat Mission, Indian Prime Minister Narendra Modi said, "I call upon the corporate sector also to give priority to the provision of toilets in schools with your expenditure under Corporate Social Responsibility." (Indian Ministry of Human Resource Development, 2014). While certainly not all companies choose to build school toilets, it is clear that companies know toilet construction is a need, that it fulfills their CSR requirements, and that the government wants them to do so. This may all be more ambiguous for other service provision opportunities.

Data on the progress of the Swachh Bharat Mission is available from the Ministry of Drinking Water and Sanitation. These data can be obtained at a level as finely grained as the Gram Panchayat (village council) level, but because the district was the most finely disaggregated administrative unit I could typically code for the corporations, I collected the data at the district level. From this data, I collected the number of toilets built per district for each month for the 2010-2011 through 2015-2016 fiscal years (April 2010 through March 2016). For each year, I am also able to collect data on the district's annual toilet construction objective, the total toilet stock in each district at an annual basis, the amount that was allocated to each district by the central government for school toilet construction, and the actual amount the district reports having spent on school toilet construction per year. I have data for 638 districts, representing all 29 states and 2 of the union territories.[22]

To determine where companies operate and how large they are, I use the state-wise master list of corporations from the Indian Ministry of Corporate Affairs. This list includes names, registered addresses, authorized capital, registration type, and principal

[22] Progress data were not available for the Andaman and Nicobar Islands, Chandigarh, Daman and Diu, Delhi (NCT), and Lakshadweep.

business activity, among other information. I use the postal index number (PIN) from these addresses to match each company to its district. However, as the information in this database was entered in by hand over many years, there are sometimes mistakes in addresses, including missing digits from PINs and PINs that are missing all together. Of the 446,650 active registered businesses in the data, I am able to identify a district for 99.1% of them. Missing or inverted digits may result in some mis-coding of districts, but since these errors can be assumed to occur more or less at random, this introduces some noise but no systematic bias into the measure. Companies whose PIN identifies them as being in a district that is not in the state they are registered in are dropped from the analysis (e.g, three companies are identified as being in "Pune, West Bengal", but Pune is in Maharashtra).[23] Because the dependent variable pertains only to districts with some rural component, districts that are only urban and thus do not show up in the dependent variable data are also dropped. After removing those, I have geographic information for 62.1% of all active companies on the list. I limit the companies in the analysis to private companies coded as either Indian Non-Government Company or Subsidiary of Foreign Company. I am left with a total of 414,544 companies, 99.5% of which are Indian Non-Government Companies.[24]

The most company-rich and company-poor states tend to correspond with major cities (Table 5.1): nearly 8% of the companies are registered in Bangalore, Karnataka[25], 3.4% in Jaipur, Rajastan, and about 2% each in Lucknow, Uttar Pradesh, Gurgaon, Haryana (which is immediately adjacent to Delhi), and North 24 Parganas, West Bengal (which includes the part of Kolkata dominated by information technology companies). The ranking is largely unchanged if instead I look at the total authorized capital within the state.[26] For the purposes of this analysis, where small companies should contribute less and large companies more, it is also telling to look at the average company size. Using that measure, the ordering remains largely unchanged, except that Haryana, which

[23] There were cases where a city is on a border between two states – most commonly Bihar and Jharkhand – and these I recoded to be in the proper state instead of dropping them.

[24] Many foreign companies partner with a domestic company when they invest in India and would therefore be coded as an Indian Non-Government Company. For instance, Toyota has seven registered business entities in India, and only two are considered subsidiaries of a foreign company. Siemens has five registered businesses, and none are considered foreign subsidiaries. IKEA is registered once and is also considered an Indian Non-Government Company.

[25] The city of Bangalore is split into multiple districts. What I code as "Bangalore" is the merger of "Bangalore (urban)" and "Bangalore (rural)", but does not include the other districts.

[26] The best available measure of the size of the company is its authorized capital, rather than assets or profitability.

West Bengal	27.4%	Daman and Diu	0.03%
Delhi	12.0%	Arunachal Pradesh	0.03&
Karnataka	9.5%	Nagaland	0.03%
Uttar Pradesh	9.0%	Mizoram	0.004%
Rajasthan	6.2%	Lakshadweep	0.002%

Table 5.1: The top five (left) and bottom five (right) states or union territories by number of companies registered and the percentage of the data they represent.

partially encircles Delhi, and Maharashtra (Mumbai and Pune) replace Uttar Pradesh and Rajasthan in fourth and fifth place.[27]

Research Design

To test these hypotheses, I compare data on service provision at the district level from the fiscal years before (2010-2011 through 2013-2014) and after (2014-2015 and 2015-2016) the law change. As my dependent variable, I use the number of school toilets constructed in each district during each fiscal year.[28] Each district is given an objective of how many toilets they should construct in each fiscal year, and the central government transfers a certain sum of money to build them. We should expect that the number of toilets constructed in any given district is a function of their goal, how much money they are given, how many toilets they already had, and how much money they spent on the toilets. Private industry should not have an effect on toilet construction unless the companies are actually constructing toilets, since these are toilets built in government schools and I am implicitly accounting for the effect they would have by paying taxes.

The CSR law came into effect at the beginning of the 2014-2015 fiscal year (April 2014). This law requires nothing of district governments and should have no effect on its construction of school toilets, except if it compels companies to start building toilets. Since companies are supposed to satisfy their CSR requirements in the areas immediately surrounding their facilities and the government has encouraged them to satisfy it by building school toilets, there are good reasons to think corporate presence should only matter in districts that have companies and only after the law takes effect.

[27] If we look at median instead of mean, the correlation between number of companies and size breaks down, since this singles out smaller states with a large proportion of their registered companies operating in chemical and metal manufacturing and/or mining quarrying. These states or UTs include Daman and Diu, Assam, Manipur, Meghalaya, and Nagaland.

[28] The original data describes how many toilets were built in each month. I turn this into yearly data by looking at the cumulative sum of production over the fiscal year, which ends in March.

Empirically, I look to see whether the effect of having companies in a district has an effect on the number of toilets that are built, and if this effect changes after the law is put into effect. Since companies can find other ways to fulfill their CSR obligations, any effect detected should understate the scope of the effect of corporate public service provision more broadly.

I test the hypothesis by analyzing trends in toilet construction over time. The null hypothesis suggests that areas with companies should start building more toilets after the law is put into effect, conditional upon their goals and initial stock of toilets. My theory suggests, instead, that the law should have no effect: areas with companies should be no better at toilet construction than areas without companies after the law comes into effect. To test this, I run a log-linear model predicting logged toilets constructed per year, as a function of the predictive variables listed above, as well as a dichotomous variable indicating company presence in the district, interacted with fiscal-year fixed effects. I use the results of this model to estimate the marginal effect of corporate presence on toilet construction in each fiscal year, using non-parametric bootstrapping to estimate the uncertainty of the marginal effects.

This allows me to estimate whether having companies helps, hurts, or has no effect on toilet construction in each year in my sample. My theory would suggest that, whatever the effect in 2011-2014 — and it could be positive, negative, or null, since some companies may be providing services, but not all, and the district official may be less able to anticipate it — the effect beginning in 2015 should be null. The null hypothesis is the critics' fears, that companies would increase public service provision, and thus that the effect of companies on provision would be positive.

Analysis

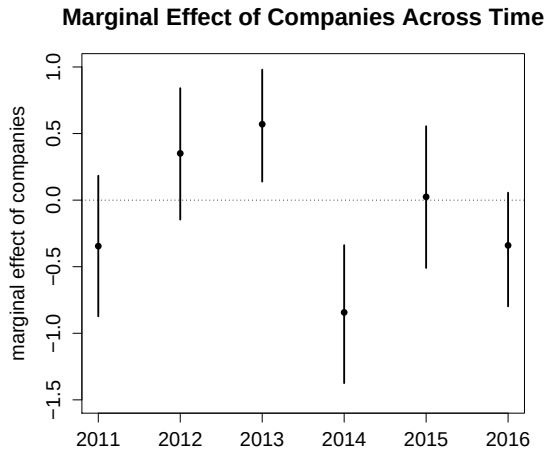
I interacted company presence with fiscal year fixed effects to detect how the effect of corporate presence changes over time. This allows me to analyze changes that occur after the law comes into effect without restricting the effect to any functional form. I run this model four times, each with a difference measure of corporate presence. The four figures in Table 5.2 show the marginal effect of company presence on logged toilet construction

for each of the fiscal years in the sample.[29] The theoretical prediction is that after the law comes into effect — which, on the plots, should be 2015, which represents the 2014-2015 fiscal year — the presence of companies should have no effect. That is indeed what happens when I use measures of company presence that relate to the number of companies that are present. The first figure (a) uses a dichotomous indicator of whether a district has companies registered within it, and the second figure (b) uses the logged number of companies registered within the district. Although the scale differs due to the very different scales of the independent variables, the trends look similar: in 2011 and 2012 there is no distinguishable effect of company presence, the effect is positive in 2013, then becomes negative in 2014, and, once the law comes into effect, the effect is null. In the dichotomous model, the effect of companies is increasing in the years leading up to the passage of the law, sharply negative in the year the law passes, and then becomes null. With the company count IV, instead we see that company presence is not significantly different from zero in most years, and there is no change after the law goes into effect.

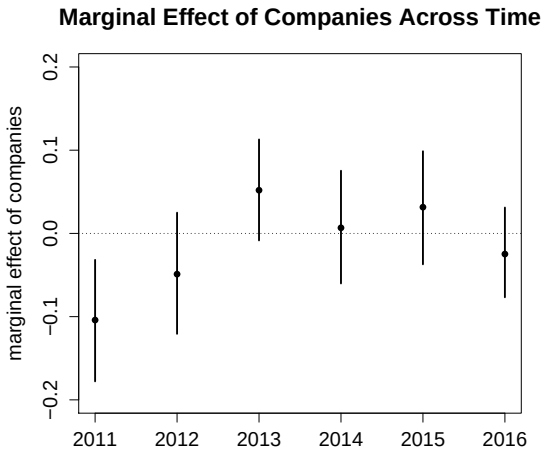
Looking instead at measures of the average size of companies, in Figures (c) and (d), the year before the law takes effect looks to be a boon for districts with companies, with the effect of companies becoming immediately and distinctly positive, but then the effect retreats back into statistical insignificance and effects very close to zero after the law takes effect. My theory specifically says that the effect of companies providing should never be positive, but the surge and retreat in these graphs suggest a need for additional tests. While districts with larger companies are no different from those with smaller or no companies after the law comes into effect, the sharp positive effect right before the law takes effect could be explained in a couple of ways. It could be that some companies beginning implementing their corporate public service provision in advance of the law, seeing it as an inevitability, but that the governments do not adjust until afterward. I leave this to future research.

Although the general trend — a weakly positive and increasing effect in the years before the law, followed by a null effect — is present for all the measures, there are differences between them. In the dichotomous measure, for instance, there is a sharp negative effect right before the law takes effect, whereas the size variables show a strong

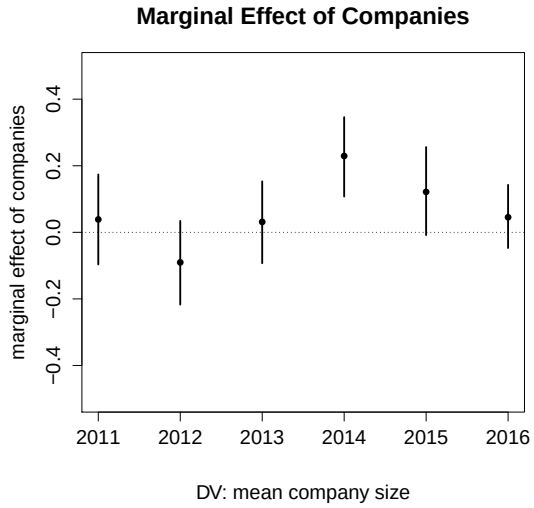
[29] Note that the year on the axis is the year the fiscal year ends, so 2011 is the 2010-2011 fiscal year.



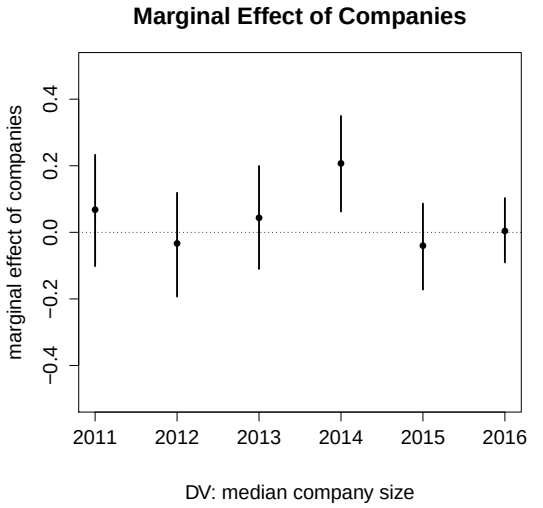
(a) DV: dichotomous presence of companies



(b) DV: number of registered companies



(c) DV: mean company size



(d) DV: median company size

Table 5.2: The marginal effect of company presence on logged toilet construction with different DVs of company presence. 95% confidence intervals come from non-parametric bootstrapping with 5000 iterations.

positive effect in that year. Why should we see such a different between the count variables and the size variables? One clear explanation is that having large companies is more important for service provision than having many companies. Although certainly it is possible to have many large companies, empirically the two are related ($\rho = .43$), but not especially closely (Figure 5.1). Having large companies, even if there are not many of them, may make it easier to police the companies and may make the companies more effective at providing services. Even if a single large firm might provide the same dollar amount in public services as ten smaller companies that sum to the single company's profit, the single company will not face the coordination problems the ten smaller

Table 5.3: Control variable results for interactive investment models.

	Dependent variable:			
	toilet construction (logged)			
	companies present	number of companies	mean size	median size
toilets total t-1 (logged)	−0.017	−0.018	−0.025	−0.024
	(0.024)	(0.025)	(0.024)	(0.024)
objective (logged)	0.445***	0.446***	0.436***	0.437***
	(0.058)	(0.058)	(0.064)	(0.065)
amount allotted (logged)	0.179***	0.180***	0.177**	0.186**
	(0.067)	(0.064)	(0.073)	(0.073)
amount spent (logged)	0.208**	0.210**	0.196**	0.191*
	(0.102)	(0.100)	(0.100)	(0.104)
state election t+1	−0.294	−0.276	−0.329	−0.324
	(0.301)	(0.294)	(0.327)	(0.328)
Constant	−0.119	−0.082	−0.978	−1.292
	(0.622)	(0.610)	(1.029)	(1.843)
Observations	3,276	3,276	2,896	2,896
R^2	0.531	0.530	0.536	0.535
Adjusted R^2	0.525	0.524	0.530	0.529
Residual Std. Error	1.675 (df = 3233)	1.677 (df = 3233)	1.689 (df = 2855)	1.690 (df = 28
F Statistic	87.182***	86.831***	82.495***	82.172***
	(df = 42; 3233)	(df = 42; 3233)	(df = 40; 2855)	(df = 40; 285
state fixed effects	yes	yes	yes	yes
SEs clustered by state	yes	yes	yes	yes
Note:				*p<0.1; **p<0.05; ***p<0

companies would, and may be better able to suit the community's needs. Further, there may be externalities to school toilets that are better internalized by one firm than by many smaller firms. For instance, if large firms tend to require many workers with at least a primary education, they may be both more likely to benefit from and therefore target their efforts to education.

The results for the other variables in the model are all largely as expected (Table 5.3). There are more toilets built in districts with higher objectives for toilet construction, where more money is allotted to the district to spend on toilet construction, and where more money is spent on toilet construction. Perhaps surprisingly, the effect of the total stock of toilets in a district in the previous year is not statistically significant. Similarly, I find no distinguishable effect of an upcoming state election on toilet construction, and the coefficient, although not significant, is negative. This may be surprising, as ramping up toilet construction in the year before an election might be a good electoral strategy, but that is not be the case in this sample.

Inferring a negligible or null effect from statistically insignificant results can be danger-

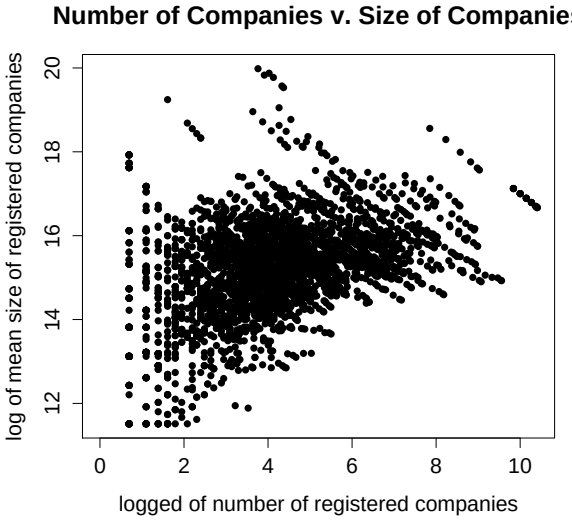
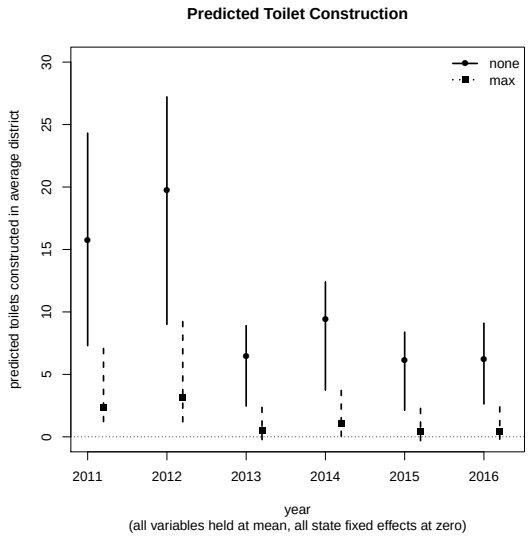
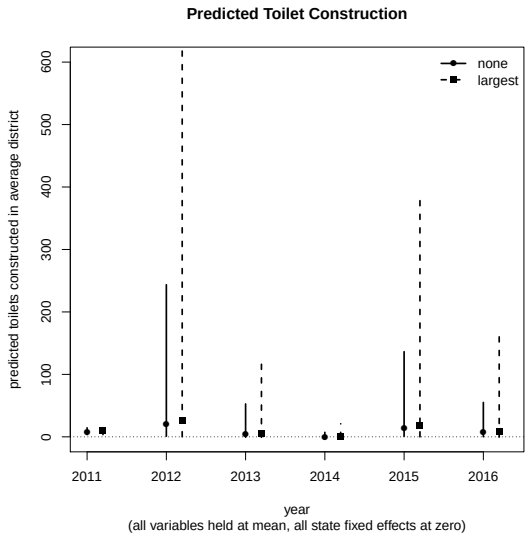


Figure 5.1: The number of companies registered per district-year versus the authorized capital (size) of the companies registered per district-year.

ous and misleading (Rainey, 2014), so I also estimate the substantive effects of corporate provision. As both panels in Table 5.4 illustrate, the substantive effect of corporate presence – illustrated with predicted toilets constructed per year – appears to be fairly small for the years after the law's implementation. Circles represent no corporate presence and squares represent the highest level of corporate presence in the data, meaning the highest number of registered companies for the left panel and the largest median company size for the right panel. The confidence intervals — estimated via 5000 nonparametric bootstrapped simulations — for no corporate presence and the absolute highest level of corporate presence overlap, meaning that districts with no companies and districts with the most or largest companies could produce the same number of toilets, according to the model. Setting aside the uncertainty, and looking just at the means, in the years with the largest effects of corporate presence, the effects could be substantial. In the left panel, districts with the most companies are predicted to produce about ten fewer toilets per year than districts without any in 2011 and 2012. After the law is passed, this margin begins to narrow, to a difference of less than five toilets in 2015 and 2016. In the right panel, there is no difference between districts with no companies and those with the largest companies on average, although the effects are weak and the confidence intervals large, suggesting that it is possible (if unlikely) that areas with very large companies could have a large positive substantive effect.



(a) Predicted toilets as number of companies varies from its lowest to highest levels.



(b) Predicted toilets as median company size varies from its lowest to highest levels.

Table 5.4: Predicted toilet construction to assess substantive significance. All continuous variables held at their means, all state fixed effects set to zero, and election dummy set to zero. 95% confidence intervals simulated via nonparametric bootstrapping with 5000 iterations.

If this told us that districts with lots of companies are generally prone to do worse than those without, and that the margin in the left panel was narrowing after the law takes effect because districts with companies are catching up, that would be damaging for the theory. However, that is not what is happening. The margin narrows after the law takes effect not because districts with very high corporate presence improve — in fact, they appear to do roughly the same in every year – but because districts with no companies begin to do worse. Both of these panels suggest that, substantively, the law has had no discernible effect on how companies influence service provision.

This analysis raises three big questions. First, how can I be sure that the null effect I find is because governments are withholding their service contributions? There are two primary alternative explanations for this null finding. The most obvious is that companies just are not complying with the law. While there is some evidence that there may have been some noncompliance in the first year, there is no evidence that there is widespread non-compliance. Further, if we would see an effect of the law on any specific public service, school toilets would likely be where we would see it, as the government has made such a concerted effort to encourage companies to engage in toilet construction, something they have not done for other services. Another potential explanation is that

companies are providing public services and those public services may be having an effect on service provision, but they are not providing in their home districts. This could be because they operate in urban areas and are choosing to travel to construct toilets in rural areas, or because their registered locations differ from their operational locations, and I am not properly capturing the distribution of corporations. With the current data I have, it is difficult to speak to the first point. I have run robustness checks aggregating corporate presence to the state level, to see if districts in states with more companies or larger companies have systematically better service provision than those without, and I find no evidence that this is true. The same null effects for the district-level measure are found also when using the state-level measure. A better measure may be to assign each company a given mile radius around its facility, and see if those districts perform better. To the second point, it is true that registered address and operations do tend to differ, but because the geographic concentrations in my data mirror the known operations patterns in India (e.g., I am properly capturing large industrial areas), this is at present not a serious concern. That is, I am confident I am capturing the general distribution of investment, although I am certainly under-counting the actual number of operations. In future work, I hope to be able to find a better measure of business operations.

The second big question is one of external validity, both to other services within India and to other countries. School toilet construction is an incredibly specific dependent variable, so it may seem initially unclear that this should generalize to other types of public services. In some ways, the highly specific nature of school toilet construction means that this should be a fairly conservative test: it should certainly understate the total effects of the law and corporate public service provision, since not all companies will choose to build toilets. It is also something that any company can engage in: building a single school toilet is relatively inexpensive (260,000 rupees, which is just under $4000 USD at current exchange rates), which makes this an accessible CSR-fulfillment option for even the smallest of qualifying companies (Indian Ministry of Human Resource Development, 2014). The same cannot be said for larger service provision contributions, such as health clinics, schools, road infrastructure, and so forth. Similarly, because of the government's emphasis on it, school toilets are a service provision option that all companies should have relatively equal incentives to provide.

One shortcoming of this, however, is that it does overemphasize public service provi-

sion in rural areas.[30] Although this is an area that is salient both for developmental and political purposes, it may not be representative. Companies that are not located near rural areas make balk at the difficulty and cost of both provision and maintenance, if it involves travel. In future work, I am to test this relationship using a more encompassing measure of public service availability and quality that will aggregate overall service provision and, hopefully, be more applicable to urban districts. Specifically, I plan to use data on housing prices, relying on literature from urban planning and economics that suggests that changes in housing prices over time reflect the value of the land, which is a function, primarily, of the amenities available to its residents – these things being a large part of what makes living in any particular area attractive. This test, however, may overemphasize effects in urban areas, since that is where property deeds are most formalized, the housing market is most dynamic, and the data are most easily available. The combination of that test with the tests described above, however, represent a more complete test of the theory.

The third big question, and indeed the question that motivates the entire chapter, is the normative one. Should corporate public service provision be mandated? That is a difficult question to answer, in part because the findings are not quite robust enough to base policy recommendations on and it may take a few more years before we observe the full range of effects in India, but also because there is not a clear answer theoretically. Both theoretically and empirically, corporate public service provision does not appear to have a positive effect on overall levels of service provision. This suggests it is not really "good" for development. On the other hand, it also does not have a negative effect. There is no effect in equilibrium. There could possibly be aberrant negative consequences even after the intricacies of the law are entirely worked out, if, for instance, a government conditions its budget and provision upon expects of a company that has an unexpectedly bad year for profits. Because the provision levels are based on profits, which have a random component to them, rather than something more fixed, such as illiquid assets, there is a possibility an unexpected bad year could result in underprovision in services within a district. That said, because governments can adjust their expectations, any negative effects should be short-lived. One potential positive conse-

[30] Provision of toilets is a serious developmental issue throughout India, but the Swachh Vidyalaya program and data focus specifically on rural schools.

quence of the law, which I have not explored here because not enough time has passed to see if it happens, might be that, if corporations provide services and governments learn from the corporations, it could be that government public service capacity increases over time. The counterargument to that, however, is that corporations providing public services creates incentives for governments to slack on their own commitments, which, over time, may result in them losing capacity they originally had, just as humans lose muscle mass if sedentary. On net, then, the law's direct effect may be benign, but it will take several more years before we can understand if there are other unintended positive or negative consequences.

Conclusion

The idea that corporations should contribute to the well-being of the communities they invest in is popular among citizens and is gaining traction with governments. Despite its potential to contribute substantially to government efforts at providing services, leading to an overall improvement in services and infrastructure, in this chapter, I argue that corporate public service provision should not have an effect on the level of public services that are available. Instead, corporate public service provision should create incentives for governments to hold back on provision of their own, resulting in no change in overall service provision levels on average.

I test this argument using data on school toilet construction from India's Swachh Bharat Mission, leveraging a 2013 law change that requires companies to spend 2% of their pre-tax profits on providing public services within their immediate communities. Leveraging this law change allows me to compare toilet construction in each district before and after the law takes effect, to see if districts with companies in them actually see outcomes that are systematically different from districts without companies. I find that districts with corporate presence were no different from districts without corporate presence in their abilities to build school toilets after the law takes effect. When I use measures that focus on the number of companies, I see a negative effect of corporate presence immediately preceding the law's implementation, with no effect after the law takes effect. When I instead use a measure of the average company size within a district, I find a slight increase in the effect of corporate presence on public service provision in

the years leading up to the law, followed again by a return to a null effect after the law is in place. While these effects that are detected before the law may be fertile ground for future research, I also find that, when analyzing the substantive effects of the measure that the effect of corporate presence is negligible.

Yet although I find evidence that corporate public service provision does not increase the overall level of service provision in an area, levels is only one aspect of public services. Certainly it matters how much of a service is provided, but so do the qualitative characteristics of the services. So while it may be the case that levels do not change, areas serviced by corporate public services receive a substantially different type or quality of service. This theoretical framework is not set up to address that issue, but future research should focus on the other ways in which corporate public service provision could have serious positive or negative effects on citizens.

Appendices

G Activities That Do Not Count as CSR Under Section 135

From Companies Act of 2013, Section 135, Government of India Ministry of Corporate Affairs General Circular No. 21/2014 (18 June 2014):

- Capacity building of government officials and elected representatives both in the area of [public private partnerships] and urban infrastructure.
- CSR projects or activities that benefit only the employees of the company and their families.
- One-off events such as marathons/awards/charitable contributions/advertisements/sponsorships of TV programs/etc.
- Expenses incurred in fulfillment of any other act.
- Contribution of any amount directly or indirectly to any political party.
- Activities undertaken by the company in pursuance of its normal course of business.
- Projects, programs, or activities undertaken outside India.
- Sustainable urban development and urban public transport systems.

H Activities That Count as CSR Under Article 135

From the Ministry of Corporate Affairs Notification, issued 27 February, 2014:

- Eradicating hunger, poverty and malnutrition, promoting preventive health care and sanitation and making available safe drinking water
- Promoting education, including special education and employment enhancing vocation skills especially among children, women, elderly, and the differently-abled and livelihood enhancement projects
- Promoting gender equality, empowering women, setting up homes and hostels for women and orphans; setting up old age homes, day care centers and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups
- Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, agroforestry, conservation of natural resources and maintaining quality of soil, air and water
- Protection of national heritage, art and culture including restoration of buildings and sites of historical importance and works of art; setting up public libraries; promotion and development of traditional arts and handicrafts
- Measures for the benefit of armed forces veterans, war widows and their dependents
- Training to promote rural sports, nationally recognized sports, paralympic sports and Olympic sports
- Contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government for socio-economic development and relief and welfare

of the Scheduled Castes, the Scheduled Tribes, other backward classes, minorities and women

- Contributions or funds provided to technology incubators located within academic institutions which are approved by the Central Government
- Rural development projects

6 Conclusion

As public opinion and government action increasing favor corporations engaging with their communities and providing public services, it behooves us to develop a more nuanced understanding of how this community involvement influences the governments – central and subnational — that govern those communities. What are the political and economic implications of corporate public service provision? While it may initially seem that the answer should be that the effect is negligible — corporate philanthropy should be mostly positive, providing additional public services for the people in the areas with the greatest need or where the government is already failing — in this manuscript I consider the broader political context in which this corporate public service provision operates and show that the effects are more complicated and wide-ranging than received wisdom may suggest. In short: because companies will provide public services where there are gaps in the government's provision, the potential for corporate public service provision creates an incentive for central governments to create service provision gaps.

Yet central governments never want there to be actual public service gaps because central governments want public services to be provided to their citizens. Instead, they want to give the illusion that a public service provision gap is imminent, such that the corporation will swoop in and fill it, and the public service gap never actually occurs. If central governments can manage this maneuver — the public service provision equivalent of playing chicken —they can enlist corporations in shouldering the burden of providing public services, allowing them to save money while still assuring that public services are provided.

Whether the maneuver will actually 'work' to realize the central government's goal is heavily context-dependent. Since public services are provided by subnational governments, central governments must create the threat of impending public service gaps by cutting funds to subnational governments. But cutting funds to subnational govern-

ments is not, by itself, sufficient to induce corporate provision. Corporations provide when they notice there is a public service gap. If the corporation does not notice, because the gap is anticipated but not yet realized, they will not step in to help. Thus, central governments must rely upon the local government to notice the budget shortfall, decide that it is insufficient to fulfill their own service provision goals, and then alert the company to the impending public service shortage and entreat them to help provide directly or tax the company and marshal the resources to fill the gap that way.

Because it is important that subnational governments respond in the proper way for the central government to obtain its intended end result, central governments must be very careful about using this strategy. Two particular characteristics of subnational governments are important in helping the central government to correctly identify which subnational governments to target with this strategy, and which to not. These two characteristics — the subnational government's career incentives and its spending capacity — are crucial because they help the central government to identify, respectively, where the strategy is most likely to 'work' and where the strategy is likely to create the greatest cost savings for the central government.

A local government's career incentives are important because they help the central government anticipate the local government's goals for service provision. Anticipating the local government's goals is important for two reasons: it allows the central government to assess the cost-savings associated with enlisting corporate provision and assess the willingness of the subnational government to ask a company to help. If a local government is in a position where the future of their career is heavily dependent upon pleasing the central government, or are "allies"— for instance, if the officials are appointed — the central government can readily anticipate that the local government's service provision goals should be very close to the central government's goals and that they are very eager to please. Governments that are allies are always willing to ask the company for help, but because their service provision goals are so high, the savings to the central government — which has to pay to make up for the lack of taxation — are small. By contrast, governments whose career incentives predispose them to not care about pleasing the central government represent the greatest cost savings, since companies can cover the entirety of a small service provision goal, but are the least willing to ask for help.

The local government's service provision capacity is also important because it determines how well that province uses the money it has. If a local government has low capacity, it is less efficient in its spending and has a lower return on investment, meaning it produces fewer services for every dollar spent than a higher capacity government. A high capacity government, by contrast, will translate most or all of every dollar spent into public services, with very little waste or inefficiency. This spending capacity is important when the central government decides how to allocate its money, because a lower-capacity government will require more funding than a higher-capacity government to produce the same amount of public services. This means that enlisting corporations to help provide services in areas where the government itself is low-capacity provides much greater cost-savings, and is thus a more desirable strategy than having a corporation provide services in an area where the government does a fairly good and efficient job on its own.

This model is formalized and described in greater detail in Chapter 2, and it produces several testable implications. I test two of them, and one indirect implication, in Chapters 3-5. First, I show that extreme career incentives — whether to please or not — result in being starved of resources and taxing the firm, rather than asking for help. This finding and argument are in contrast with the prevailing view, which is that these career-related allies should generally receive the most funding. I show that that is true only when companies do not provide, but when companies do provide, it is the governments that have more moderate career-related incentives to please that end up being financially favored. One takeaway of this chapter is that, from the central government's point of view, corporate public service provision is not equally attractive in every subnational unit. Because the firm's contribution is fixed and unchangeable by the subnational government and asking for help decreases (or precludes) taxation, having corporations provide services is most attractive when the subnational government does not want very much. Although this may seem initially counterintuitive, it actually makes sense: taxation extracts more resources than direct provision, so companies should be most valuable when the goals are low.

A second takeaway is that corporate public service provision, which may otherwise seem to be an innocuous philanthropic gesture, can change how domestic governments operate by changing their incentives. Further, it shows that it is not even necessary for

the corporations to provide public services, but only that the central governments believe that they can and would. This suggests that the increased prevalence of "corporate social responsibility" may precipitate changes in domestic politics even in countries where the phenomenon has not necessarily taken hold, and that corporate public service provision may be both a cause and an effect of these changes: if central governments learn from the prevalence of the phenomenon elsewhere, they may end up inducing corporate public service provision even in corporations that otherwise would not have engaged in it.

Second, I show that companies can protect themselves from government predation by providing public services, but that this protective effect only works well when the local government has low capacity. In other words, when a corporation provides public services, it creates value for the government, and this value creates incentives for the local government to protect the corporation, but how much value the services creates depends upon how well the government can provide services on its own. This finding is important because it demonstrates that unlike other characteristics of companies that can help them to protect themselves against predation from governments when they invest in risky countries — such as size, connections to elites, popularity, and importance to the economy — providing public services is a strategy that is relatively low-cost and can be implemented by any company with sufficient assets. Thus, if a company does not have any of the relatively immutable and static protective characteristics (size, importance to the economy) and is not well-placed to implement some of the more difficult protective strategies (cultivating ties with elites, generating domestic popularity), companies can still implement strategies to protect themselves. Further, this implies that corporate public service provision can be driven by the desire for protection, and helps to explain variation in investment within countries, as well as investment inflows into riskier countries.

Third, I show that corporate public service provision, while it may help improve corporate profitability and protect corporations from predation, should have no discernible effect on the level of public service provision in the areas where corporations provide. In contrast to other treatments of the phenomenon that have assumed that corporate public service provision does something — whether positive or negative — I show that, when it is considered in the broader governmental context, local governments simply adjust their own public service provision efforts when they anticipate that corporations

will provide. Normatively, this does not paint a great picture of corporate philanthropy, as it implies that corporations really do not help the communities they invest in if the governments surrounding the community can condition their behavior accordingly. Yet this does not necessarily mean that corporate philanthropy does no good — while it may do no good on net for the community, it may have a discernible positive (or negative) effect for individuals if the qualitative characteristics of the corporate public services differ from the characteristics of the government-provided public service.

Taken together, this paints a new and somewhat different picture of corporate community involvement from how it is commonly perceived. Rather than being a strictly firm-driven action, I've shown that what can indeed appear to be a firm-driven action can instead be driven behind the scenes by strategic action on the part of the central government. The public service gaps and pleas from local governments that companies often respond to do not *just happen* to occur where companies are present, but rather occur systematically where companies are present, as the result of strategic funding decisions by the central government. In fact, this suggests that even if companies believe they are providing of their own volition, they may not be. They may actually be responding to intergovernmental dynamics and central government machinations that the are unable to perceive. Further, while corporate community involvement – the term of art most often used on corporate websites – is supposed to benefit communities, I argue that the effect on communities as a whole, in terms of overall level of service provision, should be negligible. Instead, the benefit primary accrues to governments and the companies themselves.

In this way, it is possible that the corporate provision of public services represents a new, mutually-beneficial predation equilibrium. Instead of the way we typically conceive of predation – as governments using their relative position of power to enrich themselves at the expense of relatively-immobile investors, to the detriment of the investors— corporate provision of public services allows for governments to enrich themselves in a way that benefits both government and investors. Governments can directly benefit from companies without needing to change policy or running afoul of any of its treaties, and companies can use their compliance with this to protect themselves. Plus, companies may benefit from having a greater say over how their resources are used in the public sector, meaning that, rather than paying taxes and hoping the government spends the

money providing the services the company wants or having to lobby to direct government spending, it can directly provide things that are beneficial to its interests.

Future Research

Sometimes the questions we ask only lead to more questions. In particular, there are two important components of corporate public service provision and politics that I do not address in this project, but intend to address in future work. In this section I discuss two: the effect corporate service provision has on citizens, and the motivations of central governments to pursue this strategy.

Effects on Citizens

While corporate public service provision can help governments and corporations, my research suggests that corporate social provision should not have an effect on the overall level of service provision in any community. Yet although my theory can only speak to the level of service provision, levels may not be the whole story. The qualitative characteristics of the corporate public service provision, and how those compare with the characteristics of the counterfactual government public service provision, could lead corporate public service provision to have a marked positive (or negative) effect on the lives of citizens. In this section I discuss three possible effects on citizens: a loss of accountability, the potential for dependence and learned obsolescence, and influences on public opinion and voting.

First, corporate public service provision could have a negative effect on individual citizens if it turns out that companies are less responsive to their needs and desires than the government. There are many reasons to believe that might be true: companies are trying to increase their own profitability, for one, and are not agents of the people. Although people can take action against companies if the people are displeased — they can unionize, they can riot, they can boycott — all of these are actions that require substantially more effort, and more concerted and sustained effort, than voting, and also require people to overcome their collective action problem. This might mean that although levels remain roughly stable, the actual qualitative features of the services that are provided may be different from government services, they may not be reflective of

what the citizens would like, and the citizens may be unable to change that.

Even if citizens end up being displeased with the quality of corporate public service provision over time, if communities become reliant upon the company for the provision of public services, there may be a strong incentive to not protest or do anything to hurt the company. This is also an extension of the findings in Chapter 4 — that providing public services can protect a company from government predation – but taken to an extreme, highlighting the threat of dependence and learned obsolescence. It could be the case that governments become dependent upon companies to provide certain services and, as a result, "forget" how to do it themselves. Equivalently, the technology or best practices may evolve, and the government may not keep current, or governments may become dependent and not have a back-up plan in the case that they must start providing services again. If this happens, and then some exogenous shock puts the companies out of business or causes them to withdraw from the region, the result could be a serious hit to public services that may take years to fully address.

A further possibility, if companies are providing public services, is that it may have a substantial effect not only on what individuals have access to, but also what they think about their government, democracy, and globalization. One key factor here is whether citizens know who is providing their public services.[1] If citizens know that a corporation producing nearby is handling some of their public services, it may improve their views about globalization while potentially dimming their views of their government and of democracy. By contrast, if citizens are unaware that a corporation is handling their public services — whether because they are simply uninformed or because the government claims credit – they may have negative views of globalization, but potentially more positive views of democracy and their government. This could be just as dangerous as them dimming on democracy, as it may lead them to support measures that hurt the companies and thus harm their own access to services. Any of these configurations of public opinion beliefs can, in turn, be reflected by how people vote. Thus, we may expect that areas where people are aware that companies are providing their public services may become more receptive to right-wing politics, for instance, since they expect little in the way of social provision from their governments. Alternatively, if they view the

[1] For instance, although many people in the United States may believe their city government handles waste collection, often this is contracted to a third party.

corporate public service provision as a way the government is wresting value from the firm, it could make citizens more receptive to left-wing politics.

Central Government Motivations

In this project so far, I have assumed that all governments have incentives to want corporations to contribute to public service provision, and that these incentives are driven by a need to benefit directly from the presence of the investor and a paucity of other options. This should be broadly true of most governments. All governments want to save money somehow, and all governments want to see public services provided. Still, should we expect this theory to be stronger, or more likely to hold true, in certain countries than in others? There are two country-level variables that should influence the attractiveness of this strategy. The first is the imposition of austerity measures, and the second is government ideology and regime type.

While it should be broadly true that central governments want to save money, it may not always be true that their incentives to cut spending are the same. Governments that are undergoing austerity programs[2] should have the strongest incentives to seek out corporate help. This should make them more likely to engage in this strategy in general, but also, as discussed in Chapter 3, this may lower the threshold they consider reasonable for providing services – they may be willing to seek out help from smaller companies, or from areas with less investment. Generally speaking, this means we should see more corporate public service provision, and be more certain of detecting the implications of this model, in countries that are undergoing austerity.

Even if all countries want to save money, countries may not be equally receptive to the idea of corporations – and especially foreign investors – providing those services. In particular, countries led by governments with either very strong anti-capitalist or religious ideologies may be wary of companies providing services, or the perception that companies are providing services. Anti-capitalist or anti-American governments, such as Venezuela or Bolivia, may not actually oppose companies providing services, but they may oppose the message that provision by a non-state capitalist entity may send. Religious governments may also be wary of corporate public service provision, but instead because it entails a loss of control. For instance, a government that is heavily

[2]I thank Michaele Ferguson for this excellent suggestion.

religious may fear that a foreign company's health clinic would provides birth control or that its schools may teach things that are in opposition to the religion's doctrine. This could influence both where corporate public service provision and the implications of this model occur, but also where we see governments claiming credit for corporate public service provision, either by removing the company's name from it entirely or framing the service provision as the result of government action.

Career Incentives and Central Government Turnover

One of the assumptions I make is that subnational officials are forward thinking and that some want to please the central government so that, in the future, they may considered for prestigious appointments or other favorable treatment. While this is sensible in one-party regimes or in states with little turnover at the central government level, this mechanism may operate differently if there is likely turnover at the central government level. For this model to be more generalizable or to travel to different countries, it may be necessary to formally model the election or appointment of the subnational officials, or the central government's beliefs about the subnational government's goals. Alternatively, this may require reconceptualizing what career incentives really mean in the context of a temporally unreliable central government presence, or what other factors might drive alignment with the central government's goals. In the absence of that, the assumption would be that all subnational governments have low career incentives, potentially suggesting that we should seldom see corporate provision. In future research, I will address the issue of career incentives — where they come from, and how they can change — and what that means for this model of corporate public service provision in democratic regimes with frequent, or less predictable, central government turnover.

Policy Implications

Although the lack of data on corporate public service provision is a challenge for a systematic study of it, it is because this phenomenon is still in its infancy that it is so important to anticipate potential problems it may cause. By modeling the process and anticipating these effects, it is possible to shape policy early, before the negative effects may have the ability to arise. In this section, I briefly highlight two policy implications

of this research.

Government Partnership and Learning

As corporate public service provision becomes more common, two government policy priorities should be building local government capacity and, relatedly, assuring against dependence and learned obsolescence. Bolstering local government capacity is important in order to assure against dependence, but also, normatively, to assure that local governments benefit from corporate public service provision. One way to do this is to strongly encourage or mandate that all corporate public service provision be implemented in partnership with local governments. This could be done by altering the type of law that India has put in place, such that corporations must not only provide public services but do so in partnership with the local government[3], or by central governments (or other entities) explicitly evaluating local governments on how well they work with companies in providing services.

The benefits of such policies would be to assure that local governments can learn from the corporation, or at least stay current on best practices and maintain trained employees and equipment necessary to provide the services. If this happens, then the expectation is that the government would be able to take over the entirety of the provision if anything happens to the company. The government may also, in time, be able to improve its own service provision capacity to the point that having the corporation provide is no longer in the best fiscal interest of the central government. It may also allow citizens to have more say in the services that are provided, which may eliminate concerns about accountability and the qualitative characteristics of the public services.

A potential negative of this policy, if it were put into effect, is that it would eliminate most of the protective effect against predation that providing public services gives to foreign investors. This is obviously a negative from the point of view of the company, but may also be negative from the point of view of governments that have attracted investment largely due to this protective effect. Low-capacity governments may then no longer succeed at attracting investment, which could be harmful for their long-term developmental and economic prospects.

[3]Interestingly, India's law specifically disallows companies from engaging in local government capacity-building as a way of fulfilling their CSR requirement.

Directing Service Provision Toward Catastrophe Response

One way to protect communities against dependence and learned obsolescence, and thus the specter of future ruin, would be to direct all corporate public service provision into domains that local governments do not need to handle on a daily basis. If companies handle day-to-day public services — schools, roads, waste management, and so forth — and governments stop providing these things, it could be detrimental to the capacity of the government and also pose problems for the region in the future. However, if companies focus their philanthropic efforts on public services that are rare but catastrophic — such as natural disaster response and combating epidemics — this fear is less grave. These are activities local governments seldom engage in, and thus they should not atrophy by not engaging in them. And these are also the types of services where companies may be best-situated to do the most good. Multinational corporations, in particular, have plenty of resources and foreign currency, established supply chains and methods of moving goods into and out of the area, both local and international knowledge, and, often, some experience in dealing with quickly assessing and responding to bad situations. This makes multinational corporations exceptionally well-placed to donate their services in these domains.[4]

The benefits of a policy like this – encouraging public service provision, but only in the arena of crisis response – accrue to most actors. Central governments still save money, and may be able to assure that an even higher quality of service is provided than if the local governments tried. Local governments benefit by being able to both not invest in crisis response infrastructure, and also not be as concerned about the potential damage related to a crisis in the case that they were unprepared. Companies can benefit by having the de facto insurance of not relying on the government's response to natural disasters, and should also generate positive sentiment among citizens, protection against predation by government, and the potential for advertising back home. It may even have the odd effect of incentivizing companies to move to areas that are prone to natural disasters, such as northeast India, northwest China, Indonesia, and the Philippines, because of the protective effect of service provision that I discuss in Chapter 4.

The drawbacks are, at least without further analysis, few. There is still a threat,

[4]It may be the case that corporations are even better-situated to handle these types of crises than are NGOs or aid organizations on the basis of their preexisting infrastructure and local knowledge.

although a significantly smaller one, that governments and citizens may be harmed if a company closes or moves. There is also a potential that companies will give preferential service to their facilities, the areas immediately surrounding their facilities, and the communities in which their workers live, and perhaps shirk responsibility when it comes to other areas. As with other policy implications, these merit future research in order to better understand their potential benefits and drawbacks.

Conclusion

In this dissertation, I have studied corporate public service provision, also known as corporate social responsibility or corporate community involvement, in its native habitat: embedded in a complicated, multi-level governing structure, full of actors with conflicting preferences and variable abilities. I have shown that corporate public service provision is, on its face, neither necessarily good nor necessarily bad, but that it has many political and economic effects. Some of these may be more readily anticipated — such as that providing public services can protect companies against predation in areas that need public services — and others are more counterintuitive – such as that corporate public service provision shifts which provinces are favored when central governments allocate funds. More normatively, I have demonstrated that there are good reasons, and empirical evidence, to suggest the corporate community involvement does little to affect the overall level of public services in any given subnational unit, although I have discussed arenas for future research and policy implications that may help us to better understand how corporate public service provision affects citizens.

The broadest takeaway here is a common refrain in political science and economics, but one that always bears repeating: often even good intentions can have unintended consequences. In this dissertation, I hope to have illuminated some of the unintended consequences, empirical implications, and potential dangers of corporate public service provision, a phenomenon that is growing in popularity among consumers and governments, such that we can better understand, develop, and regulate it.

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