The Fiscal Roots of Urban Bias

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ABSTRACT: Why do some countries indulge in urban bias, potentially harming economic development in the process, while others promote a vibrant agricultural sector? Two main explanations have been put forth. On the one hand, market failures, due to information asymmetries, mean that farmers who dearly require credit to succeed are shut out of lending markets, even if lenders could potentially benefit from making loans more readily available. On the other hand, political failures, due to state capture, mean that farmers will be subject to implicit taxes as a way of generating rents for politically powerful, industrial interests in the city. This paper builds on a less prominent view: that the state might have its own fiscal reasons for indulging in urban bias since both infant industries in the manufacturing sector and monopsony endowing marketing boards in the agricultural sector potentially provide easy-to-collect revenues. I adduce cross-national empirical support for the fiscal roots view that is robust across measures of state capacity and instrumental variables. A case study of Mexico also provides corroborating evidence.

What explains urban bias? Why do some governments systematically tax commodity exports, deprive farmers of credit and other inputs, and drive agriculturalists out of business? Conversely, why do these same governments subsidize inefficient infant industries involved in manufacturing by adopting policies that distort markets for labor, capital, and natural resources?

This question matters greatly because the consensus view about the effects of urban bias, which largely grew out of the work of Lipton (1977), is that it harms economic development. Agricultural productivity is ultimately part and parcel of an overall improvement in economic productivity, greater employment in higher paying jobs in the formal sector, and reductions in poverty and inequality (World Bank 1990).

That policies that promote urban bias have been more pervasive in the developing world is bitterly ironic. Rural bias is prevalent in developed countries such as the United States, Japan, and France, where small groups of prosperous farmers are often sheltered from foreign competition. In the developing world, however, policymakers tend to discriminate against farmers. Yet when they do that they are often hurting the largest and most vulnerable segment of their populations.

Typically, the brand of urban bias practiced in the Global South has been characterized by three features. Protectionism against both trade and international capital is marshaled to provoke the substitution of imports. Fiscal and exchange rate policies with a sharp urban bias are recruited to subsidize the industrialization policies that make this happen. Financial and monetary policies are commandeered to allocate credit to politically favored industries, generate profits for bankers and manufacturers, subsidize food in cities, and help finance current account and government budget deficits.

Even during the so-called neoliberal era—when globalization, privatizations, deregulation, and market friendly economic policies have supposedly predominated (see Gore 2000)—urban bias has continued to thrive across the developing world. Contemporary examples include Argentina, Brazil, China, Egypt, India, Malaysia, Russia, and Venezuela. Whether by embracing "industrialization" policies tied to protectionist measures or channeling scarce credit to national champions and state owned firms, these countries continue to stick to the urban bias playbook.[1]

Heretofore, two main types of explanations have been offered to help make sense of this puzzle. The first is centered on market failures. The second highlights political failures.

Economists have long argued that informational asymmetries lead to the under-provision of credit at the expense of its efficient allocation (see Banerjee, et al. 2013). While Stiglitz and Weiss (1981) demonstrate that problems of adverse selection induce lenders to ration credit, even when interest rates are fully liberalized, Anei, Ghatak, and Morelli (2013) aver that the unobservability of entrepreneurial talent leads to the screening of creditworthiness based on wealth instead of talent. This might potentially decrease the quality of the pool of agriculturalists who ultimately receive capital, and therefore militates against the distribution of credit to its best use. Especially in the developing world, and especially if inequality is high, then largo agro-exporters may be able to reinvest profits if they need to finance large investments whilst the majority of small farmers may be deprived of the credit they need to survive and thrive.

[1] Consider Brazil. Its state owned development and retail banks are the country's biggest lenders and they channel credit at subsidized rates to industrial conglomerates and government owned firms. It also continues to indulge in trade protectionism, especially in the vehicle industry.

Meanwhile, political economists have argued that if interest groups and rent-seekers can capture policymaking in ways that lead to the politicized allocation of credit and other subsidies that benefit industrialists (see Bates 1981; Haber, Razo, and Maurer 2003). On the one hand, governments can manipulate the regulation of financial markets, monetary policy, and trade policy to generate abnormally high profits for politically connected banks and manufacturing firms. On the other hand, they can subsidize credit, food, and wages for urban constituents. Ultimately, governments fail to implement policies that would be surplus maximizing because the losers from reform are reluctant to abandon the rents associated with specific market distortions, despite the inefficiencies they engender.

This paper offers an alternative explanation that is not rooted in market or political failures per se. Instead, I argue that because urban bias constitutes a powerful and effective way for governments to finance their operations, relatively weak states that lack orthodox sources of taxation tend to politicize agricultural markets to generate public revenues. In doing so, I follow Bates (1981) and Kasara (2007). These researchers have shown that governments can generate revenues with low fiscal transaction costs by erecting marketing boards that purchase agricultural commodities below their market price—determined globally—and thus tax farmers.

I add value to extant studies in several ways. I argue that, besides producing easy-to-tax revenues, public policies associated with urban bias engender support for industrialization policies among urban constituents such as big banks, import-competing manufacturers, white collar managers, and wage earners in the formal sector. In turn, this helps weak states forge a coalition that provides enduring political support for urban bias. I also empirically test the weak state capacity hypothesis. This paper avails objective measures that capture the concept of state

capacity with greater validity and exploits an exogenous source of variation in state capacity afforded by the assassination of John F. Kennedy in 1963.

To test the hypothesis that urban bias is a byproduct of weak state capacity, and is thus a side effect of the fiscal needs of revenue starved governments, I construct a cross-national dataset that observes political and economic variables averaged over the 1986 to 2006 period. This helps me rule out alternative explanations for urban bias centered on ideological trends about the virtue of state intervention. After holding several potential confounders constant, I find that there is a negative relationship between state capacity, measured as total tax revenues % GDP, and policies that favor urban interests. These results also hold if state capacity is measured as state antiquity, a more exogenous measure of state capacity. Finally, they hold if a country's level of taxation is instrumented with the number of political assassinations that occurred between 1964 and 1976, which helps capture exogenous variation in state capacity; several of these assassinations were the unexpected byproduct of the surprising escalation of the Cold War in the aftermath of JFK's 1963 assassination.

Finally, I undertake a case study of Mexico. I look at the fine grained relationship between weak state capacity induced by the 1910 Revolution and urban bias under the ensuing single party dictatorship, which ruled Mexico over the better part of the 20th Century. I show how the PRI (Institutionalized Revolutionary Party) regime increasingly relied upon both the nascent manufacturing and shrinking agricultural sectors to raise revenues.

These findings are sobering. If urban bias is chiefly a problem of market failures, then overcoming this problem calls on governments to reduce information asymmetries between creditors and lenders or subsidize the allocation of inputs, such as credit, to encourage lending in the agricultural sector. If urban bias is the byproduct of political failures, one way to reverse it is

to promote greater voice for those constituents who stand to benefit from a more vibrant and valuable agricultural sector such as small and moderate-sized farmers. Moreover, it calls on making the government less susceptible to capture by special interests. That this paper finds that weak state capacity is largely to blame for urban bias suggests that this is a far more intractable problem, as there are good reasons to believe that states cannot be made more competent and effective at the stroke of a pen.

LITERATURE

Several literatures help shine light on the study of urban bias.

Some economists argue that industrialization is a prerequisite of development and that the former requires dense concentrations of wage laborers to foster specialization, reduce labor costs, and increase productivity (see Herrendorf, Rogerson, and Valentinyi 2013). Many argue that *dirigisme* is the only effective way to bring about industrialization in pre-modern economies—and that urban bias is a necessary, if not desirable, symptom of that phenomenon. Johnston and Mellor (1961) argue that only the state can create such an urban dwelling and vast industrial labor supply. Gerschenkron (1962) argues that in backward economies governments must take a more active and aggressive role in stimulating growth by financing capital intensive investments—most likely through state run investment banks—in heavy industries with relatively large scales of production.

A similar impetus behind urban bias may be ideational. During the Cold War era, calls for greater state intervention in the economy proliferated across both the developed and

developing world.[2] Some policy prescriptions emanating out of Latin America during the 1950s were centered on calls for both greater protectionism and a redirection of savings and credit towards manufacturing. These pleas were tethered to heterodox ideas about the determinants of underdevelopment. According to so-called structural theory, which was espoused by Raúl Prebisch and Hans Singer, economic backwardness was due to developing countries' dependence on the demand for their primary commodity exports.

Embracing the premise that the terms of trade tend to favor industrial goods, structural economists exhorted governments in the third world to substitute imports from the developed world with their own, domestically manufactured finished goods. Governments supposedly responded by promoting industrialization through more activist trade, fiscal, and monetary policies.[3]

Unsurprisingly, political scientists were among the first researchers to advance a *political* explanation for urban bias. They worked backwards from the distributional consequences of interventionist policies to impute what actors were most likely to support this arrangement and, hence, form part of the political coalitions needed to bring these policies to life. Bates (1981) speculates that in the post-colonial nation states of Sub-Saharan Africa incumbents pandered to nascent—yet extremely narrow—urban constituencies that could provide them with reliable

[2] This was the heyday of the so-called embedded liberal international order under the Bretton Woods system of fixed exchange rates, which was often justified based on Keynesian economic principles. Governments across the world used capital controls along with fiscal and monetary policy to sustain high levels of employment and redistribute (see Dailami 2000, p. 5).

[3] See Haber (2006) for the lack of empirical support for this widely believed telling of events.

political support. This called on adopting industrialization policies that ran against these countries' comparative advantage and were subsidized by indirect taxes on the countryside imposed via marketing boards. It also called on erecting protectionist barriers for infant industries rooted in overvalued exchange rates and the politicized distribution of credit.

THEORETICAL FRAMEWORK

The fiscal transaction costs faced by rulers are heterogeneous. They include the costs of identifying taxpayers' wealth, income, and salaries. They also include the costs of verifying compliance with tax obligations. Finally, they include the ability to credibly threaten punishment for tax evasion, such as the ability to conduct audits on tax returns.

Several variables influence fiscal transaction costs. Government agents tasked with monitoring tax compliance have an easier time securing it when the population is literate and numerate—because it is easier for citizens to complete self-assessed tax returns. Similarly, when citizens and businesses conduct their transactions in the formal economy and rely on the banking system to save and transact, they generate a record of transactions that the tax authorities can use to secure compliance with taxes, especially if the latter are self-assessed taxes on income or capital.[4]

The existence of a paper trail allows the tax authorities to identify wealth, income, and salaries. It also allows them to verify tax obligations and conduct audits on tax returns. The upshot is that they are able to develop a credible threat of sanctions that deters tax evasion. Conversely, shadow economies and hard to tax sectors raise fiscal transaction costs and imply that tax dodging occurs with impunity (see Alm, Martínez-Vazquez, and Schneider 2004).

[4] Gordon and Li (2005); Reizman and Slemrod (1987).

State Capacity and why it Matters

The most important fiscal transaction costs faced by governments attempting to raise revenues are ultimately produced by previous public investments. They therefore reflect preexisting levels of state capacity. State capacity includes the writing of legislation, the administration of law, the monitoring of economic activity to secure compliance with regulations and taxes, and the judicial and policing power needed to enforce laws and project power. These functions echo the view of state capacity advanced by Besley and Persson (2009, p. 6), which encompasses both fiscal capacity and legal capacity: property rights and legal services that enforce contracts and underpin regulation.

State capacity works through several channels to affect fiscal transaction costs. When property rights have been secure for a larger number of citizens and for longer time periods, a more valuable and diversified economy develops. It is characterized by more intensive, sophisticated, and valuable economic activities. This means a greater number of firms that conduct exchanges with other firms in open markets.

Similarly, other public goods, such as reliable transport and power, and adequate telecommunications networks, make it easier for the state to identify and collect taxes. Their widespread provision also produces compliance spillovers. Citizens are motivated to contribute to the treasury because tax compliance is rewarded with tangible benefits: roads, schools, and public safety (see Levi 1989; Alm, Martinez-Vazquez, and Schneider 2004).

However, some states find it exceedingly hard to penetrate the hinterlands, establish a monopoly on the use of force, and govern and tax effectively. They are unable or unwilling to erect professional bureaucracies and impartial judiciaries. This means that there is a dearth of taxable firms and salaried employees operating in the formal sector that can be taxed. By the

same token, weak states cannot credibly threaten to punish tax evasion—which, in any event, often goes undetected. Finally, the chronic under provision of public goods feeds mistrust in the government's willingness to reciprocate tax revenues with the infrastructure and education demanded by citizens, which reduces compliance (see Levi 1988).

The Consequences of Fiscal Transaction Costs

While the causes of fiscal transaction costs are numerous, their consequences are of paramount importance to both politicians and society. Levi (1988) demonstrates that they influence not only governments' revenue generation strategy, but their political one as well. Governments that face steep fiscal transaction costs may seek to raise revenues outside of normal taxation channels and this may create winners and losers that then factor into incumbents' ability to survive politically.

Low tax collection costs made possible by modern bureaucracies, the spread of elementary education and literacy, and modern record keeping may constitute a luxury that only a few countries can afford (see Aidt and Jensen 2009; Kenny and Winer 2006). That the introduction of and reliance upon income taxation, the consolidation of democracy, the widespread provision of public goods, and the development of a generous welfare state all occurred jointly in a handful of countries in the western world might not be all that coincidental.[5]

[5] Along these lines, Kau and Rubin (2002) conclude that the single most important determinant of the growth in the size of the U.S. government over time is the increase in female labor force participation because it reduced the costs of taxation by creating a larger formal labor force and promoting increased bookkeeping.

Conversely, upon coming to power, incumbents in the developing world often face a set of interconnected pathologies. They do not tend to inherit strong fiscal or legal capacity. They face lackluster infrastructure and an underdeveloped economy that is largely informal. These problems substantially raise the fiscal transaction costs incumbents face when attempting to tax their economies. They may therefore turn to creative, albeit distortion inducing, ways of regulating the economy to generate easy-to-collect revenues.

When fiscal transaction costs are prohibitive, states might turn to protectionism or erect barriers to entry. Ultimately, the costs of using coercion to curtail market entry are lower than those associated with raising revenues directly. The rents that are created can be confiscated and distributed through obscure and relatively easy to enforce government regulations. The cheapest revenue generation option may be for the state to step up its presence along ports and borders to collect tariffs, which are much easier to collect than income and consumption taxes (see also Reizman and Slemrod 1987). Similarly, the strategic creation of any cartel, monopsony, or monopoly provider represents a method of virtually frictionless taxation.

History is replete with examples. For example, Anderson and Boettke (1997, p. 39) write that "[i]n 17th century England and France, the government employed the sale of various monopoly rights as a means of raising revenue. That is, the monarch sold monopoly privileges for cash or other consideration (often loans on preferred terms)." These authors also argue (on p. 38) that communism in the Soviet Union was a cognate system; it was not actually organized around central planning but instead, it was "really a market economy heavily encrusted with central government regulation and restrictions…to extract revenue from the economy, as an alternative to collecting revenue via the use of taxation."

Gehlbach (2008) outlines a recent example after the fall of Communism. He recounts the creation out of whole cloth of a vodka industry in northwestern Russia's Pskov oblast after the fall of the Soviet Union. While the potential for this industry was always present, it was only when a relatively weak state faced empty coffers that the regional government encouraged local officials to develop an industry that they could tax at low cost. Schrad (2014) extrapolates this thesis spatially, arguing that it holds for the whole of Russia, and longitudinally, maintaining that Russian autocrats have promoted the Vodka industry throughout history to generate revenues and consolidate their rule.

Why do states erect such inefficient and patently venal systems? Monopoly rents are easy to tax because profits are voluntarily revealed by firms in exchange for their monopoly rights. As Ekelund and Tollison (1981, p. 85) write:

> Monopoly creation was…a more reliable source of state revenue than taxation, in which the state has to bear the costs of discovering taxable values and policing corruption among tax collectors, because aspiring monopolists will reveal the present value of monopolies to the authorities in their efforts to secure such grants from the state. State officials thus do not have to seek out estimates of the value of their enforcement services in the case of monopoly grants.

Virtually any market can be distorted in this way. The state can use ordinary policy instruments to ration the factors of production and other inputs, as well as outputs. Policies that ration and subsidize foreign exchange, capital, intermediate inputs, products, and labor are often paired with practices that channel bank lending at subsidized rates to protected sectors. Policymakers may either subsidize loans or compel certain investments. The rents that are in turn

generated are potentially large and usually opaque. They can then be taxed by the state at a relatively low cost.[6]

The Fiscal Role of Urban Bias

Policies that promote urban bias fall into this category, and thus constitute a deliberate fiscal and political strategy. These policies are diverse. First there is financial repression that subsidizes government deficits and is bundled with industrialization policies that benefit capitalists, managers, and laborers clustered in urban areas (Bates 1981; Binswanger and Deininger 1997; Haber, Razo, and Maurer 2003). Governments may engage in import substitution industrialization by sheltering big manufacturing firms via a cascading tariff structure, quotas on finished goods, or permits to import capital and intermediate goods. The state may then impose high barriers to entry, including restricting foreign ownership, and subsidize credit and foreign exchange, and restrict foreign ownership. This thus induces scarcity that generates monopoly profits in the non-tradable sectors.

Finally, the state can use several tools to direct credit to industries at the expense of farmers in rural settings. For example, governments may impose extremely high reserve requirements on "ordinary lending" undertaken by commercial banks but not on politically favored lending. Or the central bank and state run development banks may either use rediscounting or lend directly to sheltered manufacturers operating in big cities via directed

[6] See Anderson and Boettke (1997); Auriol and Warlters (2002); Bates (1981); Ekelund and Tollison (1981); Krueger (1974); Haber, Razo, and Maurer (2003); North, Summerhill, and Weingast (2000); North, Wallis, and Weingast (2009).

credit. The result is that big industrial firms are subsidized and can usually command uncompetitive prices for their products.

These rents can then be taxed. Governments might charge firms for charters that entitle them to monopoly rights. They may levy corporate taxes on firms operating in concentrated sectors. Or they may finance budget deficits by forcing negative real interest rates upon savers. Ultimately, the costs of using coercion to curtail both market entry and output are lower than those associated with raising revenues directly.

Of course, revenues can also be produced by taxing the countryside directly. Tariffs on exported commodities are one way to do this, as are overvalued exchange rates. So are marketing boards—state run monopsonies—that set price ceilings on crops and pay farmers below market prices for the food they produce and then re-export it at a substantial profit (see Bates 1981).

Besides generating unorthodox state revenues, policies with an urban bias amount to a system of stealth redistribution. While they induce deadweight losses, sharp reductions in consumer welfare, and the inefficient distribution of resources, they produce valuable rents. These benefit politically-favored capitalists, managers, and unions. They hurt unorganized consumers, commodity exporters, petty capitalists, and nonunionized labors. Farmers and other rural interests are especially harmed. The food consumed by urban dwellers is essentially subsidized by rural actors.

RESEARCH DESIGN, HYPOTHESES & MEASUREMENT STRATEGY

To test the theory outlined above, I construct a cross-national dataset. It observes 70 countries for the model with the most data coverage. While I calculate cross-national averages over two decades to ensure that the results are not driven by shocks, business cycles, and crises, the reason I focus on the period between 1986 and 2006 is threefold.

First, setting the start point at 1986 ensures that I omit potentially anomalous observations associated with the debt crisis that ravaged the developing world in the early 1980s. This crisis began after Mexico defaulted on its sovereign debt in 1982, in the wake of the ratcheting up of interest rates by the United States' Federal Reserve Bank and a corresponding decline in the world oil price. This set off an economic shockwave that rippled across the world's emerging markets. And it has been shown that contagion, rather than underlying fundamentals, played a big role in helping to spread the crisis from country-to-country.[7]

Second, beginning in 1986 ensures that I relegate attention to the so-called Washington Consensus era, in which it was much less likely that dependency theory and its interventionist policy prescriptions were predominant (see Gore 2000). This therefore helps me rule out an alternative, ideational explanation for politicized finance: structural economists espousing the virtues of import substitution industrialization.[8]

Finally, ending in 2006 ensures that I omit potentially anomalous observations associated with the global financial crisis. In the developing world, both contagion and the flow of "hot

[7] See, for example, Schroder and Vankudre (1986).

[8] See Armijo (2013) for evidence on the waning importance of dependency theory in Latin American policy circles during this era. Although 1986 is chosen because that is the year that Mexico joined the General Agreement on Tariffs and Trade, therefore marking the beginning of the end of the protectionist era, the results are not sensitive to other start dates.

money" into emerging markets in the wake of quantitative easing and hyper low U.S. interest rates have distorted financial systems and macro economies across the developing world.[9]

Measuring the Dependent Variable

In this section I discuss how I operationalize the dependent variable that embodies the concepts outlined above and provide relevant summary statistics. *Urban Bias* is operationalized as the nominal rate of assistance to agriculture—or, agricultural assistance—the percentage increase in gross returns to farmers *vis-à-vis* market prices at the global level induced by government policies.[10] Negative values connote net agricultural taxation. The mean is 30.5, the standard deviation is 56.5, the minimum is -44.0, and the maximum is 313.2 (n = 70).[11]

Measuring State Capacity

As was outlined above, state capacity is a sophisticated concept. It is multidimensional. It encompasses everything from the central government's grip over the nation's territory to the rule

[9] The crisis began on August 9th 2007 when French bank BNP Paribas barred investors from withdrawing money from several funds, triggering the start of a global credit crunch. For evidence of contagion effects see Longstaff (2010). For evidence from China on the role of hot money in driving stock market and real estate booms in the wake of the crisis see Guo and Huang (2010). Fearing such speculative inflows, many countries adopted capital controls in the wake of the crisis, including Brazil, Indonesia, South Korea, and Thailand.

[10] A trade weighted average that adjusts for transportation costs is calculated for each country's major crops.

[11] This variable is from Anderson and Valenzuela (2008). The summary statistics are calculated from the regression samples with the greatest number of observations.

of law. It also connotes a sequence of events that unfold over relatively long stretches of time. While more capable states are those that can project power into the periphery and approximate a monopoly on the use of force, they are also able to administer censuses, collect taxes, and provide public goods. They tend to protect property rights, enforce contracts, and establish the rule of law. In turn, states that achieve these competencies are those that have made major investments in administration, compliance, and legal enforcement over sustained periods of time. Therefore, stronger states are characterized by a well-functioning legal system and a competent, professional, and honest bureaucracy.

One of the logical implications of this depiction of state capacity is that in low capacity states it is quite difficult for the tax authorities to raise ordinary tax revenues. Assessing and collecting taxes on consumption, property, income, and investments calls on the fiscal authorities to identify potential tax bases, assesses tax liabilities, collect taxes, and deter evasion. This meshes well with recent work on how to best operationalize state capacity. Hendrix (2010) urges researchers to focus on revenue-generating capacity measures. Besley and Persson (2009) also favor measures that tap into fiscal capacity. Similar arguments are put forth by Lieberman (2002), and Hanson and Sigman (2011), as well as countless others.

I therefore measure state capacity as Total Tax Revenues (% GDP). These revenues include taxes from income, profits, and capital gains; property taxes; taxes on consumption, including sales and value added taxes; and import and export taxes. To code this variable I follow the guidelines set forth in the International Monetary Fund's *Government Finance Statistics Yearbook* (IMF-GFSY). I use both primary and secondary sources to maximize data coverage while adhering to the IMF-GFSY's coding rules. The major secondary sources I avail are the GSFY, the World Bank, the OECD, and various IMF country profiles.

Challenges to Causal Identification

While I have argued above that weak state capacity makes urban bias more likely because it is an expedient fiscal and political strategy in the face of high fiscal transaction costs, it is also likely that chronic urban bias erodes state capacity. Rulers who manage to survive in countries with weak states by indulging in strategies that benefit a narrow sliver of the population congregating in cities may not tend to also make investments that will enhance state capacity. Instead, they will continue to double down on financial repression, overvalued exchange rates, other protectionist policies, and taxes on the countryside. This will be both to consolidate political power and finance the government.

Over the long run, therefore, governments will find it increasingly difficult to penetrate the hinterlands, establish a monopoly on the use of force, and govern effectively. The consequence is that the tax base will remain perpetually small and quite hard to tax. In short, state weakness breeds policies with an urban bias that only exacerbate state weakness.

Therefore, I take a multipronged and incremental approach to addressing this challenge to causal inference. As a first step, I control for several confounders: possible determinants of urban bias that are correlated with state capacity and whose omission might bias the results. As a second step, I measure state capacity as the state's antiquity, a proxy for state capacity that should be less afflicted by endogeneity. As a final step, I instrument total taxation (% GDP) with the number of political assassinations that occurred in the country between 1964 and 1976, many of which I argue were unexpected and ultimately unleashed by the murder of President John F. Kennedy in November of 1963.

Controlling for Confounders

In the regression analyses that follow I control for several covariates that are correlated with both state capacity and the dependent variables outlined above.[12] I control for *Economic Growth* because higher growth rates may stimulate migration to cities and industrialization. The log(*Rural Population Per Capita*) is included because politicians may face countervailing incentives to appeal to the countryside in highly agricultural societies. I control for log(*Proven Oil Reserves*) because oil wealth may promote urban bias through overvalued exchange rates. Finally, I control for the *Polity Score*—normalized to run from 0 to 100 and where higher values denote greater levels of democracy—because democracies may be more responsive to rural interests due to their overrepresentation in the legislature.[13]

State Capacity as State Antiquity

As an alternative measure of state capacity, I use state antiquity, a measure of the longevity of a state's infrastructure and bureaucracy. This variable is from Bockstette, Chanda, and Putterman (2002). They argue that countries with longer political legacies have had a greater chance to develop state capacity tied to the development of agriculture, urbanization, and the use of money. I follow the authors and use the normalized version (0 to 1) of this index while discounting the influence of the past for each half-century by 5%. I also follow Putterman and Weil (2010) and adjust the index by migration patterns because, during the colonization of

[12] The results presented below are robust to including several other demographic, macroeconomic, and political variables that do not materially affect the findings. These results are available upon request.

[13] Growth and oil reserves are from Haber and Menaldo (2011). Rural population is from the World Bank Development Indicators. The Polity Score is from Marshall and Jaggers (2008).

America, Sub-Saharan Africa, and Asia, European settlers, non-European servants and slaves migrated and imported their home institutions.[14]

Instrumenting Taxation with 1964-1976 Political Assassinations

As a final step in attempting to capture the exogenous variation in state capacity, I instrument Total Taxation with *Political Assassinations*, the number of political assassinations and attempted assassinations that occurred between 1964 and 1976.[15] This is an attractive instrumentation strategy for several reasons. First, this variable, measured at least 10 years before the main variables that make up the regression analyses, is predetermined. Second, there are good reasons to believe that the 1964 to 1976 period was marked by several unexpected political assassinations and assassination attempts; this was due, in part, to the assassination of John F. Kennedy in 1963. Third, there are also good reasons to believe that the effect of these assassinations on financial repression works exclusively through state capacity, especially once other covariates are controlled for.

The political assassinations and attempted assassinations—henceforth referred to as assassinations—that took place around the world between 1964 and 1976 were anomalous in

[14] I adjust State Antiquity by these authors' *World Migration Matrix*. It contains the different shares of a country's population in 2000 that descended from people in different source countries in 1500.

[15] The data are from Banks (2009). He defines a political assassination as "any politically motivated murder or attempted murder of a high government official or politician."

several respects.[16] Figure 1 graphs assassinations at the global level between 1951 and 1976. It is a three-year moving average of the yearly mean of the number of assassinations. It is clear that between 1964 and 1976 there was a pronounced upsurge in the number of assassinations across the world. While between 1951 and 1963 the average number of assassinations declined by over 50 percent, between 1964 and 1976 they almost tripled. Indeed, between 1964 and 1976, there was an increase of .2 assassinations, on average (p-value < .001).[17] More importantly, this spike is not driven by changing structural or political conditions within countries; the results are

[16] I chose 1976 as a cutoff point because the beginning of the Carter Administration in 1977 marked a palpable change in the United States' foreign policy orientation; while the Nixon Doctrine—which obligated the U.S. to "assist in the defense and developments of allies and friends" and sought to prop up surrogates throughout the world to do so—was abandoned, Carter placed greater importance on human rights and internationalism. Also, this period marks the beginning of Soviet intervention in Afghanistan, which bogged the USSR down and limited its ability to affect politics elsewhere. The results estimated from the instrumental variable regressions that employ this measure are robust to using earlier cutoff points, however.

[17] This coefficient is estimated via an ordinary least squares (OLS) regression of assassinations against a linear time trend and the interaction of that trend and a dummy variable coded as "1" between 1964 and 1976 for a panel of 136 countries observed over a 25 year period (n = 2,664). Driscoll Kraay standard errors are estimated to adjust for serial correlation, heteroskedasticity, and spatial correlation. The results are similar for smaller intervals (e.g., a 10 year window where the post-1963 period is truncated to 1969).

strengthened after I control for log(Per Capita Income), the Polity Score, and Revolutions.[18] This suggests that many of the assassinations that occurred between 1964 and 1976 were unexpected.

What caused this upsurge in potentially unexpected assassinations? The assassination of JFK may have precipitated this uptick. Kennedy's assassination led to a worsening of tensions between the United States and the Soviet Union, and thus served to escalate the Cold War. In turn, this escalation led to increased turmoil across the world, including a greater number of interventions by the superpowers in the domestic political affairs of both client states and neutral states. This geopolitical context made assassinations more prevalent.

While there is no doubt that after the Bay of Pigs and during the Cuban Missile Crisis relations between the U.S. and Soviet Union deteriorated, there is wide consensus that in the immediate aftermath of the Cuban Missile Crisis there had been serious efforts between Kennedy and Khrushchev to reach some kind of rapprochement. After reaching a compromise that obligated the U.S. to remove its ballistic missiles from Turkey in exchange for the Soviets to do so in Cuba, both administrations spent considerable political capital, resources, and time to try to ratchet down the tension.[19]

Indeed, many contend that Kennedy sought to seriously shift the terms of the Cold War in a much more dovish direction. "Sources close to Kennedy insist that if he had won a second term as president, as seems likely given his popularity after the crisis itself, he would have ventured a reconciliation with Cuba" (Welch 2001, p. 187). And some Kennedy biographers argue that, had

[18] Per Capita Income is from Haber and Menaldo (2011). Revolutions is from Banks (2009).

[19] For example, in 1963 both leaders worked in concert to craft the *Limited Test Ban Treaty* and the *Hot Line Agreement*.

he lived, he would have sought to remove American troops from Vietnam (see Dallek 2013). Indeed, in the run up to his assassination, JFK had instructed Ambassador William Attwood, his delegate to the United Nations, to establish backchannel communications with Castro in an effort to reach some *rapprochement*. American presidential historian, Michael Beschloss, argues that "had Kennedy survived, the Attwood back channel might conceivably have led to some improvement in the relationship between Havana and Washington (2014, hyperlink)."

Alas, the *détente* between the U.S. and Soviet Union was not to be. It began to unravel in 1964, shortly after Lyndon B. Johnson took power and chose to escalate the Vietnam War, and the U.S. government intensified its opposition to the Castro regime, in part fueled by the revelation that Kennedy's assassin had professed a strong fascination for Cuba's Communist government. It also did not help that Khrushchev was ousted in 1964 by Soviet hardliners. Khrushchev's successor, Brezhnev, was much more hawkish, and sought to aggressively expand the Soviet sphere of influence.

The effect of these developments should not be underappreciated. Moscow increased its intervention in the affairs of both its client states and many "neutral" nations across the developing world. This included countries such as North Vietnam, Cambodia, Afghanistan, Pakistan, Angola, Ethiopia, Somalia, and Mozambique. This may have indirectly catalyzed several assassinations and assassination attempts. At the same time, the American government also pursued covert policies aimed at destabilizing governments with Communist sympathies. This may have had the same effect. Although the most infamous case is the coup that overthrew Chilean president Salvador Allende in 1973, the U.S. also used financial aid and military training to shape political affairs in Argentina, Brazil, Uruguay, and Bolivia, as well as several Middle Eastern and Sub-Saharan African countries.

Why would assassinations that occurred between 1964 and 1976 enervate state capacity between 1986 and 2006? Unexpected political assassinations and assassination attempts tend to destabilize politics. As these are not anticipated, they are not previously priced in by major political actors. While these acts, especially if they are brazen, may encourage the opposition and other marginalized actors to further challenge the political status quo, often violently, they also upend the focal points that help coordinate collective action among long lived groups. Political assassinations also heighten general uncertainty about the future. This may reduce economic investments that would otherwise bolster the tax base. This includes both private investments and pubic investments in infrastructure and administrative capacity.

STATISTICAL MODELS AND RESULTS

Before discussing the results of the IV models, I evaluate the results of several simpler models. The first is an OLS bivariate model in which state capacity is measured as Total Taxation (% GDP), averaged between 1986 and 2006. The second is a multivariate model that controls for economic growth, the size of the rural population, oil wealth, and regime type—these covariates are also averaged between 1986 and 2006. The third is a multivariate model in which state capacity is measured as State Antiquity. The equation that represents the first multivariate model is:

$$\textit{Urban Bias}(\text{1986-2006 mean})_i = \alpha + b\textit{Total Taxation \% GDP}(\text{1986-2006 mean})_i + \mathbf{X}(\text{1986-2006 means})_i + e_i \quad (1)$$

Where α is a common intercept term, b is the marginal effect of an increase of total taxation by one percentage point in country i, $\mathbf{X}$ is a vector of control variables outlined above for country i, and e is a residual for country i adjusted to be robust to heteroskedasticity via the White technique.

As a first step, Table 1, Column 1, presents the results of the bivariate OLS model that excludes the control variables. The results are consistent with the theoretical predictions. The coefficient on Total Taxation (% GDP) is positive (urban bias decreases) and highly significant ($p < .001$). An increase in total taxation of 10 percentage points increases agricultural assistance by 22 percentage points.[20]

As a second step, Column 2 presents the results of an OLS model that includes the full set of control variables outlined above. The inclusion of these variables makes it less likely that the relationship between greater state capacity and less urban bias is spurious because it is driven by omitted factors. The results are again consistent with the theoretical predictions, highly statistically and substantively significant, and almost identical to those obtained in Column 1.

As a third step, Column 3 presents the results of OLS models in which state capacity is measured as State Antiquity, and the control variables are again included. This experiment helps address the potential for endogeneity bias in the following sense: it is doubtful that the causal arrow runs from urban bias registered between 1986 and 2006 and a state's deep history. The results again confirm theoretical expectations: countries with older state infrastructures are predicted to have less urban bias, albeit at only the 11 percent level of statistical significance.

Although the results reported in Column 3 should help allay fears that the correlation between state capacity and the dependent variables is spurious, they are not definitive. State Antiquity is only an imperfect proxy for state capacity; it might also capture ancillary political, social, and economic practices associated with a state's longevity besides strong legal, administrative, and enforcement institutions. The former include a history of writing and

[20] The results are robust to removing potential outliers, as are all of the results that follow.

organized markets, for example. This potentially means that other channels beyond state capacity, but correlated with it, might explain the correlation between state antiquity and outcomes associated with the financial system or degree of urban bias.

Therefore, as a final step, I estimate a series of IV models in which Total Taxation is instrumented with Political Assassinations, the number of political assassinations and attempted assassinations that occurred between 1964 and 1976. The first-stage regression equation is an OLS model that exhibits the following structure:

$$\textit{Total Taxation}(\text{1986-2006 mean})_i = \alpha + b\textit{Political Assassinations}(\text{1964-1976total})_i + \mathbf{X}(\text{1986-2006 means})_i + e_i \quad (2)$$

Where α is a common intercept term, Total Taxation is total taxation as a percent of GDP averaged between 1986 and 2006 for country *i*, *b* is the marginal effect of an increase of one political assassination in country *i* between 1964 and 1976, **X** is the vector of control variables outlined above for country *I* averaged between 1986 and 2006, and which now also include the average number of assassinations that occurred in country *i* between 1986 and 2006. The inclusion of the latter variable helps ensure that the number of political assassinations that occurred between 1964 and 1976 is not picking up a country's underlying tendency to suffer from political assassinations.[21] Finally, *e* is a residual for country *i* adjusted to be robust to heteroskedasticity via the White technique.

[21] While omitting this variable does not materially affect the statistical or substantive significance of the results, similar results are obtained if I instead measure this concept as the total number of assassinations between 1986 and 2006.

This first stage regression is reported in Column 4; the result of interest, the relationship between 1964-1976 assassinations and Total Taxation, is depicted in Figure 2. An increase in the number of assassinations between 1964 and 1976 sharply decreases state capacity a decade later, even after controlling for economic growth, the size of the rural population, oil wealth, regime type, and the average number of assassinations between 1986 and 2006. Moreover, the F-test of this excluded instrument, 1964 to 1974 assassinations, is 49.72 ($p < .001$). This is well-above 10, the critical value identified by Staiger and Stock (1997) as a strong instrument.

In the second stage regression, the predicted values generated by the regression represented by equation 2, the first stage of the regression, are used to measure state capacity as depicted in equation 1. The results are reported in Column 5. They again confirm theoretical priors. Increases in state capacity map onto reduced urban bias (Column Y; p-value = .001). The substantive results are similar to those obtained in the OLS multivariate regressions reported in Column 2. This suggests that the previous, OLS results, do not suffer from too much endogeneity. It also suggests that the exclusion restriction is satisfied in the IV regressions.

Yet how can we really be sure that the political assassinations that occurred between 1964 and 1976 were largely unexpected, and thus allow us to capture exogenous variation in state capacity between 1986 and 2006? One, albeit imperfect way, to test this assumption is to instead use the number of political assassinations that occurred between 1951 and 1963 in the first stage regression, with the expectation that because these assassinations occurred *before* President Kennedy was killed, they were not as unexpected. In other words, these pre-1964 assassinations should not be good predictors of state capacity between 1986 and 2006 after controlling for the average number of assassinations between 1986 and 2006 because they instead reflect countries' underlying, and reliably predictable, political equilibrium.

Column 6 bears this intuition out. State capacity is not systematically associated with urban bias in a second stage IV regression where the political assassinations recorded between 1951 and 1963 instrument for contemporary levels of state capacity. In the first stage regression (the results are not show), the F-test on this political assassinations measure, 4.88, is far short of the threshold separating strong from weak instruments (chi-square = .03).

STATE WEAKNESS AND URBAN BIAS IN MEXICO

In the following case study of Mexico, I explore the relationship between state weakness and urban bias over the greater party of the 20th Century. After the 1910 Revolution, Mexico's central government inherited a fragile state apparatus and a nearly bankrupt national treasury. Although Mexico somehow managed to eke out a few years of economic growth during a decade of brutal fighting between the federal government and a plethora of armies and militias, the aftermath of the revolution was marred by nearly two "lost decades." By 1930, the country's known oil stocks were, for all intents and purposes, depleted.

Therefore, beginning in around 1933, in a bid to raise revenues and consolidate their authority, successive governments turned to policies that promoted urban bias. They used the central bank and state run development banks to direct credit to monopolies, oligopolies, and government run enterprises in industrial sectors. This strategy generated rents that the state then taxed or siphoned off by owning shares in firms that paid out handsome dividends. They also taxed the countryside in several different ways, including the use of price controls on foodstuffs, overvalued exchange rates, and marketing boards that levied taxes on commodities.

The ultimate results were momentous. The Institutionalized Revolutionary Party (PRI) was able to monopolize Mexican politics for 71 years. While it restored stability, order, and economic development, the aggressive use of directed credit to overcome strong fiscal

constraints and distribute patronage to core supporters ultimately reinforced the state's underlying weakness. On the one hand, it helped create an inefficient economy sheltered by protectionist policies and reliant on unsustainable macroeconomic policies. On the other, the state became overly reliant on propping up, monitoring, and taxing big firms, making it harder to collect revenues on a broader fiscal base. Unfortunately, democratization in 2000 did not spell an end to corruption, a weak rule of law, and Mexican citizens' chronic lack of trust in their government and the bureaucracy (Haber, et al. 2008).

This case study continues as follows. First, I provide a brief history of Mexico before the 1910 Revolution. Second, I explicate the critical events that comprised the conflict, briefly touching upon its underlying causes. Third, I outline the pernicious effects that the revolution had on state capacity; briefly, it crippled the central government and weakened it fiscally, militarily, and politically. Fourth, I document the revolution's aftermath, and sketch the political economy that emerged in its wake. Fifth, I explain how this new equilibrium further degraded the state's already weakened capacity. Finally, I outline the strategy employed by successive PRI governments to consolidate power and raise revenues in light of these challenges.

Brief history of Mexico before the Revolution

Mexico began its life as an independent state in 1821 as a very weak one. It inherited absolutism, mercantilism, and a virulent caste system from the Spanish Empire. Ironically, a reactionary faction had triumphed during a devastating war of independence that lasted eleven years. After hostilities ended, Agustín de Iturbide, an aristocratic criollo, and a holdover from the dethroned Viceroyalty of New Spain, was the last man standing. Yet, he stood upon a heap of ashes: the country's economic and fiscal base was completely destroyed.

Iturbide portentously named himself emperor; he was unable to last in power even a year, however. Moreover, the coup that unseated him set an unfortunate precedent. Over fifty coups and rebellions swept over Mexico before it celebrated its 50th birthday. Worse, every corner of the country was overrun by warlords. During that time period, General Santa Ana became president 11 separate times. Under his watch, in 1846, Mexico was invaded by the United States and lost half its territory. In the 1860s, France invaded and occupied Mexico and installed Mexico's second emperor, Maximilian. He was assassinated after less than three years in power.

The country finally enjoyed a respite from war, chaos, and national humiliation when Porfirio Díaz, a general who had helped oust the French from Mexico, took power in 1876. He would rule for over three decades after consolidating the central government's grip on power.

Díaz implemented a multipronged strategy. To curry loyalty, he awarded generals with governorships and haciendas after squashing numerous rebellions that raged across the nation. To generate a revenue base and pay down Mexico's huge debt, he courted and taxed foreign companies operating in the transportation sector, primarily railroads; the commodity export sector, centered on crops such as henequen grown in the Yucatán peninsula; the industrial mining sector, located in the Northern part of the country; and the fledgling oil sector, headquartered in Mexico's southeast.

While the country enjoyed its first real taste of political stability and economic development under the so-called Porfiriato, the political-economic order that Díaz cultivated created very few winners and a whole lot of losers. On the one hand, a handful of rich hacienda owners came to control over half the country's arable land (Sigmund 1980). The majority of these landholdings were the result of lands confiscated from the church, smallholders, and Indian communities. On the other hand, ownership of both land and other assets, including railroads,

mines, and ports, was increasingly concentrated in the hands of foreign investors, especially Americans. By 1911, foreigners owned half of the total wealth of the country; this includes one quarter of its agricultural land (Wright 1971).

What was the Mexican Revolution and how long did it last?

The Díaz regime eventually alienated large segments of the population. The vast inequalities created under the Porfiriato created widespread grievances among popular sectors. Millions of peasants had been displaced by land grabs. They were then forced to labor under debt peonage on large haciendas. Countless workers toiled in mines and factories for little pay and under terrible conditions. Complaints and strikes were brutally repressed. Moreover, as the Díaz regime dragged on, it intensified a campaign to centralize power in Mexico City. This benefited a tiny cabal of cronies—known by the misnomer, the cientificos—who carved out a concentrated banking and industrial sector for themselves (Haber, Razo, and Maurer 2003) at the expense of firms and politicians located in the northern states.

Francisco Madero, a northern landowner who espoused liberal views and had presidential aspirations, became the focal point of the opposition. He secured the loyalty of Francisco Villa and Pascual Orozco, two warlords who commanded a large army—the División Del Norte—capable of taking on federal troops. In the southern part of the country, Emiliano Zapata, who headed a militia composed of landless peasants of indigenous descent who fought the central government under the banner of land reform and social justice, also pledged his allegiance.

Madero's goals were moderate. He sought to block Diaz from "contesting" the presidency for the 8th time and to impose strict presidential term limits. After all, except for Villa and Zapata, he represented a mainstream movement that grew to include large segments of the middle class and intelligentsia. Liberal reformers simply feared that Díaz would again commit

electoral fraud and continue to rule with an iron fist; they were not particularly interested in the socialist aspirations espoused by the more radical wing of the opposition.

Armed conflict was ignited in November of 1910 at Madero's behest, and soon swept over the entire nation; it would continue on and off for another decade. Although Madero's sympathizers were able to wrest the northern city of Ciudad Juarez from federal troops soon after the call to arms rang out, which induced Díaz to flee to Paris in 1911, his capitulation gave way to a weak Maderian presidency that failed to consolidate power. On the one hand, Madero alienated the wage laborers, landless peasants, and military officers of humble origins that initially supported him in his bid to unseat Díaz. Political reforms had stalled, no land was redistributed to radicalized peasants, and the economic elite under the Porfiriato maintained their privileged position. On the other hand, Madero's tolerance of dissenters and Díaz loyalists signaled weakness, unleashing further rebellion and chaos (Haber, Razo, and Maurer 2003: 55).

Therefore, less than two years after replacing Díaz, Madero was toppled by one of his own generals, Victoriano Huerta—an influential military officer during the Porfiriato who had secured the support of American ambassador Henry Lane Wilson. The power vacuum that ensued fanned the mobilization of factions headed by a bevy of regional warlords who took arms against each other in an attempt to seize control of the central government.

Two main factions emerged. A more moderate and urbane one was headed by the former governor of Coahuila state, Venustiano Carranza. It relied on the muscle of an army commanded by General Álvaro Obregón. These so-called Constitutionalists opposed the more radical alliance between Villa and Zapata, who called for aggressive land reform. While the U.S. government at first helped arm and tolerated Villa, it eventually turned on him, and threw its support behind Carranza, who also earned the support of the Catholic Church and important aristocrats.

Eventually, after a protracted civil war, the constituents represented by Villa and Zapata were recognized, if not co-opted, by Carranza, who declared himself president in 1915. He persuaded many of the peasants allied with Zapata to switch sides by promising them land and cajoled workers to join his ranks by brokering labor-friendly pacts. The *coup de grâce* to the Porfirian coalition was the 1917 Constitution, a progressive document that Carranza at first opposed, but eventually embraced. Quite simply, it secured the trust of the mobilized sectors that posed the biggest threat to his regime.

Article 27 modified land, water, and subsoil property rights. Private ownership of these assets was now a privilege that the government could give and take away at its discretion. State expropriation of land and minerals could now occur with the mere stroke of a pen. And Article 27 also prescribed that large private farms had to be broken up into smaller parcels that would be distributed to peasants.

Article 123 gave the government vast regulatory authority over labor, restructuring the relationship between employers and employees to favor the latter. First, it guaranteed workers the right to organize and strike. Second, it introduced an eight-hour workday and a six-day workweek. Third, it established occupational health and safety standards. Fourth, it made it very difficult for workers to be fired. Finally, it boosted wages by mandating a legal minimum wage and prescribed overtime pay and profit sharing.

Yet, despite these concessions to popular sectors, chaos would continue. Carranza was assassinated in 1920 after a revolt instigated by Obregón. Meanwhile, Villa and Zapata did not lay down their arms. Instead, they were killed years later by federal troops in separate ambushes. Armed skirmishes, revolts, and assassinations continued well into the 1930s.

What were the effects of the Mexican Revolution on state capacity?

The revolution was a crushing blow to an already fragile state. It destroyed vast stocks of capital, both human and physical, and enervated state capacity, retarding the modest political and economic progress that had been achieved under the Porfiriato.

Several devastating consequences stand out. First were mass violence and the wanton destruction of infrastructure. Second was the bankrupting of the state treasury due to the welter of economic and fiscal fallouts associated with these damages. Third were the government's loss of control over national territory and strong external challenges to Mexico's sovereignty.

The magnitude of the violence and destruction wrought by the Mexican Revolution was unprecedented. The civil war unleashed after Madero's assassination was characterized by a scorched earth counterinsurgency campaign, as well as trench warfare inspired by fighting in Europe during World War I. It is therefore not surprising that upper bound estimates of the death toll surpass two million people, or 13 percent of the 1910 population. Estimates of the destruction of property are similarly large; to give just one example, Powell (1921: 43) estimates that close to half of Mexico's 10,000 railway cars had to be replaced by 1920. While there were hundreds of attacks against, and forced takings of, land and mines by generals, warlords, and bandits across the nation, the utter breakdown of law and order ushered in incessant waves of mass squatting, robbery, looting, and sabotage (Hart 1989: 260).

The enormous destruction of lives and property, combined with mass strikes and protests by miners, railroad workers, and industrial laborers, contributed to the rapid depletion of state coffers. The numbers tell the story best. Average total taxation (% GDP) by the central government was 12.5 between 1900 and 1910—the tail end of the Porfiriato; it was a paltry 1.15

between 1911 and 1916, the first years of the revolution. While it would take until 1978 for taxation to surpass this figure, its average between 1970 and 1980 was still only 11.12.[22]

It is no wonder, then, that each of the presidents who attempted to rule Mexico after Díaz's ouster turned a blind eye to expropriations and pillaging. This was the default method for remunerating federal troops or militias that pledged their loyalty. The treasury was barren.

Perhaps the most informative measure of state weakness during the Mexican Revolution is the central government's total loss of control over national territory and the strong challenges to Mexico's sovereignty made by the United States. On the one hand, Mexico City lost its ability to control events in both its northern and southern peripheries. The governors who had been appointed by Díaz during his reign were either killed in the fighting or fled, and the warlords and militias that filled the ensuing void were unable or unwilling to restore order.

On the other hand, there were several episodes in which the U.S. encroached upon Mexican territory and influenced the political events on the ground. In 1914, the Americans occupied the port of Veracruz to force the ouster of Victoriano Huerta. In 1916, General Perhsing led U.S. troops deep into Mexican territory to chase down Villa in retaliation for raiding Columbus, New Mexico. There were also countless incursions by U.S. armed forces that aimed to protect the lives and economic interests of American citizens.

Political Economy in the aftermath of the Revolution

How was authority consolidated in this very challenging environment? Upon rising to the presidency in 1920, Alvaro Obregón cobbled together a new coalition to help him consolidate power. His handpicked successor, Plutarco Elías Calles, then doubled down on this approach

[22] The data on taxation is from INEGI (2000). The data on GDP is from OXLAD (2003).

when he began his own presidential term in 1924. Their newfangled coalition included three important sectors that had been mobilized since the start of the revolution: military generals who had taken up arms against Díaz and then his successors, landless peasants, and organized labor.

It is important to note two things, however. First, they mobilized only select few peasants, wage laborers, and military officers—leaving the lion's share of potential players in the lurch. Second, they did this under a hyper centralized system that was fully controlled by the government. While the first aspect made it easier for a very weak state apparatus to pull this off, the second aspect created a series of formidable challenges that will be discussed, along with their solutions, further below.

First, consider the peasants. Obregón relied heavily on militias composed of landless peasants who had first been mobilized by Zapata. He leaned on them to defeat a bevy of seditious generals and landlords who had joined his disgruntled secretary of the treasury, Adolfo de la Huerta, in a rebellion that broke out in 1923. While the rebellion was ultimately thwarted, Obregón strategically redistributed only 1.7 million hectares to the peasants who had directly intervened on his behalf. Specifically, only 158,000 farmers benefited from this bout of land reform, representing only 1.3 percent of Mexico's agricultural land (Markiewicz 1993: 179-84).

This brings us to the army. Massive land redistribution would have turned generals loyal to Obregón against him. These generals were either allied with landlords or were themselves landholders (see Haber, Razo, and Maurer: 70). Obregón managed to control the armed forces by doling large landholdings to military commanders in exchange for their loyalty.

Finally, Obregón also sought to consolidate his hold on power by courting Mexico's most important (national) labor organization, the Mexican Regional Labor Confederation (CROM). The government sided with the CROM when it held strikes against employers

(Gruening 1928: 357-58). Obregón also sided with the CROM over rival (more radical) labor organizations. Indeed, he practically granted the CROM a monopoly over organizing and representing workers. Obregón directed the Supreme Court to allow the CROM to adjudicate labor disputes through its control of the *Juntas de Conciliacion y Arbitraje*.

In exchange, the CROM provided manpower. First, they helped stamp out the de la Huerta rebellion. Moreover, the CROM offered mass political support to tip gubernatorial elections to Obregón's allies, and deployed thugs at polling stations to rig these elections in the case its electoral support was not enough (Haber, Razo, and Maurer: 70-3). The CROM's chicanery helped Obregón's secretary of the interior, Calles, steal the 1924 presidential election.

Calles then perfected this system. It helped him remain in office, both in his official capacity as president of Mexico and through the behind-the-scenes control of various "puppet" presidents, for ten years. He institutionalized and fortified the Obregonian coalition by creating a hegemonic political party that would rule for the next 71 years.

Calles began in a vulnerable position, however. First, the de la Huerta rebellion had originated *because* de la Huerta was upset with Obregón's choice of Calles as the next president. Second, upon coming to power, Calles was faced with a civil war spearheaded by Catholic fundamentalists, known as the Cristeros, who were dissatisfied with Calles's implementation of anti-clerical prescriptions enshrined in the 1917 Constitution.

If he was to retain the loyalty and support of his coalition, fend off the Cristeros, and deter further rebellions, Calles had to do something big. He had to send the peasants, wage laborers, and military officers who he relied upon a reliable signal. Calles therefore began to seriously implement agrarian reform by distributing some 3.2 million hectares of land during his official term (1924 to 1928). Whereas in 1918, during Carranza's presidency, a mere 1 percent of

total cultivated land was in the form of family farms, by 1928, the end of Calles's first "official" term, six percent of total cultivated land was in the form of family farms (Vanhanen 2000). In other words, a 600 percent increase in barely ten years.[23] To cement his political support among labor, Calles appointed Luis Morones, the head of the CROM leader, Minister of Industry, Commerce, and Labor. Increases in wages and benefits for CROM workers ensued.

Patently flouting the "no-reelection" principle that had been enshrined in the 1917 Constitution, and which had to a large extent animated the Mexican Revolution, Calles launched a bid for Obregón to recapture the presidency in 1928. He amended the constitution to allow presidents to serve a second, yet nonconsecutive, term and extended the presidential term from four to six years. Moreover, as had become the norm since the revolution, Calles and his supporters helped Obregón steal the election. Despite these machinations, however, Obregón was assassinated by a Catholic fanatic before he could retake office.

Calles responded shrewdly. Instead of openly protracting his own term, and therefore unleashing the specter of the Diaz dictatorship, he handpicked one of his supporters, Emilio Portes Gil, to serve as interim president until 1930. This ushered in a *de facto* extension of the Calles dictatorship known as the *Maximato*: for the following four years, he manipulated Mexican politics by controlling three "elected" presidents, Gil, Rubio, and Rodríguez.

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[23] To be sure, this was only 2.4 percent of Mexico's agricultural land (Markiewicz 1993: 188). So, if compared to the redistributional promises enshrined in the 1917 Constitution, this amount of land redistribution was a pittance (see Haber, Razo, and Maurer 2003: 313 for this point). However, if compared to what was needed to placate the faction of peasants who remained mobilized and armed to the teeth, this was more than enough.

In 1929, Calles institutionalized the ruling coalition by founding a national party, which would eventually be named the PRI. Calles invited influential generals, regional elites, agrarian bosses, labor bosses, and the heads of small parties to join. These elites brought their vast networks of supporters along with them into the party. The party immediately became Mexico's hegemonic political organization; its main function was to distribute patronage to its members.

Further state weakness in the aftermath of the Mexican Revolution

The elaborate political machine that Calles fashioned to consolidate his rule required a constant flow of resources, however. This meant that the state had to build up both its administrative and surveillance capacity and its revenue base. This would not be easy to accomplish, as the aftermath of the revolution gave birth to a host of new problems that further weakened an already fragile state.

In order to survive in power, Calles and his successor, Cárdenas, felt compelled to honor many of the social commitments outlined in the 1917 Constitution. These were not only expensive, but alienated foreign investors. Mexico was forced to make a host of reparations to the United States and Britain after expropriating landholdings and the oil industry.

This worsened already worrisome trends. It sped up capital flight. It contributed to a strong, negative shock to investment and economic growth that was exacerbated by the Great Depression. Additionally, irrespective of oil nationalization, Mexico ran out of conventional sources of petroleum. This therefore dried up a huge source of government revenue.

Under Calles, brinksmanship between Mexico and foreign oil companies began in earnest. Immediately upon coming to power in 1924, he demanded that oil firms convert their fee-simple titles to their oil lands to fifty-year concessions. The companies did not acquiesce, and

in 1926 the U.S. government considered withdrawing recognition of his regime and intervening militarily (Sigmund 1980: 53). This was only the first skirmish in many to follow.

Calles struck again two years later. The 1917 Constitution asserts that the nation has direct ownership of any natural resources under its subsoil. It also eliminates the requirement that compensation be made prior to the take-over of property by the state on behalf of the national interest. In seeking to implement these principles, Calles pushed two important laws through Congress. In 1927, the Petroleum Law limited permanent foreign oil concessions to fifty years. Moreover, a controversial proviso known as the Calvo Clause required foreign oil companies to relinquish their right to make appeals to their home governments. Meanwhile, the so-called Land Law restricted foreign land ownership in Mexico. Foreign companies were therefore forced to reacquire oil drilling rights (Haber, Razo, and Maurer 2003: 210).

Suffice it to say, these two laws antagonized American oil companies drilling and refining petroleum in Mexico. They provoked a heated, protracted battle between the Mexican government and American-owned oil companies. The U.S. government stepped in on behalf of the oil companies. In March of 1928, both sides reached a compromise. Calles agreed not to apply Article 27 retroactively. Properties bought or leased prior to 1917 would not be affected by the new petroleum and land laws.

Yet, this proved to be a Pyrrhic victory for the oil firms. This deal was rendered null-and-void in 1938 when president Lazaro Cárdenas, unexpectedly nationalized the oil industry.[24] The upshot was unrelenting pressure, hostility, and threats meted out by the United States and Britain. On the one hand, the specter of military intervention to redeem American investors

[24] The following three paragraphs draw heavily from Sigmund 1980: 53-67.

loomed. At minimum, the American military had the power to impose embargoes on the flow of goods in and out of Mexico. It could also influence Mexico's ability to secure international loans. Soon enough, a cadre of Republican senators began to pressure the Roosevelt administration to invade Mexico at the behest of the forlorn oil companies.

As the Roosevelt Administration's attention was diverted to Europe and the Pacific after the U.S. entered World War II, the worst case scenario never materialized. To be sure, there was an attempted blockade by the expropriated oil companies of tankers, machinery, spare parts, and ethyl used for refining. Additionally, the U.S. State Department vetoed loans intended for Mexico from the Export-Import Bank, the Americans reduced the amount of Mexican oil imports by 50 percent, and Roosevelt forbade the Navy to purchase Mexican oil. For its part, the British government broke off relations with Mexico entirely.

These actions impelled the Mexican government to arrive at a settlement with the Americans and British in which it committed itself to make a host of expensive reparations. In 1941, Mexico agreed to pay former American property holders 40 million dollars for their expropriated lands, and 33 million dollars, plus 5 million dollars in interest, to American oil companies that had been expropriated. In 1947, the Mexican government agreed to pay aggrieved British oil firms 80 million dollars in principal and 50 million dollars in interest.

If this represented the best case scenario, however, it is unlikely that the Cárdenas regime would have survived anything worse. Mexico exported only 15 million barrels of oil in 1938, the year of the expropriation, compared with 24 million barrels a year earlier. This precipitated a steep decline in the Bank of Mexico's foreign reserves, and catalyzed a steep devaluation of the peso, which lost nearly 40 percent of its value. In turn, this triggered a steep rise in inflation.

The unprecedented expropriations of land and natural resources outlined above also precipitated capital flight, a phenomenon triggered by the 1910 Revolution and amplified after the 1923 de la Huerta rebellion and President Obregón's assassination a few years later. Two years after oil nationalization, FDI had dropped to 2.5 billion dollars, a 26% decline *vis-à-vis* the 3.4 billion dollars in FDI registered in 1936.[25] In 1943, FDI was only 1.64 billion dollars; by 1950, it was a meager 1.6 billion dollars—only 52% of Mexico's 1936 level.

Years of capital flight and the severe decline in public revenues took their toll on investment and economic growth. A battery of figures makes this clear. Consider the ratio of Gross Fixed Domestic Investment to GDP.[26] After reaching 18.4% of GDP on the eve of the revolution, domestic investment plummeted and did not return to this level until 1957. By 1926, the investment ratio had fallen to 9.86%. Unsurprisingly, the Great Depression did not help matters; between 1930 and Calles' last year of rule, 1933, the average investment ratio was only 6.6%. Accordingly, during his tenure, the economy collapsed. The average growth of Real Per Capita Income was -2.3%; it took until 1941 for Mexico to regain its 1924 level.

Worst yet, Mexico had basically run out of conventional sources of petroleum even before 1938—at least those that could be detected by the technology at the time (Haber, Maurer, and Razo 2003). This therefore dried up a huge source of government revenues, irrespective of whether the oil was owned by the state or not. Mexico's level of Oil Income Per Capita in 1930

[25] FDI figures are measured in 1983 dollars. FDI in nominal US dollars is from OXLAD (2003). Real values are computed using the U.S. Consumer Price Index.

[26] The figures on investment and Per Capita GDP are from the OXLAD (2003).

was only 13 percent of what it had been in 1921.[27] By 1933, Oil Income Per Capita was only 6 percent of what it had been in 1920, the year that Mexico fist reached peak oil production.

Indeed, Mexico only regained its 1921 production level in the late 1970s, during its second oil boom, after the discovery of an offshore supergiant oil field in 1976. This meant that the government's fiscal take from oil as a percent of total state revenues collapsed from a high of 31.4, in 1922, to 5.4, in 1931. The state would only obtain this level of oil reliance again in 1983.

The Solution to State Weakness?

In the wake of the economic and fiscal catastrophe it found itself in, Calles turned to several measures to raise revenues and consolidate power that were characterized by a sharp urban bias.[28] Successive PRI governments then reproduced this fiscal and political strategy.

One set of policies encouraged directed credit to industry at the expense of agriculture. Manufacturers were awarded steep tariffs and quotas on competing imports, barriers to entry that allowed them to capture the domestic market, including restrictions on foreign ownership, and favorable labor laws. The macro result of these policies was a steep, steady increase in the size of Mexico's manufacturing base. This phenomenon is represented by Figure 3, which graphs the value added contributed by manufacturing (% GDP) over the 20th Century.

The result is that large, domestically owned industrial firms with big profits could be effectively monitored and taxed. And, over time, the state simply took over many of these companies entirely. By 1982, it owned over 1,000 firms.

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[27] The figures reported in this paragraph are from Haber and Menaldo (2011).

[28] This section therefore draws heavily on Haber, Razo, and Maurer (2003), Chapter 4; Haber, et al. (2008): 49-51; and Calomiris and Haber (2014), Chapter 10.

Another set of policies taxed agriculture to benefit urban consumers. Indirect taxes on agriculture were effectuated by policies that included price controls on foodstuffs and overvalued exchange rates. Taxes were also explicitly levied on some exported commodities such as coffee, sometimes via the use of marketing boards.

Directed Credit

Directed credit to industry was at the forefront of Mexico's post-revolutionary political economy. By 1936, private commercial banks were forced to lend a substantial part of their deposit base to the central bank. Also around this time, several development banks were created by the state. Nafin, which was tasked with financing Mexican manufacturing, quickly became the engine of directed credit. Often contravening its charter, Nafin allocated capital to politically-connected firms. This was accomplished via medium and long term loans collateralized by firm shares, as well as by the provision of equity capital. The state also forced private commercial banks to lend a large share of their deposit base to industrial conglomerates. Eventually, the central bank, the development banks, and the private banks got into the business of financing state-run enterprises.

Starved of credit, Mexico's agricultural sector suffered as a result:

> Agricultural credit, like agriculture in general, was historically subordinated to the demands of import-substitution industrialization. In spite of agriculture's contribution to the 'Mexican miracle' of sustained economic growth, credit growth during the period 1940-70 was significantly less than the growth of agriculture in general or of the rural population. Agricultural credit then increased 15 percent annually in real terms between 1970 and 1975, in response to declining production combined with mounting peasant mobilization, but the new recognition of agricultural problems was insufficient to overcome years of bureaucratic bias and inertia in the agricultural credit institutions, and the production results were limited." (Fox 1992, 92).

Larger issues of insecure property rights and financial market imperfections were also behind the paucity of credit available for the rural sector. Consider that "…the security of farm

loans in Mexico is not as great as in other countries because of the private farmers' insecurity of tenure, the danger of invasions, or of arbitrary expropriation. Hence the banking system lends substantially less to the farm sector than it would willingly do in other circumstances." (Yates 1981, 206).

Moreover, the ejido lands that were underwritten by the 1917 Constitution could not be used as collateral; this only changed in 1991 after a constitutional reform. Therefore, "[o]nly 33 percent of maize producers had access to formal credit in 1978, according to a large-scale survey carried out by BANRURAL's training department. The study also found that the bank gave first priority to producers with ten to twenty hectares, second priority to those with five to ten, and third priority to those with two to five hectares" (Fox 1992, 93).

In the 1980s, farm credit shrank further. "Beginning in 1982, the federal government's investment in agriculture, including credit and investment in irrigation, did not keep pace with inflation and instead plummeted to new lows. In fact, between 1982 and 1990, the amount of investment in the countryside fell to 517.4 billion pesos, a 62% decline" (Ochoa 2000, 206).

What credit there was available in agriculture was mainly directed towards large-scale infrastructure projects. These were aimed at propping up commercial agriculture to benefit industry. "Agriculture was viewed as having two central functions: to improve foreign exchange earnings through agricultural export earnings (accumulation of foreign exchange for heavy industrial imports was given especially high priority in the 1940s-1960s); and, to transfer internally generated capital to industry" (Hall and Turner 1982, 305).

Directing credit to manufacturing or to a narrow set of agricultural uses that supported industry helped PRI governments to generate fiscal resources. Figure 4 adduces the relationship between directed credit to industry and the post-revolutionary state's ability to generate easy-to-

tax revenues between 1933 and 1974. Directed Credit—lagged by one year—records the value of loans made by government owned and run development banks as % GDP. This is a lower bound estimate of this concept in that it excludes subsidized loans made by the central bank to private and public firms. The second variable, Direct Taxes, records the value of taxes on income, profits, and capital gains collected by the central government as % GDP.[29] The latter variable proxies for the ability of the government to raise taxes on the corporate profits of the firms created and sustained through its directed credit strategy; it is also a lower bound estimate; the generous dividends that the government earned from its ownership stake in these enterprises are not captured by Direct Taxes.

Starting with Calles, successive PRI governments increasingly relied on directed credit; this helped to boost revenues. Directed credit increases steadily and exponentially after the state initiates this strategy in 1933. By 1950, it is almost 10% of GDP. By 1970, it reaches 15%. The state's reliance on direct taxation also increases gradually and exponentially. Moreover, the changes over time evinced by this data series seem to parallel those revealed by the one on directed credit. While President Calles only introduced taxes on income, profits, and capital gains in 1924, by the mid-1930s the level of direct taxes reaches 1% of GDP and almost 2% a decade later. By 1974, it reaches 4%. This is all the more remarkable given the very low levels of oil production in Mexico during this time period—Mexico had become a net oil importer after the end of its first oil boom and had rescinded all direct taxes levied on oil after the 1938

[29] The data on directed credit is from the HFS dataset (2010). The data on taxation is from INEGI (2000). The data on GDP is from OXLAD (2003).

nationalization. And, as explained above, it would not experience another oil boom until the late 1970s.

Price Controls and Overvalued Exchange Rates

PRI governments used different tools to sustain subsidies on basic foodstuffs consumed in urban areas. On the one hand, since at least the 1950s price controls were used to directly keep a lid on the price of food. On the other hand, overvalued exchange rates made food imports artificially cheap, and Mexico increasingly imported food to satisfy growing consumer demand.

Price controls were orchestrated by the Mexican Exporting and Importing Company (CEIMSA).[30] CEIMSA set price controls and later provided low cost food to urban areas directly. The most important staples affected by subsidies intended for urban consumers were maize and beans.

Ostensibly, food producers were supposed to earn a minimum guaranteed price. A government-set floor began in 1938. It spread from corn, wheat, and beans to several other crops, and grew to cover thirteen products by the end of the 1970s. "The government's global food subsidies on basic foods, such as tortillas and bread, were applied by selling subsidized intermediate goods such as flour and processed maize to private sector processors and distributors, who agreed to retail the basic foods at controlled prices in return for guaranteed supplies and a set rate of profit" (Fox 1992, 113).

Yet, things did not ultimately turn out this way. The price floor "did not always reflect the actual costs of the producer, and in many cases the rural protection price was set below the

[30] CIEMSA eventually became CONASUPO (Compañía Nacional de Subsistencias Populares), which was started in 1961 and survived up until 1999.

estimated cost of production" (Ochoa 2000, 53). Therefore, while the price of maize declined in real terms on average until the early 1980s (Hall and Price 1982, 304), farmers' returns were further eroded over time:

> In the early period, when national inflation was 5 percent or less, these prices were set and retained without change for a sequence of years. For instance, the guaranteed prices of corn stayed at 940 pesos a ton from 1963 to 1974, that of wheat at 913 pesos from 1955 to 1966, that of beans at 1,750 pesos from 1961 to 1973. During the seventies, with inflation at 15 to 25 percent instead of the 3 to 5 percent of earlier years, the guaranteed prices were raised annually, but in few cases did the rise fully compensate for the rate of inflation…. Furthermore, the price rises appeared arbitrary and resulted in distortions of the price relationships hitherto established by the market. For instance the price of beans was tripled in a single year, while that of rice was raised by only 10 percent over five years (Yates 1981, 230).

Guaranteed prices for producers of corn, beans, and wheat fell sharply in the 1980s. For corn, the drop was 71 percent of 1981 levels; for beans, the drop was 61 percent, while the price for wheat fell 72% (Ochoa 2000, 206).

Conversely, PRI governments began to participate directly in retail markets to guarantee cheap food in bustling industrial cities such as Mexico City, Guadalajara, and Monterrey. "CONASUPO tended to manipulate the market at the point of consumption rather than of production. DICONSA, the CONASUPO subsidiary that handled retail operations, sold basic food products to urban markets at steep discounts. "DICONSA officials estimated that their prices averaged 10 to 15 percent lower than market rates in the cities…" (Fox 1992, 114).

Increasingly, the Mexican authorities exploited the overvalued peso to advance its urban policies. As early as the 1950s, CEIMSA had imported cheap grains. Yet this was only a sporadic practice (Sherman 2000, 590). As of the late 1980s, this practice became institutionalized. Indeed, "some high-level CONASUPO policymakers had come to view the agency's primary task as regulating domestic markets through periodic imports, in contrast to its

emphasis on rural development during the early and mid-1970s. This tendency was reinforced by the extreme overvaluation of the peso, which made it appear relatively inexpensive to import" (Fox 1992, 111).

Figure 5 represents a proxy of this exchange rate overvaluation. It graphs Mexico's trade deficit over the 20th Century. This figure intimates that the exchange rate was quite overvalued during the 1960s, 1970s, and into the mid-1980s.

Taxes on Exported Commodities

Successive PRI governments also levied high taxes on certain agricultural commodities to help finance the state. For cash crops such as coffee and tobacco, this was accomplished via market boards. INMECAFE, the Instituto Mexicano del Café, was founded in 1958, and eventually came to control the financing, processing and marketing of coffee across the country. This entailed subsidizing inputs for some growers and organizing small producers into village-level cooperatives who often sold their crops at prices substantially below the world price.

What was the ultimate result of these policies? While they only consider data from 1979 to 2004, Soloaga and Lara (2007, 18) find that taxes on coffee exceeded 40 percent across several years. Indeed, they demonstrate that the nominal rate of assistance (NRA) for coffee was highly negative throughout the period of their analysis, ranging from -63.8 to -33.8. Moreover, the average NRA across agricultural commodities is quite negative across most periods, except for 1990 to 1994.

Table 2 discloses these figures, as well as those for tomatoes and beef, Mexico's two other important commodity exports. It also includes comparable OECD averages. The bottom line is that Mexico's policies were strongly biased against the agricultural sector.

The Effects of Urban Bias on Agriculture

The cumulative effect of the distortive agricultural policies outlined above was the emergence of a two-tiered system in the countryside. “In order to expand agricultural production in support of urban industrialization, state intervention widened the gap between large and small producers” (Fox 1992, 86). On the one hand, large-scale producers that used irrigation techniques and focused on the export market escaped serious land reform and received some capital. This was due in part to the fact that they generated scarce, and increasingly valuable, foreign exchange needed to finance the importation of primary and intermediary inputs used in manufacturing ((Merrill and Miró, 1996). On the other hand, while small-scale farmers using rain-fed agricultural techniques continue to receive land well into the 1980s, their unmet demand for credit and infrastructure held them back (Fox 1992, 71-83). Moreover, “[s]tagnation of the ejido-based economy fueled urbanization, which only further marginalized the countryside” (Benjamin 2000, 469).

CONCLUSION

Politicians seeking to survive in countries with low state capacity, in which it is difficult to tax the economy, have an incentive to manipulate markets in a way that confers rents onto a narrow group of insiders. A portion of these rents can be kicked back to incumbents and used to finance the state and line their supporters’ pockets. Among other mechanisms, incumbents in weak states have accomplished this feat by manipulating agricultural markets in ways that restrict the supply of commodities available for export markets and redirected them, at reduced prices, to cities. Industrialization is then subsidized by these implicit taxes on farmers.

This paper corroborates these claims empirically. Weak state capacity is strongly associated with urban bias across countries. These results are robust across different ways of measuring state capacity and instrumental variables to address endogeneity. A case study of

Mexico illustrates the mechanisms by which policies that promote urban bias follow a negative shock to state capacity—in this case, the Mexican Revolution of 1910.

In theory, increased trade and financial globalization should have ameliorated urban bias in the developing world by subjecting governments and firms and to increased international competition. In practice, it has not really done so. This is because the underlying political logic that drives these phenomena is still present across the developing world. This should continue to be the case as long as state weakness endures.

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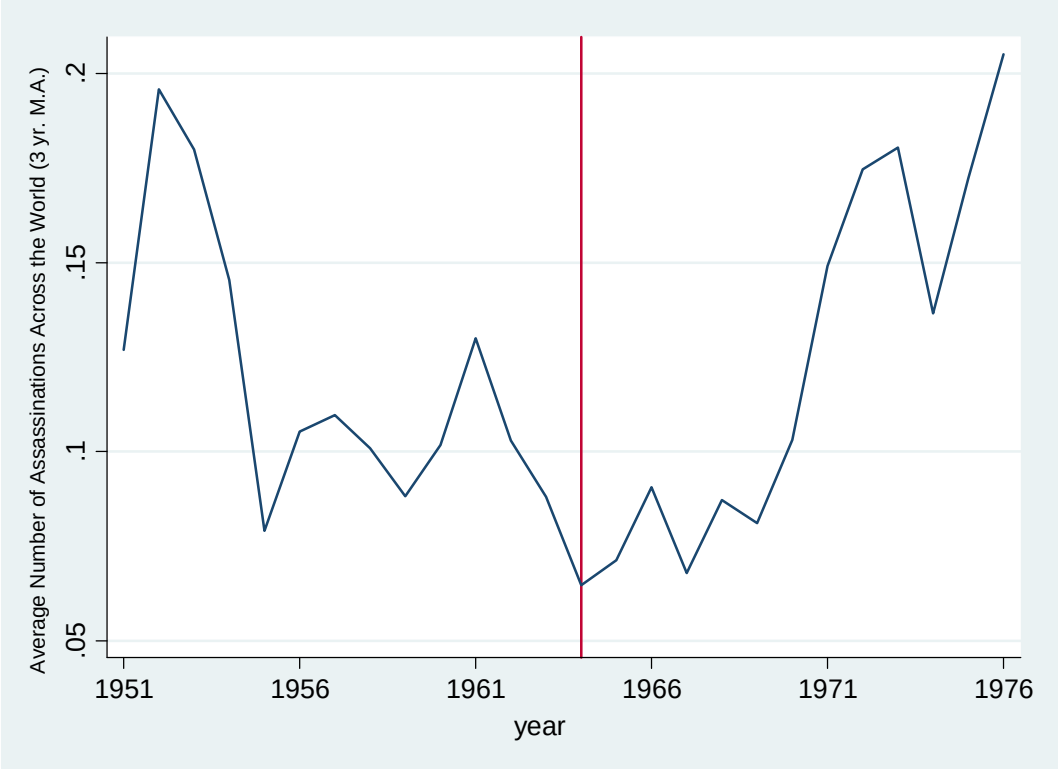
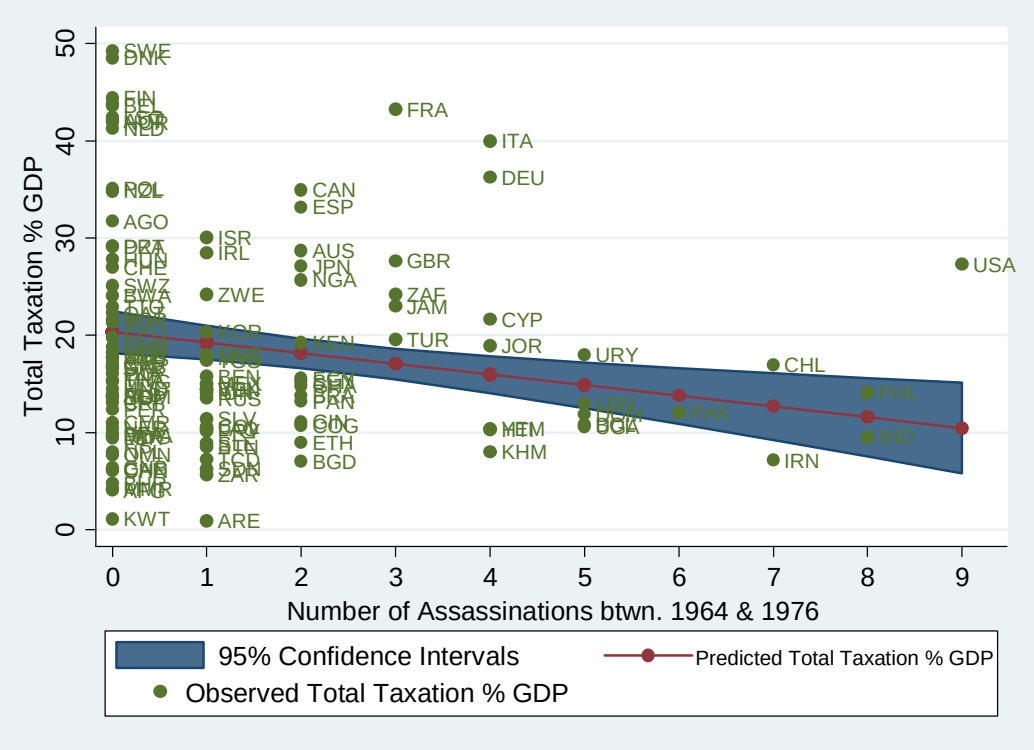
Figure 1. Political Assassinations and Assassination Attempts



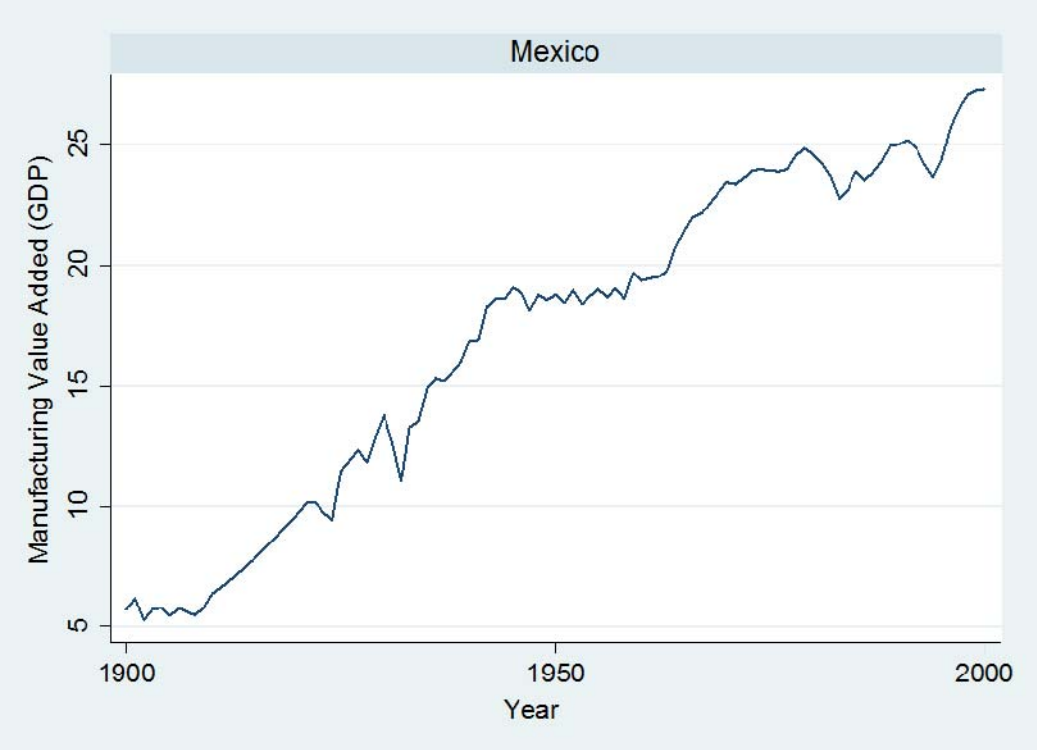
Notes: This is the 3-year moving average of the average number of assassinations across countries each year.

Figure 2. State Capacity and Political Assassinations



Notes: White standard errors estimated to address heteroskedasticity. Total Taxation averaged btwn. 1986 and 2006. Predictions for this variable estimated after holding constant (at their mean) Average Assassinations (1986-2006), Average Economic Growth (1986-06), Average Rural Population (1986-06), Average Oil Wealth (1986-06), and Average Polity Score (1986-06). This regression excludes two potential outliers: Guatemala and Argentina; results similar if these are included.

Figure 3. Manufacturing in Mexico during the 20th Century



Source: OXLAD (2003).

Figure 4. Directed Credit and Direct Taxation in Mexico, 1933 to 1974

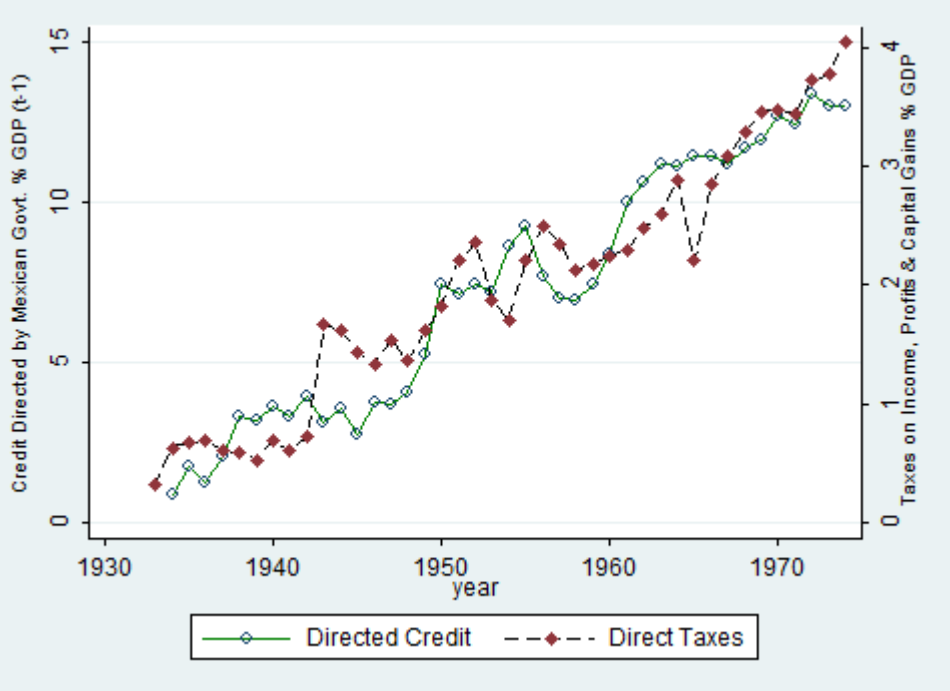
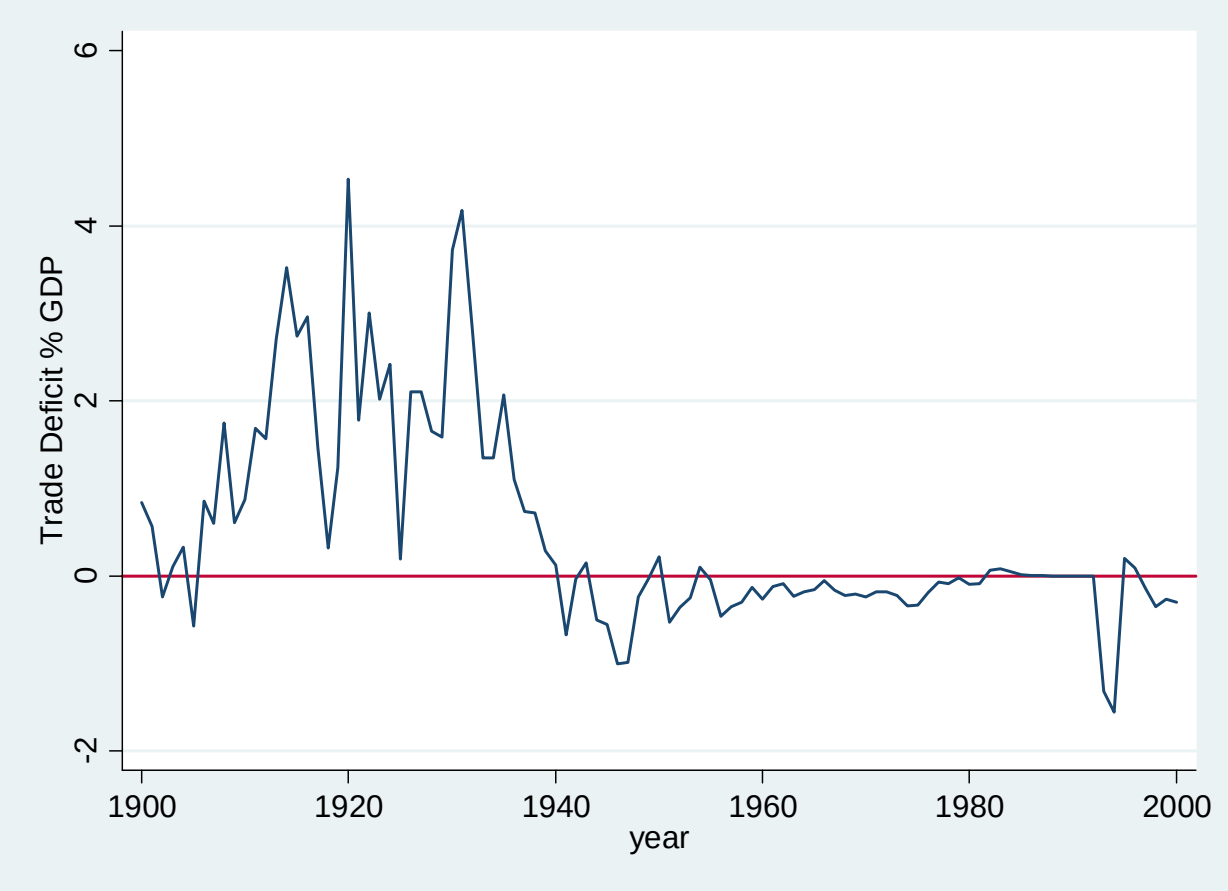


Figure 5. Proxying for Overvalued Exchange Rates with the Trade Deficit



Note: Trade Deficit is (Exports – Imports)/GDP. Source: OXLAD (2003).

Table 1. Relationship between State Capacity and Urban Bias

Variables averaged between 1986 and 2006, except instruments

White robust standard errors in brackets

	[1]	[2]	[3]	[4]	[5]	[6]
Estimation Type	OLS	OLS	OLS	IV-OLS, first stage	IV-OLS, second stage	IV-OLS, second stage
Dependent Variable	Agricultural Assistance	Agricultural Assistance	Agricultural Assistance	Total Taxation % GDP	Agricultural Assistance	Agricultural Assistance
State Capacity Measure	*Total Taxation % GDP*	*Total Taxation % GDP*	*State Antiquity*		*Total Taxation % GDP*	*Total Taxation % GDP*
Pol. Assass. Legacy Avg.				1964-1976	1964-1976	1951-1963
State Capacity	0.022***	0.013**	0.81		0.032***	0.002
	[0.005]	[0.006]	[0.500]		[0.009]	[0.024]
Political Assassinations, Legacy				-0.579***		
				[0.082]		
Economic Growth		6.521*	2.542	-55.775***	10.06**	6.922*
		[3.531]	[3.762]	[54.468]	[4.560]	[4.038]
log(Rural Population Per Capita)		-0.102	-0.158	-8.300***	0.001	0.007
		[0.196]	[0.159]	[3.001]	[0.004]	[0.005]
log(Oil Reserves)		-0.011	-0.016	-0.04***	-0.034	-0.209
		[0.010]	[0.011]	[0.125]	[0.155]	[0.243]
Polity Score		0.005**	0.006**	0.191***	-0.013	-0.017
		[0.002]	[0.003]	[0.048]	[0.011]	[0.012]
Political Assassinations				-4.092***	0.08**	-0.037
				[0.836]	[0.034]	[0.092]
Intercept	-0.165**	-0.161	-0.148	41.955***	-0.632	0.333
	[0.081]	[0.811]	[0.657]	[13.564]	[0.613]	[1.086]
Observations	70	70	71	62	62	57
R-squared	0.19	0.31	0.34	0.61	0.29	0.31

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 2. Taxation of Mexican Agricultural Products vs. the OECD

	NRAs for Mexico				
	1979-84	1985-89	1990-94	1995-99	2000-04
Exportables (in general)	-27.6	-21.3	15.8	-8.2	-12.5
Beef	-17.5	-7.6	37.7	11.6	-2.7
Coffee	-63.8	-49.7	-23.6	-28.1	-33.8
Tomato	-24.2	-45.8	-23.1	-38.6	-37.1

	NRAs for OECD countries			
	1986-89	1990-94	1995-99	2000-04
Beef	-13.7	26.7	7.7	3.3
Coffee	-52.5	-10.2	-7.2	0
Tomato	-8.1	-4.3	-17.1	3.5

Reproduced from Soloaga and Lara (2007), Table 5, p. 28.