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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 the latter view and corroborates [Bates, Robert. 1981. *Markets and States in Tropical Africa*. Berkeley, CA: University of California Press.] insight 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 supporting evidence.

1 Introduction

What explains urban bias? Why do some governments systematically tax agricultural commodities, deprive farmers of credit and other inputs, and drive them out of business, if not starve them? Why do these same governments subsidize inefficient infant industries involved in manufacturing by adopting policies that distort markets for labor, capital, and commodities?

These questions matter greatly. 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 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).

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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 sheltered by politicians from competitive pressures. In the developing world, however, policymakers often discriminate against farmers, harming the most vulnerable segment of their populations in the process.

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 are recruited to subsidize the industrialization policies that make this happen, usually at the expense of the agricultural sector. Financial and monetary policies are commandeered to allocate credit to politically favored industries, generate profits for bankers and manufacturers, and subsidize food in cities.

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. By embracing "industrialization" policies tied to protectionist measures, by taxing agriculture and subsidizing cheap food consumed in cities, and by channeling scarce credit to national champions and state owned firms, these countries continue to stick to the urban bias playbook.[1]

This paper argues and demonstrates that the political economy approach to understanding urban bias is the most persuasive explanation for why it continues to gain strength in the developing world, despite the distortions it engenders and associated social costs. Specifically, I flesh out and test the political failure view pioneered by Bates (1981). He avers that, in distorting agricultural markets, rulers are acting rationally in the face of political and economic constraints. Politically powerful interests conglomerated in urban areas are among the political constraints Bates discusses; revenue constraints are the economic ones.

Urban biased policies are tantamount to stealth redistribution and also provide a revenue base that governments can readily tax. While these policies result in deadweight losses, sharp reductions in consumer welfare, and the inefficient distribution of resources, they produce valuable rents, a portion of which can finance the government. These rents benefit politically-favored capitalists, managers, and unions. They hurt unorganized consumers, commodity exporters, petty capitalists, and nonunionized labors. Farmers and other rural interests are

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.

especially harmed. The food consumed by urban dwellers is essentially subsidized by poor and marginal rural actors.

While the political constraints that drive rulers in the developing world to indulge in urban biased policies are important, this paper focuses primarily on the economic constraint side of the argument. Because urban bias constitutes a powerful and effective way for governments to finance their operations, states that suffer revenue scarcities tend to politicize agricultural markets to generate public revenues. As Bates (1981) explains, governments can generate revenues by erecting marketing boards that purchase agricultural commodities below their market price – determined globally – and thus stealthily tax farmers. This paper concurs with that insight, and also argues that governments can raise revenues indirectly as well, by taxing manufacturing firms and banks that conglomerate in cities created by urban biased policies.

This paper's most important contribution is empirical. I test the weak revenue scarcity hypothesis implied by Bates (1981). Namely, that urban bias is often a byproduct of revenue scarcity: a side effect of the fiscal needs of revenue starved governments. I use a mixed method approach, both systematically testing the hypothesis cross nationally and providing qualitative and quantitative evidence for its mechanisms over Mexico's modern history.

First, I construct a cross-national dataset that observes political and economic variables averaged over the 1986–2006 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 revenue scarcity, measured as total tax revenues % GDP, and policies that favor urban interests. These results also hold if revenue scarcity is measured as state antiquity, a more exogenous measure of revenue scarcity. And 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 revenue scarcity; several of these assassinations were the unexpected byproduct of the surprising escalation of the Cold War in the aftermath of JFK's 1963 assassination.

Second, I investigate the fine grained relationship between weak revenue scarcity induced by Mexico's 1910 Revolution and urban bias under the ensuing single party dictatorship, which ruled over the better part of the 20th Century. This case provides ample support for the mechanisms implied by the Bates (1981) thesis of revenue scarcity fueled urban bias. After the 1910 Revolution, Mexico's central government inherited a fragile state apparatus and a nearly bankrupt national treasury. 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. Successive governments also taxed the countryside in several ways, including the use of price controls on foodstuffs, overvalued exchange rates, and marketing boards that levied taxes on commodities.

2 Literature review

Several distinct approaches have tried to gain purchase on the urban bias phenomenon. Orthodox economists have long argued that informational asymmetries lead to the under-provision of credit at the expense of its efficient allocation, providing one possible reason that farmers are discriminated against (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. It may be easier for creditors to assess risk and monitor arm's length loan compliance among firms agglomerated in cities. While a handful of largo agro-exporters may be able to reinvest profits if they need to finance large investments, the majority of small farmers may be deprived of the credit they need to survive and thrive, even if they are at the frontier of innovative irrigation and seeding techniques.

Moreover, attempts by the state to solve market failures may exacerbate urban bias. Many economists argue that dirigisme is the only effective way to bring about economic growth in pre-modern economies; development requires a big push – and urban bias is a necessary, even if undesirable, step in this process. Gerschenkron (1962) avers 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. In turn, industrialization requires dense concentrations of wage laborers to foster specialization, reduce labor costs, and increase productivity (see Herrendorf, Rogerson, and Valentinyi 2013). Johnston and Mellor (1961) argue that only the state can create the vast industrial labor supply concentrated in cities that is needed.

Did these policy prescriptions somehow induce urban bias in the Global South? During the Cold War era, economists such as Raúl Prebisch and Hans Singer 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 at the expense of farmers.

Political economists have put forth a different view. In general, they argue that interest groups and rent-seekers can capture policymaking in ways that lead to the politicized allocation of credit and other subsidies that benefit industrialists at the expense of agriculture (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 are welfare maximizing because the losers from reform are reluctant to abandon the rents associated with specific market distortions, despite the inefficiencies they engender.

In this vein, 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 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.

Finally, there is a large literature that argues that democracies are more likely to enact policies with a strong rural bias because agricultural interests tend to be over-represented in legislatures (see, for example, Kasara 2007). This argument has not, however, been particularly influenced by either the rent-seeking approach pioneered by Bates (1981) nor the market failure centric view expounded by traditional economists. Therefore, in the statistical analyses conducted below, I make sure to control for this alternative explanation.

3 Theoretical framework

States that face revenue scarcity may seek to raise revenues outside of normal taxation channels. They might turn to protectionism or erect barriers to entry to raise revenues. States can use ordinary policy instruments to channel factors of production and other inputs into activities that are more taxable. The rents generated by government created monopolies, monopsonies, and cartels are potentially large, usually opaque, and relatively easy to tax (see Menaldo 2016a,b). While these rents can be produced, distributed, and confiscated through obscure

regulations, they are easy to tax because profits are voluntarily revealed by firms in exchange for 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.

Policies that promote urban bias fall into this category, and thus constitute a deliberate fiscal and political strategy. Usually this means that a state uses a welter of policies to stimulate industrial production concentrated in large cities. Industrialization policies subsidize land, labor, capital, foreign exchange, and intermediate inputs for a few big firms, which are often state owned. These policies benefit capitalists, managers, and laborers clustered in urban areas (Bates 1981; Binswanger and Deininger 1997; Haber, Razo, and Maurer 2003).

The sequence is quite straightforward. 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, subsidize credit and foreign exchange, and restrict foreign ownership. This thus induces scarcity that generates monopoly profits in the non-tradable sectors.

The state can use several tools to direct credit to industries at the expense of farmers in rural settings. Policymakers may either subsidize loans or compel certain investments. For example, governments may impose 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. The result is that big, normally uncompetitive industrial firms are subsidized and can command high prices for their products. The flipside is that credit is rationed and unavailable in the countryside to finance investments in irrigation, seeding, and harvesting.

Rents produced by subsidized industries can then be taxed in various ways. Governments might charge firms for charters that entitle them to monopoly rights. They may levy corporate taxes on firms operating in concentrated sectors. Alternatively, the state may own and operate nationalized firms and extract dividends from them. Or they may finance budget deficits that subsidize large and inefficient industrial firms by forcing negative real interest rates upon savers.

Of course, revenues can also be produced by taxing the countryside. 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).

4 Research design, hypotheses and 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 three-fold.

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.[2]

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.[3]

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 money" into emerging markets in the wake of

2 See, for example, Schroder and Vankudre (1986).

3 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.

quantitative easing and hyper low US interest rates have distorted financial systems and macro economies across the developing world.[4]

4.1 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 conceptualized as the total distortions to the domestic prices of agricultural and food products induced by government policies. These include both tariffs and non-tariff measures; specifically, import and export taxes, direct and indirect domestic taxes, subsidies and transfer payments, and quantitative restrictions. Urban bias is therefore operationalized as the nominal rate of assistance to agriculture, which is the percentage difference in gross returns to farmers *vis-à-vis* market prices at the global level.[5] In other words, this variable measures the spread between the price that farmers obtain for their crops at the farmgate versus the going market price. Therefore, negative values connote net agricultural taxation. For example, if Urban Bias equals − 50.0, then this means that government policies have reduced consumer prices by 50 percent compared with world market prices. Positive values connote that agriculture is subsidized. For example, if Urban Bias equals 50.0, government policies have increased consumer prices by 50 percent compared with world market prices.

Some descriptive statistics and specific data points are helpful in putting this variable in context. The mean is 30.5, the standard deviation is 56.5, the minimum is − 44.0, and the maximum is 313.2 (n = 70).[6] Consider that many developing countries that are agriculturally dependent are also those that, paradoxically, exhibit negative values for this variable. That is, they tax agriculture and subsidize domestic consumption. These include several Sub Saharan African countries such as Zimbabwe, Zambia, Madagascar, Tanzania, the Ivory Coast, and

4 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.

5 I use a trade weighted average that adjusts for transportation costs that is calculated for each country's major crops.

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

Sudan. They also include two Latin American countries that are heavily reliant on agricultural exports, Argentina and Brazil. Also consider that many developed countries that have miniscule agricultural sectors exhibit high positive values for this variable. They include Sweden, Denmark, Switzerland, Japan, South Korea, and Taiwan. In other words, these industrialized countries are subsidizing their agricultural sectors by taxing consumers; without these subsidies their farmers would not be able to compete on the international market.

4.2 Measuring revenue scarcity

I measure revenue scarcity 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.[7]

4.3 Challenges to causal identification and solutions

While I have argued above that revenue scarcity makes urban bias more likely because the latter is an expedient fiscal strategy in the face of high fiscal transaction costs, it is also likely that chronic urban bias erodes revenues – albeit, perhaps with an appreciable lag. Rulers who manage to survive in countries with weak states by virtue of indulging in strategies that benefit a narrow sliver of the population congregating in cities may not tend to also make investments that will enhance their ability to tax their countries. Instead, they will continue to double down on financial repression, overvalued exchange rates, other protectionist policies, and taxes on the countryside.

The ultimate result will be that revenue becomes even scarcer. 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 (Menaldo 2016b). In short, revenue scarcity breeds policies with an urban bias that only exacerbate revenue scarcity.

7 A supplementary appendix outlines the sources I used on a country-by-country basis.

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 revenue scarcity and whose omission might bias the results. As a second step, I measure revenue scarcity as the state's antiquity, a proxy for revenue scarcity 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.

4.3.1 Controlling for confounders

In the regression analyses that follow I control for several covariates that are correlated with both revenue scarcity and the dependent variables outlined above.[8] 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* – rescaled 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.[9]

4.3.2 Revenue scarcity as state antiquity

As an alternative measure of revenue scarcity, 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 an enhanced ability to extract revenues tied to the development of agriculture, urbanization, and the use of money. I follow the authors and use the rescaled version (0–1) of this index while discounting the influence of the past for each half-century by 5%. I also follow Putterman

8 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.

9 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).

and Weil (2010) and adjust the index by migration patterns because, during the colonization of America, Sub-Saharan Africa, and Asia, European settlers, non-European servants and slaves migrated and imported their home institutions.[10]

4.3.3 Instrumenting taxation with 1964–1976 political assassinations

As a final step in attempting to capture the exogenous variation in revenue scarcity, I instrument Total Taxation with *Political Assassinations*, the number of political assassinations and attempted assassinations that occurred between 1964 and 1976.[11] 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 1964–1976 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 revenue scarcity, 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 several respects.[12] Figure 1 graphs assassinations at the global level between 1951 and 1976. It is a 3-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 0.2 assassinations, on average

10 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.

11 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."

12 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 US 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.

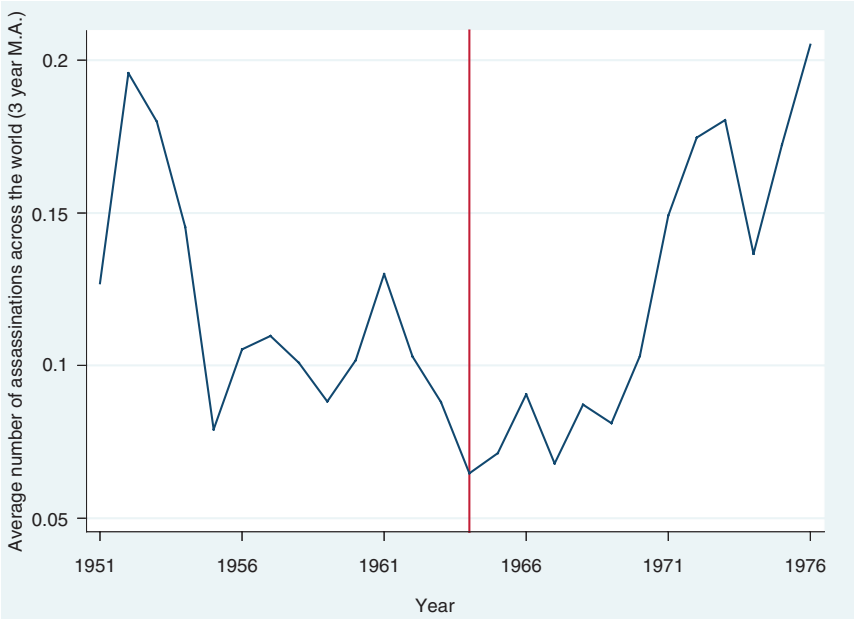

Figure 1: Political assassinations and assassination attempts.
Notes: This is the 3-year moving average of the average number of assassinations across countries each year.

(p-value < 0.001).[13] More importantly, this spike is not driven by changing structural or political conditions within countries; the results are strengthened after I control for log(Per Capita Income), the Polity Score, and Revolutions.[14] 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

13 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 = 2664). 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).

14 Per Capita Income is from Haber and Menaldo (2011). Revolutions is from Banks (2009).

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 US 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 US 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.[15] Indeed, many contend that Kennedy sought to seriously shift the terms of the Cold War in a much more dovish direction, including reconciling with Cuba, withdrawing troops from Vietnam and seeking a rapprochement with the Soviets (see Welch 2001: p. 187; Dallek 2013; Beschloss 2014).

Alas, the *détente* between the US 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 US government intensified its opposition to the Castro regime. In the wake of these developments, 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 in countries across Latin America, the Middle East and Sub-Saharan Africa.

Why would assassinations that occurred between 1964 and 1976 exacerbate revenue scarcity 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.

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

5 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 revenue scarcity 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 revenue scarcity is measured as State Antiquity. The equation that represents the first multivariate model is:

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

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 ($p < 0.001$). An increase in total taxation of 10 percentage points increases agricultural assistance by 22 percentage points.[16]

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 revenues 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 revenue scarcity 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

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

Table 1: Relationship between revenue scarcity and urban bias.

	[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**
Revenue scarcity	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]

Table 1 (continued)

	[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**
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%.
Variables averaged between 1986 and 2006, except instruments.
White robust standard errors in brackets.

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 revenue scarcity and the dependent variables is spurious, they are not definitive. State Antiquity is only an imperfect proxy for revenue scarcity; it might also capture ancillary political, social, and economic practices associated with a state's longevity besides strong legal, administrative, and enforcement institutions that make it easier to extract revenues. The former includes a history of writing and organized markets, for example. This potentially means that other channels beyond revenue scarcity, 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:

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

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.[17] Finally, *e* is a residual for country *i* adjusted to be robust to heteroskedasticity via the White technique.

This first stage regression is reported in Column 4; the result of interest, the relationship between 1964 and 1976 assassinations and Total Taxation, is depicted in Figure 2. An increase in the number of assassinations between 1964 and 1976 sharply increases revenue scarcity a decade later, even after controlling for economic growth, the size of the rural population, oil wealth, regime type,

17 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.

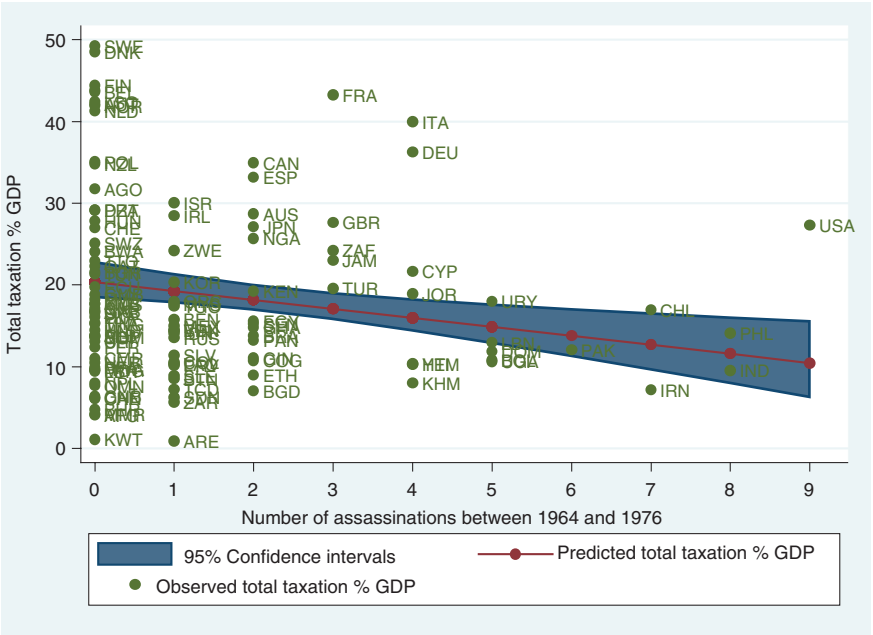

Figure 2: Revenue scarcity and political assassinations.
Notes: White standard errors estimated to address heteroskedasticity. Total Taxation averaged between 1986 and 2006. Predictions for this variable estimated after holding constant (at their mean) Average Assassinations (1986–2006), Average Economic Growth (1986–2006), Average Rural Population (1986–2006), Average Oil Wealth (1986–2006), and Average Polity Score (1986–2006). This regression excludes two potential outliers: Guatemala and Argentina; results similar if these are included.

and the average number of assassinations between 1986 and 2006. Moreover, the F-test of this excluded instrument, 1964–1974 assassinations, is 49.72 ($p < 0.001$). 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 revenue scarcity as depicted in equation 1. The results are reported in Column 5. They again confirm theoretical priors. Increases in revenue map onto reduced urban bias (Column Y; p-value = 0.001). 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 revenue scarcity 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 revenue scarcity 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. Revenue scarcity 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 revenue scarcity. 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 ($\chi^2 = 0.03$).

6 Revenue scarcity and urban bias in Mexico

Armed conflict was ignited in Mexico in November of 1910 and continued for over a decade, as an initially geographically bounded rebellion against the long-lived dictator, Porfirio Díaz, escalated into a conflagration that engulfed the entire country. The Díaz regime alienated large segments of the population as vast inequalities created under his three decades long regime fanned widespread grievances among popular sectors and disenfranchised aristocrats located in the northern states. Although Díaz relinquished power in 1911 to a genteel landlord, Francisco Madero, a vicious civil war was unleashed after his displacement by Díaz's erstwhile henchman, Victoriano Huerta. Political authority was eventually reconsolidated beginning with Álvaro Obregón's presidency, which began in 1920.

Obregón cobbled together a new coalition to help him consolidate power. It 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. Obregón's handpicked successor, Plutarco Elías Calles, then doubled down on this approach when he began his own presidential term in 1924. And Calles's successor, Lázaro Cárdenas, who ruled between 1934 and 1940, also championed this strategy.

6.1 Revenue scarcity produced by the revolution

The revolution was a crushing blow to an already fragile state. It destroyed vast stocks of capital, both human and physical, and exacerbated revenue scarcity. The country was marred by mass violence and the wanton destruction of infrastructure. 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: p. 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: p. 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. 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.[18]

To add insult to injury, Mexico was forced to make a host of reparations to the United States and Britain after expropriating landholdings and the oil industry. In 1938, president Lazaro Cárdenas – Calles's successor – nationalized the oil industry.[19] The upshot was unrelenting pressure, hostility, and threats meted out by the United States and Britain. These actions impelled the Mexican government to arrive at a settlement with the Americans and British. 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.

Irrespective of oil nationalization, Mexico ran out of conventional sources of petroleum – at least those that could be detected by the technology at the time (Haber, Razo, and Maurer 2003). 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,

18 The data on taxation is from INEGI (2000). The data on GDP is from OXLAD (2003).

19 The following three paragraphs draw heavily from Sigmund (1980: pp. 53–67).

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.

This therefore dried up a huge source of government revenues. Mexico's level of Oil Income Per Capita in 1930 was only 13 percent of what it had been in 1921.[20] 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.

Unprecedented expropriations of land and natural resources also precipitated capital flight. 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.[21] 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.[22] 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.

The upshot of all of these problems is that there was not much of an economy left to tax. The Mexican state faced a fiscal emergency: revenue was as scarce as it had ever been during the country's history. The stage was therefore set for a creative workaround by policymakers around this crisis.

6.1.1 The solution to revenue scarcity?

In the wake of the economic and fiscal catastrophe it found itself in, President Calles and his successors turned to several measures to raise revenues that were

20 The figures reported in this paragraph are from Haber and Menaldo (2011).

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

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

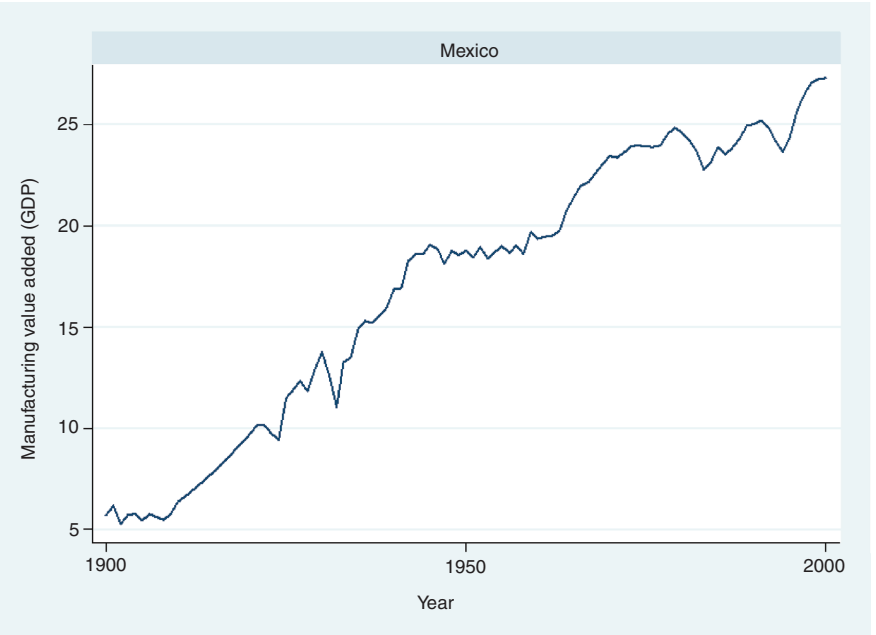

Figure 3: Manufacturing in Mexico during the 20th century.
Source: OXLAD (2003).

characterized by a sharp urban bias.[23] 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 1000 firms.

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

23 This section therefore draws heavily on Haber, Razo, and Maurer (2003), Chapter 4; Haber et al. (2008: pp. 49–51); and Calomiris and Haber (2014), Chapter 10.

some exported commodities such as coffee, sometimes via the use of marketing boards.

6.2 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 1940–1970 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: p. 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: p. 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 10–20 hectares, second priority to those with 5–10, and third priority to those with two to five hectares" (Fox 1992: p. 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: p. 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 Price 1982: p. 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 1 year – records the value of loans made by government owned and run development banks as % GDP. This is a lower bound

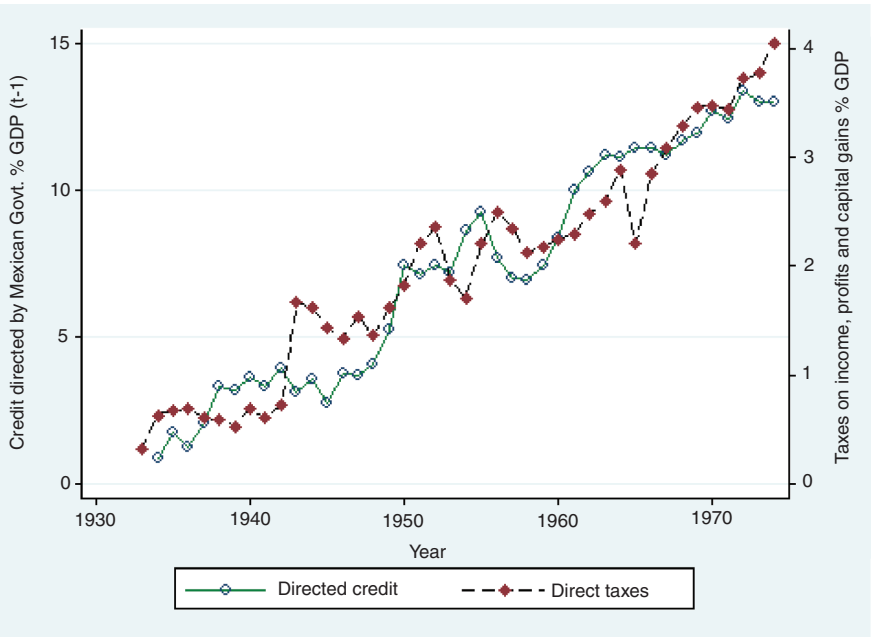

Figure 4: Directed credit and direct taxation in Mexico, 1933–1974.

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

6.3 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).[25] 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.

24 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).

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

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 13 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: p. 113).

Increasingly, however, the government violated this deal. 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 estimated cost of production" (Ochoa 2000: p. 53). 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: p. 206). By the early 1980s, the price of these staples had significantly declined in real terms (Yates 1981: p. 230; Hall and Price 1982: p. 304). By the early 1990s, farmers' returns were destroyed due to steadily increasing inflation levels.

Meanwhile, PRI governments became more aggressive at using retail markets to guarantee cheap food in bustling industrial cities such as Mexico City, Guadalajara, and Monterrey. The government got in the business of using state operated stores to sell basic food products to urban markets at steep discounts. "[O]fficials estimated that their prices averaged 10–15 percent lower than market rates in the cities…" (Fox 1992: p. 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: p. 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: p. 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.

6.4 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,

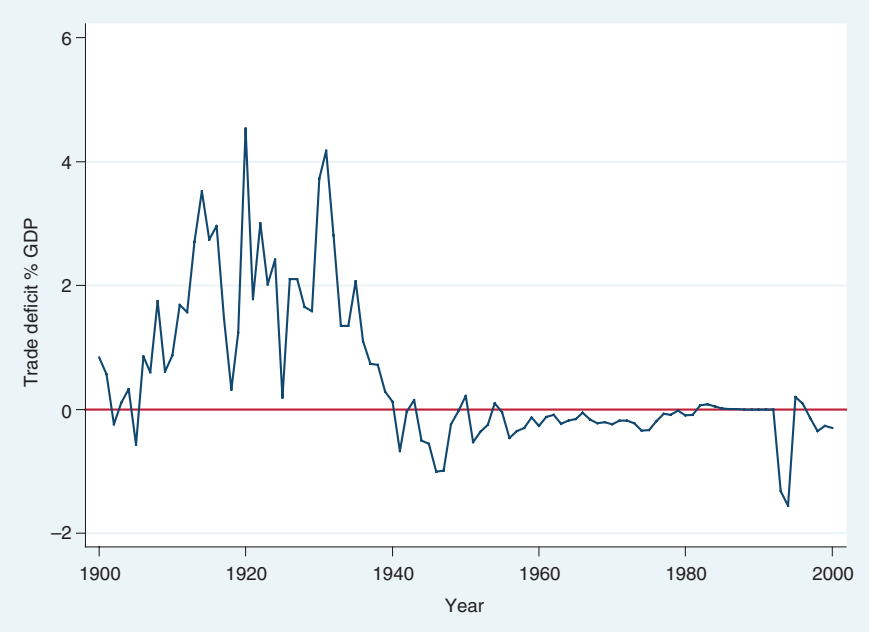

Figure 5: Proxying for overvalued exchange rates with trade deficit.
Note: Trade deficit is (Exports – Imports)/GDP. Source: OXLAD (2003).

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: p. 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 1990–1994.

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.

Table 2: Taxation of Mexican agricultural products vs. the OECD.

				NRAs for Mexico	
	1979–1984	**1985–1989**	**1990–1994**	**1995–1999**	**2000–2004**
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	
		1986–1989	**1990–1994**	**1995–1999**	**2000–2004**
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.

6.4.1 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: p. 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 continued to receive land well into the 1980s, their unmet demand for credit and infrastructure held them back (Fox 1992: pp. 71–83). Moreover, "[s]tagnation of the ejido-based economy fueled urbanization, which only further marginalized the countryside" (Benjamin 2000: p. 469).

7 Conclusion

Politicians seeking to survive in countries with revenue scarcity, 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. Revenue scarcity is strongly associated with urban bias across countries. These results are robust across different ways of measuring revenue scarcity and instrumental variables to address endogeneity. A case study of Mexico illustrates the mechanisms by which policies that promote urban bias follow revenue scarcity – 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 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 revenue scarcity endures.

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