Structural Transformations and The Political Roots of Fiscal Capacities in Latin America, 1900-2010

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Abstract

There is a very strong consensus on the positive role fiscal capacities play on state formation. Unfortunately, current theories focused on Latin America do not sufficiently explain the origins of fiscal capacities in the region. Taking a sectoral politics approach, this paper argues that the political monopoly held by agricultural economic elites in Latin America was broken contingent on the emergence of a strong industrial sector. This major structural transformation triggered a series of institutional investments, as well as economic, political and social changes, which allowed for states with high capacities. When agricultural monopolists were not challenged by the emergence of a strong industrial sector, these institutional investments never existed or were weak. The paper tests this theory using cross-national panel data from a sample of Latin American countries from 1900 to 2010. The Chilean example is offered as a shadow case to illustrate the mechanisms at work, confirming the assumptions made in the econometric models.

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I. Introduction

The only important coercion which is crucial to development is taxation

Arthur Lewis, 1965

The budget is the skeleton of the state stripped of all misleading ideologies

Schumpeter, 1991

According to most political economists, fiscal sociologists, development economist and economic historians, fiscal capacities are a prerequisite for strong states. Much effort has been devoted to understanding the relationship between the politics of taxation and state capacities in a number of European cases. However, there is still much work that needs to be done in order to understand the development of post-colonial Latin American fiscal capacities. For example, the political and economic *origins* of fiscal capacities in Latin America remain unclear. Specially, since wars in Latin America have been rare, it is difficult to extend models based on external threats originally developed to understand the medieval European case. Moreover, elite structures were very different in Latin America, challenging the standard assumptions and incentives of these European models. *What factors led post-colonial Latin American countries to self-impose a system for directly taxing individuals? What is the relationship between fiscal capacities and state-building in the Latin American context?* These questions are key to understanding the development of the modern state in Latin America, and in this paper I shed some light on them.

Though much effort has been devoted to the study of *tax reforms*, we know little about the *origins of taxation* in Latin America[1]. Fairfield [2013] studies different strategies policymakers pursue to tax elites starting in 1990. Mahon [2004] and Focanti et al. [2013] study the causes of tax reform in Latin America starting in the 1980s and 1990, respectively. Similarly, Ross [2004] studies the relationship between taxation and representation between 1971 and 1997, whereas Sokoloff and Zolt [2007] study the evolution of tax institutions comparing the U.S. with Latin America. However, I share Di John [2006, 5]'s diagnosis that there has been no attempt in the literature to explain *why* and *how* state and fiscal capacities emerged. This paper contribute to the literature on state and fiscal capacities by presenting a comparative macro-structural argument that outlines the conditions under which endogenous investments in fiscal capacities were most likely to happen in Latin America starting in 1900.

[1] An important exception is Gallo [1991, 7-8], who studies the Bolivian case and the origins of the fiscal apparatus from a class perspective too. She argues that the absence of class conflicts thwarted the consolidation of centralized states. However the argument focuses on the alliances between the export sector with other economic sectors, while taxation is important as a source of revenue, not as a "state-building" institution.

This paper argues that the implementation of a modern fiscal system was the product of an inter-sectoral conflict that took place around in early 1900's between the agricultural elite and an emerging and politically excluded industrial sector. The early passage of the income tax law was the tipping point that transformed weak states into strong states, not because of the new revenue collected, but because the administration of the income tax law and the inter-elite bargaining process associated with the passage of the law triggered a series of other institutional investments. When agricultural elites were challenged by a strong industrial sector, the income tax law was imposed early in history, tying the countries to an institutional development path. However, when agricultural elites were not challenged, they systematically expropriated the industrial sector. The later implementation of the tax in these countries, then, did not reflect this early sectoral conflict but other mechanisms which were not necessarily conducive to state development.

The sectoral conflict was economic and military in nature, but the outcome was political. When the rate of industrial output was fast enough to compensate for long-term losses relative to delayed access to liquidity, agricultural elites did not expropriate industrial wealth but rather imposed an income tax. That is, when industrial growth was promising in the long-run, agricultural incumbents were better off encouraging (via protectionist tariffs) and taxing it (via an income tax), rather than expropriating it (and having immediate access to those resources). In exchange for taxation, the industrial class demanded political representation in the form of a competitive oligarchic system and also protectionist tariffs. Both this taxation and political representation dimensions gave rise to a series of institutional investments such as checks-and-balances to monitor tax spending and channel inter-elite conflict, and skilled bureaucracies with enough know-how to collect and administer the tax. In turn, protectionist tariffs helped the industrial sector to expand further, generating a strong urban middle class which supplied the state with a critical mass of educated individuals[2]. When industrial output was slow, agricultural elites - who were political monopolists - faced higher opportunity costs, so rather than "wait and tax" industrial output "tomorrow", they shifted to expropriation-type strategies "today". In these cases, the agricultural political monopoly was not broken, and the endogenous incentives to invest in institutions to share political power and improve the bureaucracy never existed. These countries were then trapped in an underdeveloped sub-optimal equilibrium. To test these propositions, I employ hazard models, and econometric method for analyzing panel data, and I offer the Chilean example as a shadow case to illustrate the mechanisms at work, confirming the assumptions in the econometric models.

[2]This paper proposes a roughly simultaneous process. However, Rota [2016, 43] suggests a different timing. He explains that "[t]he modernization of bureaucracy *preceded* the process of democratization". Emphasis is mine.

II. Taxation and State Formation

Though a number of scholars studying Europe correctly point out that there exists a positive relationship between military conflict, taxation and political representation[3], this mechanism has been challenged in post-colonial Latin American cases[4]. For example, Centeno [2002] finds that there were not enough wars to mobilize domestic sources of revenue, and that the few wars that existed were financed by acquiring debt. Others find that the relationship between conflict and state-building is conditional on *prior* state capacities. For example, Arias [2013, 665] finds that in México, "a focal central authority" was required prior to being able to centralize fiscal institutions in the presence of external threats. However, it is not clear where *prior* centralization comes from. Given these theoretical and empirical difficulties, some have gone up the "ladder of abstraction"[5] and replaced "war" for "interstate rivalries,"[6] while others have tested for the presence of an interaction between military conflict and state-military alliances[7]. So, while in the Latin American context taxation and state-building seem to be linked, it is not clear what the *origins* of fiscal capacities in the region are[8].

For these reasons, this paper studies state capacities looking at the *origins* of fiscal capacities. Building on the "fiscal sociology" paradigm, I argue that the political economy of public finances offers the key for a theory of the state[9]. According to Schumpeter [1991, 108], "[t]axes not only helped to create the state. They helped to form it". From a historical perspective, this paradigm proposes that the great modern cleavage was not the rise of capitalism (Marx) nor the rise of modern bureaucracy (Weber), but the rise of the "tax state", which developed institutions to penetrate private or *individual* economies[10]. From a conceptual perspective, the mere idea of "tax state" might be misleading: "tax" has so much to do with "state" that the expression "tax state" might almost be considered a *pleonasm*[11]. Critically, this approach argues that the origins of the fiscal apparatus are rooted in sectoral and class conflicts, in agreement with work that has argued that "tax struggles are among the oldest forms of class struggle"[12].

Although it is true that taxation causes state-building, *not* all kinds of taxes play a state-*formative*

[3] See for example Tilly [1992], Levi [1989], Ames and Rapp [1977, 162, 170], Dincecco and Prado [2012], Ertman [1997] and Stasavage [2011].

[4] However, Boucoyannis [2015] proposes an interesting alternative mechanism for the European case too. For the U.S. case, Besley and Persson [2009, 1218] find that "The United States first introduced a form of income taxation in 1861 during the Civil War, and the Internal Revenue Service (IRS) was founded on the back of this with the Revenue Act of 1862".

[5] Sartori [1970].

[6] Thies [2005].

[7] López-Alves [2000, 37].

[8] A rather counterintuitive argument is presented by Lange and Balian [2008, 314]. They introduce the "instigating" model, and they find that states with high levels of state infrastructural power contain more violence.

[9] Musgrave [1992, 99].

[10] Moore [2004b, 298]. This view is also shared by Schumpeter [1991, 100] and Lewis [1965a, 42] - See epigraphs.

[11] Schumpeter [1991, 101].

[12] Goldscheid (1925), in Campbell [1993, 168].

role. Broadly speaking, there are two general types of taxes, *indirect* and *direct* taxes. Indirect taxes are, for our purposes, taxes that are collected by a third party, i.e. not the state. Hence, indirect taxes do not need the development of strong fiscal capacities. According to Best [1976, 53], "indirect taxes are but substitutes for direct taxes," and hence they are typically administered by weak states[13]. Since indirect taxes are easier to levy, this kind of revenue is generally considered "unearned income"[14] or "easy-to-collect source of revenues"[15]. Given the low costs states have to incur to collect indirect taxes, they have a nearly null impact on state-building, stable domestic alliances and bureaucratization. In fact, when early Latin American states depended heavily on the taxation of international trade, the state apparatus tended to be less developed[16]. Since customs administrations have always been concentrated in a few critical locations, especially ports, tariffs and customs duties did not require an elaborate fiscal structure[17].

What played a formative role was the implementation of income taxation, which is a "state-building" institution. Since direct taxation involves a *compulsory transfer* from private hands to the government sector for public purposes[18], it is harder to collect[19]. Of all types of direct taxation, the most invasive one (and hence the most difficult to levy) is the *income tax*. This type of tax is quite complex since it classifies and transfers private income into public property[20]. From a historical standpoint, its introduction "was one of the major events in fiscal history that contributed to the growth in government observed during the past 150 years"[21]. Political alliances should exist to overcome logistic, institutional and political domestic challenges associated with direct taxation. Critically, economic elites, should agree to comply with direct taxation[22] and inter-elite class tensions should be resolved prior to adopting these policies. As others have pointed out, since tax revenues depend upon the interests of different classes as they attempt to use state power for their own purposes[23], class conflicts are more likely to resolve in favor of direct taxation where income inequality *among the elite* is low[24]. Here I argue that a political compromise among the elite was the critical juncture that helped create the endogenous incentives to overcome the initial lack of administrative skills necessary to collect direct taxes. As others have explained, since income taxes require extensive monitoring and enforcement[25] "administrative constraints are identified as

[13] This view is also supported by Moore [2004a, 14].
[14] Moore [2004b, 304].
[15] Coatsworth and Williamson [2002, 10].
[16] Campbell [1993, 177].
[17] Bertola and Ocampo [2012, 132].
[18] *Cfr.* Raja Chellia, "Trends in Taxation in Developing Countries", in Migdal [1988, 282].
[19] Kurtz [2013, 62].
[20] Musgrave [1992, 98].
[21] Aidt and Jensen [2009, 171].
[22] Best [1976, 71] argues that the "actual composition of taxes can be viewed as dependent upon the distribution of power rather than as an expression of the free choice of the majority of the people".
[23] Best [1976, 50].
[24] Tani [1966, 157] explains that the absence of "wealth groups" makes passing the income tax law easier.
[25] Lieberman [2002, 99].

the main constraint to the ability of states to collect [an] income tax"[26]. Thus, cases in which the income tax law was imposed very late developed incompetent bureaucracies and low levels of stateness. For example, Chile imposed the income tax law in 1924, and the *Servicio de Impuestos Internos* is among the finest tax institutions in Latin America. However, Guatemala imposed the income tax law very late, in 1963, and by 1967 the national income tax office employed 194 people, and only 9 of whom had graduated from college[27].

III. Issues in the Literature

Bureaucratization *per se* does not cause state capacities. Income taxation plays a formative role in state development since its administration requires bureaucracies endowed with know-how (and the necessary inter-elite political alliances to sustain and improve the bureaucratic apparatus). However, bureaucratic development is a necessary but not sufficient condition for state-development. Acemoglu et al. [2002] and Mahoney [2010, 26] correctly suggest that "mercantilist institutions" *which did require developed bureaucracies*, are associated with political under-development. Soifer [2016] also explains that when bureaucratization relied on "local" elites, weak states were created. Local lites were more likely to pursue their own personal agendas (rather than the central government's). On the contrary, when the central government sent its own agents ("deployed rule"), as they owed their jobs and source of income to the central level, they were more likely to pursue state goals. However, one important issue arises. Even when deployed bureaucrats depended on the central level (as Soifer points out), what remains unclear is the mechanism under which principal-agent problems were solved in favor of the central government. It is still a possibility that, even when receiving income from the central level, bureaucrats pursued their own agenda and not the state's. In the context of poor infrastructure and slow center-periphery communication, what is it that makes the agent's agenda coincide with the state's? One could argue that the agent fears being replaced, losing his source of income. However, human capital during the formative years of the late 19th century ran in short supply. That is, there were not enough capable individuals to perform complex administrative duties. Taverne [2014, 208] argues that the *vecinos notables* were the first skilled bureaucrats in the early stages of state building in Chile. They usually had other important sources of income, as they were typically lawyers and businessmen. Skilled individuals were so scarce that even individuals with a lack of formal training, but who were still capable of performing well as public servants were hard to come by. Sagredo [1997, 293-294] documents how the *Director Supremo* Ramón Freire practically forced businessman Pedro Nolasco Mena, against his will, to serve as secretary of state[28]. Income was not important at all to him. In fact, the day Nolasco Mena was

[26] Di John [2006, 5].
[27] Di John [2006, 5].
[28] Nolasco Mena argued that he was a "comerciante práctico, que sin las leyes del cálculo ni los principios de economía giro, como todos los del país, una casa de comercio pasivo: he ahí la historia de mis disposiciones: no

sworn into office, he stated that he was not willing to receive income as a way to protest against Freire[29].

Inter-elite conflicts and development. In my framework, economic sectors are *forced* to make political alliances. Gallo [1991, 12] explains that class *antagonisms* provide the basis for a stable alliance. For the Latin American case, when agricultural elites were challenged (here through increasing industrial output differentials), they were forced to reach credible commitments. Given that economic power translates into better military capacities, balanced inter-sectoral economic growth prevented military escalation and laid the foundations for inter-elite cooperation. This idea is consistent with Hechter and Brustein [1980] and Ansell and Samuels [2014, 76], who argue that when inter-sectoral inequality is high, the landed elite expropriates indirectly through "market-distorting policies," harming rising elites such as the industrial elites. Along the same lines, Boix [1999] points out that elites allow both technological and political progress only if it benefits them. From a relatively different perspective, Kurtz [2009] builds a theory in which the oligarchic elites in Latin America, despite their substantial divisions, agree to impose and maintain the necessary tax burdens on themselves to finance a strong state. What makes these elites reach a sustained agreement is the absence of repressive labor practices[30]. That is, the existence of the legal right to leave the farm[31]. Analytically, my theory follows Kurtz's in the sense that I also believe that the organization of the economy causes (endogenous) changes in the institutional order, especially with respect to taxation. In fact, my theory complements his by offering an alternative channel: namely, that the industrial sector was not strong enough to attract labor, and therefore laborers did not have any other choice but to remain in farming. Industrialists, being excluded from the political system (as they were), could not alter these repressive institutions from the inside. Hence, in my theory, incorporation of all important elites is also crucial for state-building. However, this paper departs from Kurtz's theory given that mine sees potential conflict as the the tipping point of eventual political agreements.

Conceptualizing and measuring the state. Though many scholars find that income taxation is either one of the most important state capabilities[32] or a characteristic that explains considerable variance in state capacities[33], others have argued in favor of other measurements of "stateness". For

conozco la estadística, no he visto siquiera la complicada legislación de hacienda, jamás serví una oficina de ella, no puedo, de consiguiente, aventurarme sin temeridad a la administración del ministerio". Nonetheless, Freire forced him to serve.

[29] That day, Nolasco Mena stated: "he jurado bajo la protesta siguiente: Protesto que, forzado contra mí conciencia a admitir el Ministerio de Hacienda, no soy responsable de derecho por falta de libertad, ni de hecho por la insuficiencia confesada del manejo; renuncio al sueldo que no puedo ganar sin desempeñar; que se me de testimonio de esta protesta y de mi reclamo anterior y se imprima".

[30] Kurtz [2013, 83].

[31] Kurtz [2013, 39,67].

[32] See for example Besley and Persson [2011], Kurtz [2013, 2009], Cohen [1994], López-Alves [2000], Thies [2005] and Soifer and vom Hau [2008], Soifer [2008].

[33] See for example, Kurtz [2013, 60-62], Hanson and Sigman [2013, 15] and Centeno [2002].

example, some scholars have argued in favor of military conscription or censuses[34]. Multidimensional measurements are also very popular. Contrasting several existing indexes of state capacities, Fukuyama [2004, 7] argues that "stateness" is a two-dimensional concept, namely, the *scope of state activities*, which refers to different state functions and the *strength of state power*, or the ability of states to execute policies. In a later work, however, Fukuyama [2013, 347] suggests a different two-dimensional framework, *capacity* and *autonomy*. Similarly, Mann [2008, 357] argues that "stateness" is a two-dimensional concept as well (*despotic* and *infrastructural*)[35]. Soifer [2012] proposes a three-dimensional measurement of state capacity (*security*, *administrative* and *extractive*). Multidimensional conceptualizations of state capacities improve our understanding of the complexity[36] of state capacities[37]. Beyond being a commentary on measurement, this paper develops a theory for the origins of what I believe is one of the *main* state capacities.

IV. Argument

Strong State Cases. First, following the inertia of the colonial period, early independent Latin American states were governed by agricultural elites. Later, in the early 1900s, an incipient industrial sector was established. This sector was comprised of newcomers who were politically excluded. Second, in the strong state cases, industrial output rates were comparable to if not faster that agriculture growth rates. Third, the agricultural sector decelerated in the late 1900s. In order to sustain the economy, political elites could follow one of two strategies. They could either *tax* or *expropriate* industrial output. As industrial output was fast, the benefit of taxing a small sum of money "today" via taxation compensated for the long-term losses associated with having those resources "tomorrow". Fourth, in exchange, the industrial class demanded commercial protectionism (tariffs) and political representation (early $20th.$ century's oligarchies). Protectionist policies helped the industrial sector to develop further, generating an urban and educated middle class that grew under the eaves of the state. In turn, political representation broke the old political monopoly held by the agricultural sector, introducing the seed of early political competition.

Weak State Cases. Similarly, these nations were governed by agricultural monopolistic elites. However, in these cases agricultural incumbents faced slower industrial growth. This sector did not promise enough resources to tax. It was too costly to wait for for such a small tax revenue in the long run. In subsequent periods, firms could have gone bankrupt. Hence, agricultural incumbents were better off expropriating industries and politically blocking the industrial class. In these cases,

[34] For the latter, see for example, Lee and Zhang [2013].
[35] Soifer and vom Hau [2008, 224] argue in favor of the infrastructural approach proposed by Mann [1984].
[36] Mann [1984, 112] argues that "[t]he state is undeniably a messy concept".
[37] It is undeniably true that "state" is a multidimensional concept. As Fukuyama [2004, 9] explains, "[a] country like Egypt, for example, has a very effective internal security apparatus and yet cannot execute simple tasks like processing visa applications or licensing small businesses efficiently". In Singerman, (1995).

the agricultural political monopoly was never challenged, the traditional economy was not broken and the endogenous incentives to invest in institutions designed to improve bureaucracies and split political power never existed.

I. Agricultural Political Monopoly

Right after independence, the political system in Latin America was dominated by a compact social class invested in land. Agricultural elites controlling the economy also controlled the early post-colonial state, imposing social and economic policies favorable to them. Eventually, *all* post-colonial nations saw the emergence of a small industrial sector, which grew at different rates (see Figure 1). However, in countries that eventually turned into strong states, the size of the modern sector grew at faster rates[38]. Because in these cases the industrial sector competed with the agricultural sector, agricultural elites tried first to block it, *artificially* limiting political competition. However, for several reasons I explain later, inter-elite cooperation was incentive-compatible. On the contrary, where the size of the modern sector was small, agricultural elites were *natural* monopolists. In these cases, there were not enough credible threats to landowners to seek a compromise between the two classes, which allowed the landowners to continue ruling without political opposition. This situation generated long-term political and economic distortions.

For example, early Nicaragua developed in a non-democratic context, just like every other country in the panel. However, its industrial sector did not grow fast enough to challenge the traditional sector (see Figure 1), leaving the political system unaltered until the 1980s (see Figure 2). The lack of inter-elite contestation led this country to develop a fiscal system very late (vertical line in Figure 1). The opposite happened in Ecuador, which passed the income tax just before the 1950s, right around when it had its first "democratic" experience. Below I will use the Chilean case to illustrate the causal mechanisms at work in further detail explaining specifically how the initial monopolistic conditions were broken in the presence of a strong industrial sector and what the inter-elite compromises were.

II. Industrial Output Speed Rates and Inter-Elite Contestation

There are many factors that explain industrial development in Latin America. Among them, tariffs oriented to protect the *agricultural* market *unintentionally* helped protect the industrial sector. Since the first industries processed raw agricultural materials, better conditions for the landowners helped the industrialists to make their way into the economy. Favorable international markets

[38]It is important to say that the argument does not require European-like degrees of industrialization. As Bertola and Ocampo [2012, 131] confirm, most Latin American countries did *not* experience a proper industrialization *process*, and hence it is inaccurate to say that the industrial sector "had become a strong engine of economic growth". However, even though Latin America did not experience an industrial *revolution*, the modern sector did develop in some countries (Figure 1).

also boosted the demand for rudimentary processed raw products. I provide further details in my case study. Figure 1 shows output differentials (in logarithmic scales) from 1900 to 2010, for a sample of Latin American countries[39]. Contrary to Bulmer-Thomas [2003, 241], I do *not* find that "[e]verywhere [...] industrial growth exceeded agricultural growth".

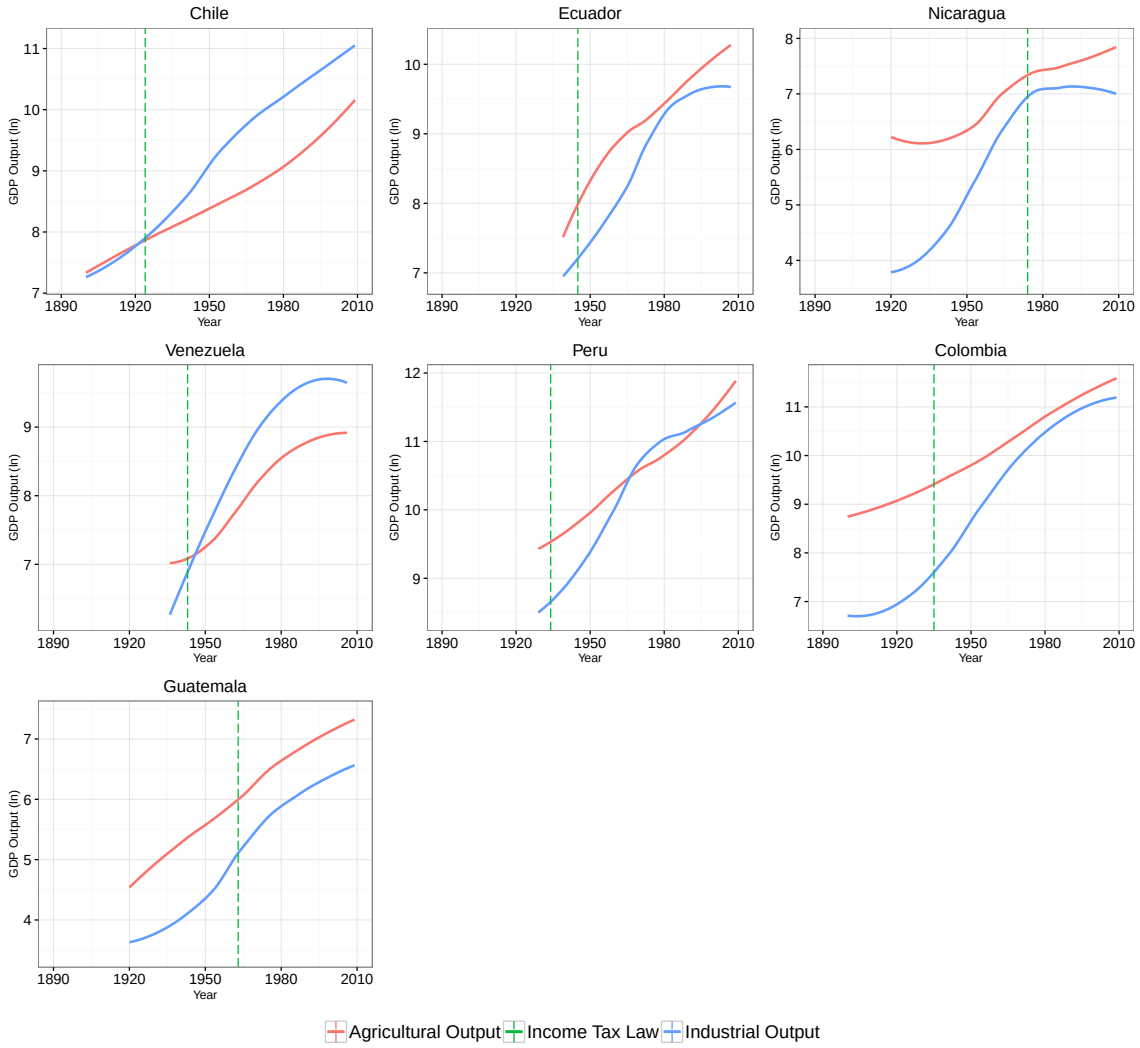

Figure 1: *Industrial and Agricultural Outputs, and The Passage of the Income Tax Law*

This paper uses industrial development as a proxy for the extent to which the agricultural sector

[39] I use the *Montevideo-Oxford Latin American Economic History Data Base* (MOxLAD), specifically the *agriculture value-added* and *manufacturing value-added* variables. The former measures "the output of the sector net of intermediate inputs and includes the cultivation of crops, livestock production, hunting, forestry and fishing". The later "[r]eports the output of the sector net of intermediate inputs". Both of them are expressed in local currency at 1970 constant prices. Finally, "the depreciation of reproducible assets or depletion/degradation of natural resources were not deducted". Details about this dataset are presented in the data section. The plot also shows a vertical line which indicates when the income tax law was passed (author's data based on several reports and official information). I elaborate on the income tax law in the next section.

was contested (see Figure 1). The literature is consistent in agreeing that more political competition leads to better outcomes when it comes to state-building. For example, Kurtz [2009, 481] argues that where "no faction can easily become permanently dominant," state capacities should be stronger. Similarly, Geddes [1991] argues that competition between two rival parties of about the same size creates clearer incentives to invest in political institutions. Cárdenas [2010, 40], in his formal and empirical models, also finds that the "concentration of political and economic power reduces the incentives to invest in state capacity"[40].

Though inter-elite conflicts can be expressed politically and militarily, inter-sectoral contestation itself is deeply rooted in a country's economy structure. Superior economic conditions can relatively easily be translated into better military capacities, which makes it easier for the advantaged group to impose its political agenda in a monopolistic way[41]. However, the *origins* of this inter-sectoral (im)balance (expressed in sectoral output differentials in Figure 1) reflect structural economic dynamics between the two sectors that cause them to compete over a limited supply of labor[42]. For the modern sector to develop, the traditional sector had to decay[43]. Matsuyama [1991, 642-643] explains that "a takeoff is possible in an economy with less productive agriculture, while an economy with productive agriculture will be trapped into the state of preindustrialization"[44]. That is, the process of industrialization is governed by the law of comparative advantages. The case study below shows that the economic-structural dimension of inter-elite political contestation was true in Chile[45]. Moreover, these conditions apply to other Latin American economies as well. For example, Bergquist [1986, 8] explains that "Colombia's two traditional political parties crystallized in the 1840's and reflected in many respects the dual nature of the Colombian economy". The sectoral conflict regarding the generation of income and its potential taxation has been studied elsewhere too[46]. For example, Mares and Queralt [2015] examine how income taxation in Europe is associated with inter-elite conflicts, particularly between the landed elite and the industrial elite. Taxation and state formation with a sector/class approach has also been studied in Africa. For example, Sanchez de la Sierra [2014] studies the relationship between taxation and state formation in Eastern Congo, and how the interplay of different sectors fostered (or not) state-building processes.

[40] However, he models inequality between *elites* and *citizens*. I expand on this idea by modeling the period *before* full democratization existed and also by modeling inter-elite conflicts.

[41] Boix [2015].

[42] Cardoso and Faletto [1979, 67-68]. As Matsuyama [1992, 318] puts it, "the manufacturing sector has to compete with the agriculture sector for labor. Low productivity in agriculture implies the abundant supply of "cheap labor" which the manufacturing can rely on". See also Gollin et al. [2002, 160].

[43] Matsuyama [1991, 621-622] argues that the process of "[i]ndustrialization [consists of] a shift of resources from agriculture to manufacturing".

[44] Skott and Larudee [1998, 293] point out that "an increase in the growth rate of agricultural productivity may reduce the rate of growth of real income under free trade".

[45] But see Robles-Ortiz [2009].

[46] See Best [1976, 55].

III. Taxation and Expropriation

The historical evidence suggests that decelerated international markets put heavy fiscal pressures on Latin American agricultural elites to sustain the economy. Building on the idea of the "stationary bandit"[47] I argue that the agricultural political incumbents faced this economic downturn either by *taxing* or *expropriating* the industrial sector. Each strategy represented a best response depending on the rate of industrial growth in a country. Crucially, industrial elites accepted to taxation *in exchange for tariffs oriented to protect the industrial sector*, producing a general economic boost which helped these countries navigate the economic crisis.

Expropriation was the best response when the rate of industrial growth was slow. When industries grew slowly, the long-term benefits of having a secured, *but excessively small*, source of tax revenue *did not* offset the benefits associated with having *immediate* monetary resources that came with expropriation. Expropriation brought immediate liquidity (fast access to money) in the short run, but it exhausted the industrial output in the long run. That is, when industrial growth was slow, immediate liquidity became more attractive, even when these resources got exhausted in the long run. Moreover, since human capital and the technology necessary to administer an industry were non-transferable to the agricultural elite[48], simply expelling the industrial elites and taking over the industries was not an efficient strategy, as it endangered industrial output in the long run. In other words, since landowners did not know how to run industries, they were better off appropriating the surplus rather than taking over the industries. This is a stylized theory. In reality, elites tended to engage not only in expropriation but also in nationalization and forced loaning. The consequences of slow industrial growth were not only economic, but also political. A weak industrial sector did not generate a strong urban middle class, and hence the state did not have a source of skilled labor from which to borrow. Politically, since a strong challenger did not exist, the monopolized political system remained untransformed.

Taxation was the best response when the rate of industrial growth was fast. Imposing a tax allowed agricultural incumbents to "rob" industrial output small "doses" at a time, without exhausting or precluding industrial development. From a strategic perspective, a healthy industrial sector became more attractive for what it had to offer in the future rather than the present. Hence, faster industrial growth shifted the focal point from the short to the long run. In these cases, it was in the agricultural sector's interest to protect and encourage the development of the industrial sector to secure even higher taxes (though most of the time keeping the tax rate the same). Hence, industrial tariffs were implemented to protect this sector, playing a very important role in the subsequent industrial development. Institutionally, the political elites had to be able to closely monitor industrial magnates and their personal incomes. Hence, an *income tax* was implemented.

[47] Olson [2000].
[48] For example, machines used to make glass can't be used to grow potatoes.

This idea is consistent with the notion that political elites generally are better able to impose/raise taxes during economic booms. For example, Campbell and Allen [1994, 647] explain that "economic development should be directly related to individual and corporate income tax rates", while Besley and Persson [2011, 59] argue that "investing in fiscal capacity becomes more attractive [...] when wages or incomes [...] are higher".

IV. Income taxation and Institutional Investments

Income taxation was a state-building institution because it triggered the implementation of other "state" institutions. This paper identifies two such critical institutions, political competition within the elite and bureaucratic consolidation[49].

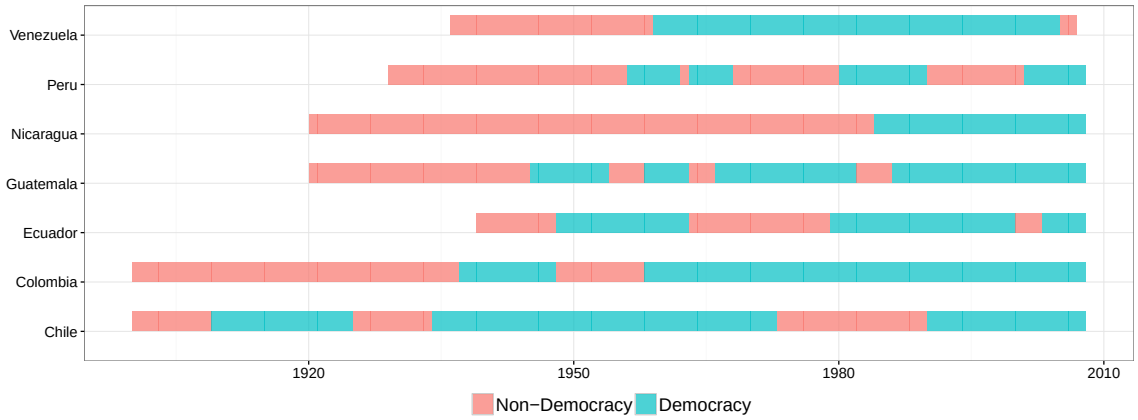

Figure 2: *Historic Regime Type*

The imposition of the income tax law opened the political system to inter-elite competition. Specifically, industrial elites accepted having their incomes taxed in exchange for being allowed to participate in politics. This gave way to early $20th$ century oligarchic party systems, the first manifestation of modern electoral political competition. Furthermore, industrial elites were interested in maintaining an active political presence since the promise of the agricultural elites to keep income tax rates constant was not credible. This channel specifically links regime type with state development. The relationship between strong and democratic states has been studied before. For example, Stephens et al. [1992, 9] argue that "[c]onsolidation of state power was an essential *prerequisite* for democratization"[50]. Similarly, Soifer [2013, 2] argues that, since distribution requires state capacities, "the origins of democracy and dictatorship are not fundamentally economic". These

[49]Though the public economics literature focuses predominantly on tax revenues, higher revenues do not mean higher stateness levels. For example, since American institutions were deliberately designed to limit the exercise of state power, the U.S. taxes very little (Fukuyama [2004, 6]). However, it is not reasonable to say that the U.S. has a "weak state". Here the focus is on the *politics* of taxation (see for an example Focanti et al. [2013].).

[50]Emphasis is mine. See also Levi [1989], North [1990] and Acemoglu and Robinson [2012]. However, see Mares and Queralt [2016] who argue that in Imperial Germany, the early income tax was not a democratic achievement.

two accounts point out that the causal arrow goes from state capacity to regime type. Others have argued the reverse. Slater [2008] argues that electoral competition, in the presence of mass participation, causes territorial extension of state institutions via citizen registration and via bottom-up pressures for public goods provision. My theory, however, relaxes the causal direction of this mechanism by proposing an *endogenous* mechanism between inter-elite contestation and political development. And while there have been important recent contributions on these two[51], this paper specifically approaches the state-building question, incorporating regime type in the explanation. This is consistent with the work of several political economists. For example, Di John [2006, 8] points out that in less developed countries, countries with relatively historically high tax collection are characterized by strong political party systems. In particular, it is argued that the introduction of the income tax (Figure 1) and the first democratic waves (Figure 2)[52] were part of the same process of inter-elite conflicts and, eventually, inter-elite compromises. The tipping point that gave way to inter-sectoral bargaining was the unstable situation that was produced when there existed inter-elite political *in*equality and sectoral/economic equality. That is, instability resulted when both the industrial and agricultural sectors were about the same size (and hence, had the same military capabilities), but when only the latter had access to political power, i.e. state power. Neither sector had incentives to stay in its respective *status quo*: the industrial class did not want to be taxed without receiving something in return, while the agricultural sector did not want to let pass a chance to capture (industrial) resources which would allow it to navigate the economic downturn in better conditions.

The imposition of the income tax law also produced inter-sectoral *economic* compromises. The most important was the introduction of higher/newer tariffs designed to protect the industrial sector. Protectionism boosted industrial production and enhanced other structural transformations, such as the rise of an educated middle class (which systematically worked for the state) and higher levels of urbanization (which made income taxation easier). A common misconception is that industrial protectionism started with the ISI. However, the "fact that manufacturing was alive and thriving in Latin America before the 1929 crash is now beyond question"[53]. ISI in fact was a continuation of older policies. Haber [2005, 3-4] explains that "governments followed policies designed to subsidize and protect industry in the decades after 1950 precisely because industrialists and industrial workers had been protected since the 1890s". Critically, early industrialists were able to bargain protectionist tariffs in exchange for having their income taxed. This insight is in line with Lederman [2005, 53], who argues that the timing of protectionist and income taxation cycles match. In fact, the industrialists *as a sector* gathered around this issue in quite an organized way, reinforcing their class self-image. As Sokoloff and Zolt [2007, 122] argue, the expansion of "manufacturing production [...]

[51] See for example Acemoglu and Robinson [2009, Ch. 9], Ansell and Samuels [2014] and Boix [2015].
[52] Data from Boix et al. [2012].
[53] Bertola and Ocampo [2012, 129].

helped to nurture the development of a powerful constituency for higher tariffs". The introduction of higher/newer tariffs was key for the subsequent development of the industrial sector. As Haber [2005, 15] argues, "virtually none of [the industrial development] would have existed had it not been for tariff protection"[54].

The second big transformation was bureaucratic development. Bureaucratic capacities emerged from a structural transformation that encompassed economic, political and social changes. As argued before, inter-sectoral economic contestation led to political agreements, such as the political incorporation of industrial elites. Once the industrial elites were incorporated, they managed to secure protectionist tariffs that helped the industrial sector to develop. In turn, further industrial development gave rise to a middle class composed of urban professionals, state employees, artisans and craftsmen[55]. This critical mass of skilled individuals became the first modern bureaucrats. The positive relationship between regime type and human capital accumulation has been studied before[56]. Collier and Collier [2002, 394] in their landmark work on the origins of the Latin American party system suggest that "the middle classes did well under [the competitive oligarchies regimes]. The size of the middle class expanded significantly not only as a result of economic growth in general, but also as a result of growing public employment as the state expanded"[57]. Consequently, the formation of the middle-class is endogenous to the expansion of the state itself.

It is important to rule out the possibility that income taxation and elite contestation are not linked through a spurious, time-dependent relationship. That is, we need to be sure that the occurrence of the outcome of interest (taxation) is not directly related to time itself, but rather to the degree in which a contested agricultural sector (this argument's key independent variable) *accelerates* the imposition of the income tax law. Simply put, the theory has to pass the test that income taxation is not something that, as time went on, it would have happened anyway. Within the framework of survival analyses, Figure 3 shows the failure rate of the average country in the sample of implementing an income tax if the size of the industrial sector had increased by half[58]. When inter-elite contestation is high, countries pass the income tax law sooner than when inter-elite contestation is low. This figure strongly suggests that institutional investments are a function of inter-elite competition rather than time itself. It is also important to rule out the possibility that both outcomes (inter-elite contestation and fiscal capacities) are not a function of economic development, which is what modernization theorists argue about[59]. As I explain in section VI,

[54] See also Coatsworth and Williamson [2002, 21]. There is some debate on whether protectionism is associated with economic growth, however. Coatsworth and Williamson [2002, 10] argue that "protection was associated with faster growth in the European core and their English-speaking offshoots [...] but it was *not* associated with fast growth in [...] Latin American periphery" (emphasis in the original).

[55] Stephens et al. [1992, 185].

[56] Brown and Hunter [2004, 842].

[57] Geddes [1996, 12] explains that government officials are self-interested individuals, and hence "their responses differ". However, we assume that the political interests of bureaucrats, presidents and congresses, are in line with their respective sectoral interests. Thus, we consider that "the state" is itself an actor.

[58] "Failure" in this case means "implementing" the income tax law.

[59] Lipset [1981, 31] for example argues that democracy is "related to the state of the economy. The more well-to-do

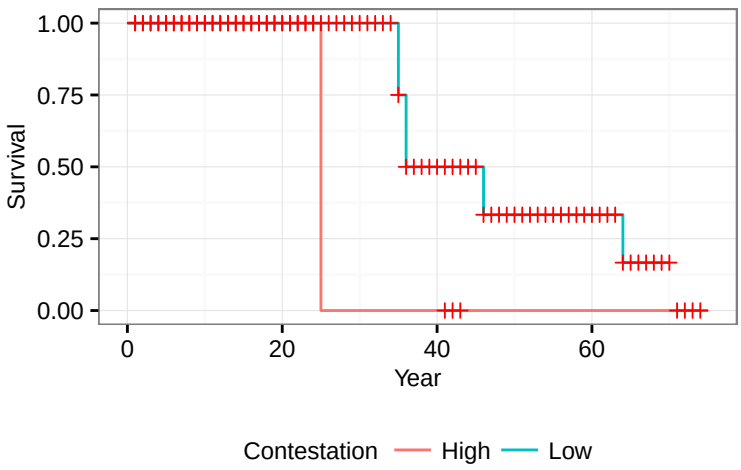

Figure 3: *Kaplan-Meier Curves: Size of the Industrial Sector and the Accelerated Rate of the Imposition of Income Tax Law*

economic well-being indicators do *not* predict fiscal capacities or inter-elite political contestation.

V. Unpacking the Mechanisms: Illustrative Case, Chile 1850-1950

In all Latin American economies during and right after the colonial period, agriculture was the most important sector, as it supplied a variety of foods and goods such as sugar, coffee and tobacco[60]. Consequently, the economic interests of the agricultural elite were the only economic interests represented in politics, and Chile was not the exception in this regard[61]. For example, Collier and Collier [2002, 106] argue that the "national government was dominated by the central part of the country, with owners of large agricultural holdings playing a predominant role". Historians still debate whether agriculturalists and industrialists comprised two different elites, however. Some claim that this dualism is incorrect[62]. The main argument supporting this version is that there was a blurry division between these two classes[63]. For example, landowners were also invested in industry[64]. However, others have pointed out that the landed elite consolidated very strong

a nation, the greater the chances it will sustain democracy".

[60] Marichal [1989, 74]. The demand for such items was stimulated by the rising consumption of the new and prosperous European bourgeoisie.

[61] Wright [1975, 45-46].

[62] See for example Mamalakis [1976, 125].

[63] Bauer [2008, 30, 44, 94, 108].

[64] Coatsworth and Williamson [2002, 23] argue that "[t]he only landowners that mattered in 19th century Latin American politics were those for whom land represented but one asset in a much broader portfolio". In the same vein, Bauer [2008, 180] argues that "[m]iners and merchants bought haciendas but landowners in turn invested in banks, insurance companies, commercial firms and the incipient industrial sector".

economic and political monopolies [65].

Moreover, there are some stylized facts that strongly suggest that in general, agricultural and industrial elites were two antagonist classes. Zeitlin [1984, 13] argues that "landowners controlled both the vote and the labor power of the agrarian tenants (*inquilinos*) and dependent peasants (*minifundistas*), and this was the *sine qua non* of their continuing political hegemony". In Congress, and the presidency itself, landowners were the single most important group[66], leaving the modern sector heavily under-represented. As Baland and Robinson [2008, 1748] argue, "[c]ongressional representation was heavily weighted in favor of rural districts". For example, immediately following independence in 1823, the secretary of the treasury, Diego José Benavente, addressed a predominately agricultural congress to propose an agricultural income tax. The congress rejected his idea, especially due to pressure from the landowning class[67]. Indeed, fiscal pressure in favor of agricultural taxes was minimal compared to mining taxes[68], leaving the agricultural sector systematically - and substantially - undertaxed relative to other sectors[69]. Though eventually an agricultural income tax was imposed, it was weak and was abolished after the civil war of 1891. This bias was consistent with other interference by the Chilean government. Historians explain that "[i]n those areas where the government did interfere in the countryside, the effect was to strengthen the position of the landowning class"[70]. For example, the little public infrastructure that existed benefited the agricultural sector. The state would either invest huge amounts of money or borrow resources to build infrastructure capable of mobilizing agricultural goods, starting with the gold rush in both California and Australia[71]. Presidents also engaged in the same biased practices. For example, "the Montt regime did invest in the construction of Chile's railways but only in the Central Valley and south-central zones [b]ut there was no public investment [...] in railroads built in the Norte Chico mining provinces"[72].

In contrast, the industrial sector started very small and its origins are much older than the ISI policies of the 1950s. "The development of large-scale, mechanized (and even "heavy") industry can be dated back to the 1890s"[73]. For nearly 400 years, mining was the most important activity

[65] McBride [1936, 15] argues that "Chile's people live on the soil. Her life is agricultural to the core. *Her government has always been of farm owners. Her Congress is made up chiefly of rich landlords.* Social life is dominated by families whose proudest possession is the ancestral estate". Emphases are mine.

[66] Bauer [2008, 45].

[67] Sagredo [1997, 306]. It is important to stress that during this period, "political parties" did not follow very clear ideological divisions. Most of the secretaries/ministries were recruited because of their technocratic skills.

[68] As explained below, mining was one of the first manifestations of industrial activity.

[69] Best [1976, 56]. Bauer [2008, 81] provides a very plausible explanation for why the agricultural sector was "structurally" protected against taxation. As he explains, "[t]he availability of an easily accountable source of public revenue - bags of nitrate or bars of cooper - meant that any need for the Chilean government to intrude into the affairs of landowners was reduced [...] the state kept its political hands off the countryside until the overwhelming urban demands for more food and political support in the 1960s". Zeitlin [1984, 38] also points out that "public revenues came almost exclusively from taxes on mining and its exports". See also Lewis [1965b, 398].

[70] Bauer [2008, 118].

[71] Rippy [1971], Marichal [1989], Zeitlin [1984], Bauer [2008].

[72] Zeitlin [1984, 41].

[73] Haber [2005, 2]. For example, Rippy and Pfeiffer [1948] and Pfeiffer [1952] explain that by the 1870's the carriage

outside of agriculture. Minerals had to be processed near where they were mined in order to keep transport costs to a minimum, leading to the construction of foundries and refineries, which became the cornerstones of the early industrialization processes[74]. Although mining was very important during the colonial period, "Latin American's consumption of industrial metals continued to be very small until toward the end of the nineteenth century", it also was rudimentary, showing little or no technological refinement[75]. Most, if not all of the mineral-related industry was foreign-owned, except in Chile[76]. Mining elites made their fortunes during the 1840s and 1850s during the mining boom. After the boom, they shifted their focus to what is considered the first "true" industrial work which, unexpectedly, began under agricultural auspices: the cotton mills[77].

The first (pseudo) "industries" were called *obrajes*[78]. Though servile labor and slave labor were used at the end of the colonial period, all labor was free and wage-earning starting in the independence period. "Large-scale *obrajes* existed alongside smaller units of production - modest workshops and prosperous artisan-dominated enterprises - in virtually all urban centres"[79]. Beyond cotton and the textile industries, early industrialists also processed other agricultural goods[80]. Other industries for domestic consumption also developed around 1900[81]. The industrial sector was boosted by the international arena as well. For example, "[m]eat exports required the development of cold-storage technologies"[82]. From an international trade perspective, Haber [2005, 5] argues that given a change in the metallic standard, "exchange rate depreciation resulted in the expansion of the tradables sectors at the expense of non-tradables". Lower transportation costs and higher demand for processed grains in Europe also played a big role in boosting early industrial production. As Bauer [2008, 68] argues, "[b]ad harvests in Europe and disruptions caused by wars were other factors that enabled Chilean grain to be sold on European Markets".

Proper industrial activities started very small too[83], progressing "from the shop to the factory during the latter half of the nineteenth century"[84]. In Chile, almost all non-agricultural produce

industry was on a firm basis.

[74] Bertola and Ocampo [2012, 129].

[75] Rippy [1971, 230].

[76] Stephens et al. [1992, 165, 176, footnote 5, 324].

[77] See Rippy [1971, 231] and Bethell [1986, 271]. As Bethell [1986, 271] argues, "[t]he first power looms were brought [in Perú, Ecuador, and Venezuela] in the 1840s, 1850s; but in all three they were a failure, some of the early mills in Ecuador being destroyed by an earthquake. It was not until after 1890 that the textile industries of these nations began to operate with reasonable success. Guatemala's first cotton mill was established in 1882, and between that date and 1910 a few mills appeared in Chile, Argentina, Uruguay, and Colombia" (Rippy [1971, 232]).

[78] I.e., Proto-industrial redoubts.

[79] Bethell [1986, 271]. Emphasis in original.

[80] For instance, they processed animal grease and tallow (for soap and candles), dried and cured meats, flour, bread, beer, wines, spirits - most of these were for domestic consumption (Bethell [1986, 272]). Other food industries, such as sugar (Bertola and Ocampo [2012, 129]) to be used in the production of chocolate, candies, biscuits. Vegetable oils were also very important. "The flour mills were probably the first of the Chilean industrial plants to utilize steam power" (Rippy and Pfeiffer [1948, 300]).

[81] Some examples are tobacco, pottery, felt hats, matches, footwear, especially in Argentina, Brazil, Chile, Uruguay and Perú (Rippy [1971, 235]).

[82] Bertola and Ocampo [2012, 129].

[83] Marichal [1989], Rippy and Pfeiffer [1948, 68].

[84] Rippy [1971, 235].

was represented by an incipient, yet strong group of individuals. As historian Francisco Encina describes it, "[i]t was precisely this segment of the dominant class that consummately personified the development of Chilean capitalism (mineowner and banker, railroad magnate and manufacturer, shipper and trader, *hacendado* and miller were [...] not only close associates, or drawn from the same family, but they were same individuals)"[85]. Most critically, the early industrial class was greatly dominated by foreign investors[86]. Pfeiffer [1952, 139] explains that Chile was one of the few Latin-American nations which managed to make substantial progress in the development of industries (other than those producing consumer goods) and that the most extensive industrial operations had been dominated by foreign firms.

In the process of going from mineowners to proto-industrialists, this incipient elite developed a strong sense of social class that led them to consistently seek political representation and influence. Collier and Collier [2002, 109] explain that the *Alianza Liberal* was "the political expression of the new groups that began to emerge in the late 19th century with the expansion of the commerce and industry and the opening of the new mining areas [...] As these groups gained social and economic importance, they began to emerge as a political force". In fact, during the 1920s industrialists started to "form trade associations to engage in lobbying and propaganda as more coherent interest groups,"[87] groups such as the *Sociedad de Fomento Fabril* (SOFOFA). The SOFOFA was founded in 1883 to represent the interests of the the industrial sector against the interests of the agricultural sector, represented by the *Sociedad Nacional de Agricultura* (SNA), which was founded 45 years earlier in 1838. The SNA "was the most powerful associational interest group in nineteenth-century Chile"[88], and clearly thought of itself as a social class[89].

As the Chilean industrial sector developed, the tensions with agricultural incumbents increased. The first time the agricultural sector engaged in predatory practices it was because of the fiscal deficit that originated in the deceleration of trade taxes. The deficit put heavy fiscal pressure on rulers to take advantage of industrial output. Agricultural exports in Chile, such as wheat production, had a boom between 1865 and 1880[90]. However, "[t]he importance of trade taxes as sources of public revenues began a steady decline in 1918, which lasted until 1925. This downfall is explained by the fall of export revenues caused by the collapse in the prices of Chile's major exports during the war"[91]. Before the 1920s, both fiscal pressures and the lack of a political counterpart made it easier

[85] In Zeitlin [1984, 30]. He describes several last names which are still associated with the Chilean elite, such as Ossa, Edwards, Vicuña Mackenna, Matta, Goyenechea, Cousiño, Urmeneta, Gallo and Subercasaux. Emphasis in the original. Similarly, Wright [1975, 48] supports the thesis that nitrate development led to the development of an "incipient industrial establishment".

[86] Rippy and Pfeiffer [1948, 295].

[87] Weaver [1980, 107].

[88] Wright [1973, 244].

[89] Wright [1975, 51].

[90] Bauer [2008, 68-69-70]. See also Lederman [2005, 55]. Custom duties declined also in several other Latin American countries. For the Bolivian case, see Gallo [1991, 68]. For a general overview, see Bulmer-Thomas [2003, 245].

[91] Lederman [2005, 54-55].

for politically represented agricultural elites to enact several confiscatory policies. These policies had many "faces". As some historians have argued, incumbents engaged in "nationalization by means of naturalization, government intervention, and government participation"[92]. Chile, Perú and Uruguay, among others, went through a clear process of nationalization of non-agricultural assets during the 1920s[93]. Bulmer-Thomas [2003, 255, 342-343] explains that it was very common to nationalize assets such as transport companies, financial institutions, and mining industries.

These two sectors were sufficiently antagonistic that they initially confronted each other in two bloody civil wars, however this strategy was not sustainable, and consequently political compromises were made. Zeitlin [1984, 23] argues that the civil wars challenged a "large landed property [elite against a] productive capital [elite]". Clearly, fast industrialization brought an unstable combination: *inter-sectoral balanced growth paired with inter-elite political inequality was not a sustainable equilibrium*. Both groups of elites being about the same size, but with only one of them having political representation, the unrepresented group was left too exposed. Military confrontation occurred, but it was not sustainable over time. As both economic sectors could mobilize armies with relatively similar capabilities, war was more likely to exhaust both sides without producing positive outcomes for either sector. Consequently, Chilean agricultural and industrial elites opted for a political compromise instead. Three institutional components were incorporated in the compromise: an income tax, political representation and protectionist policies for the industrial sector. In 1924 the income tax law was passed. As others have observed, "[t]here was visible bargaining: [the non-agricultural sector] (reluctantly) accepted taxation, *while demanding state services and expecting to influence how tax revenues were spent*"[94]. The SOFOFA pursued an agenda in favor of protective industrial tariffs[95]. In particular, "by the early 1920s Chile's manufacturers were no longer just demanding (and obtaining) protective tariffs, they actively lobbied for government subsidies to establish a range of new industries"[96]. Eventually, the Aguirre Cerda government in 1939 created the CORFO, an agency that "undertook the responsibility for economic planning and direction by identifying certain industrial sectors to support through various sorts of credits, subsidies [and] government investments"[97].

These political compromises within the elite triggered a series of other investments in state institutions. Because of these structural transformations, the early Chilean government "was able to impose a substantial tax [...] and pay the salaries of government and military employees"[98]. Importantly, the income tax law was influential beyond the capital city of Santiago, reaching

[92] Rippy [1971, 238].
[93] Chua [2010].
[94] Carmenza Gallo, in Brautigam et al. [2008, 165]. Emphases are mine. She refers specifically to nitrate producers.
[95] Lederman [2005, 54] and Haber [2005, 18].
[96] Haber [2005, 18].
[97] Collier and Collier [2002, 393].
[98] Bauer [2008, 80]. He refers particularly to taxes on "nitrate exports".

instead the whole territory. *Artículo 104* and *Artículo 105* of the income tax law[99] empowered all municipalities to collect the tax. In fact, all municipalities had to send the central government a detailed list of taxpayers twice a year, forcing the development of local bureaucracies able to count and classify the population according to their incomes and sources of income. The income tax law specified different payments depending on whetheran individual's income came from industrial or agricultural sources[100]. Lastly, protectionist tariffs helped to develop an even stronger industrial sector, which in turn was the basis for the new middle class, the most important ingredient in the development of the modern bureaucracy. The aperture of the political system, while breaking the agricultural-led political monopoly, also helped the industrial class gain influence over how the income tax was spent. Moreover, the incorporation of the modern sector into the political system played a fundamental role in furthering the industrialization process itself. That is, the industrialization process was also a *political* process. Critically, both groups of elites channeled their sectoral demands through political institutions. As Collier [1977, 683] points out, "the real story of Chilean industrialization belongs to the Parliamentary period", between 1891 and 1925. This idea is also in line with Kurtz [2013, 36], who explains that the incorporation of upper-class actors from all major factions into the national political system was crucial to enabling substantial taxation, public goods provision and essentially, state building.

VI. Econometric Analyses

I have argued that the origins of fiscal capacities can be explained by the presence of an inter-sectoral compromise between the agricultural and industrial elites and that these compromises were possible when the industrial sector was big enough to challenge the agricultural political incumbents. I now test this argument statistically. Sectoral competition is operationalized using the industrial and agricultural sectoral growth rates of all Pacific coast countries for which we have available data, that is, Chile, Ecuador, Nicaragua, Venezuela, Perú, Colombia and Guatemala. I use the MOxLAD data[101], and the dataset spans from 1900 to (potentially) 2010. According to Astorga et al. [2005, 790], this dataset provides extended comparable sectoral value-added series in constant purchasing power parity prices. The outcome variable is when a country imposed the income tax. Figure 1 shows both sectoral outputs and the year when the income tax law was passed.

Following Aidt and Jensen [2009], I model the conditional hazard ratio that a country which has not yet adopted the income tax adopts it in a given year as a function of the relative size of the agricultural and industrial sectors. I compute these hazard ratios using several functional

[99] *Decreto* number 1269.

[100] As article 104 reads, "Los municipios estarán obligados a enviar semestralmente a la Direccion de Impuestos Internos una copia autorizada del rol de patentes industriales, comerciales y profesionales".

[101] "These data build on the studies and statistical abstracts of the Economic Commission for Latin America, but also rely on Mitchell's International Historical Statistics, International Monetary Fund's International Financial Statistics, the World Bank's World Development Indicators and a variety of national sources".

forms. First, I assume a Cox proportional hazard parameterization to compute the hazard rate that a country in a given year will "fail" (i.e., implement the income tax law) conditional on baseline covariates[102]. Countries drop out of the sample when they adopt the income tax[103]. I also assumed a generalized estimating equation (GEE) functional form. Generalized estimating equations were introduced by Liang and Zeger [1986] to fit clustered, repeated/correlated and panel data[104]. This method is especially well suited when the data are binary[105]. GEE methods require analysts to parameterize the working correlation matrix. Though Hedeker and Gibbons [2006, 139] explain that "the GEE is robust to misspecification of the correlation structure"[106], Zorn [2006, 338] explains that whereas the choice of estimator makes little or no difference, the unit on which the data are grouped makes a big difference. Hence, following the advice of Hardin and Hilbe [2013, 166], who point out that when "the observations are clustered (not collected over time) [...] the exchangeable correlation structure" should be used, I assume an "independence" working covariance structure, that is, that there is "no within-unit correlation"[107]. From a substantive standpoint, GEE models provide an estimated marginal mean, or the *weighted average* of all cluster-specific effects (or conditional means).

I also employ a conditional logit form ("fixed effects" model). One important advantage of this strategy is the ability to account for country-specific effects. For example, fiscal capacities could be a function of prior state-building capacities[108]. A number of scholars rightly argue that post-colonial state capacities are in part a function of pre-colonial state-capacities[109]. Fixed-effects should be able to account for this and other unobserved or hard-to-measure covariates, which if left unaccounted for would introduce omitted variable biases[110].

In order to account for time dependency, I include different time-transformed variables, in the form of a lagged dependent variable to account for partial adjustment of behavior[111] and also time-transformed functions[112] "through the use of the natural log transformation [and] polynomials [to capture] different forms (or "shapes") of the baseline hazard"[113].

Additionally, in order to test that income taxation initiated a path of institutional investments, opening the political system for oligarchic competition, Andersen-Gill (AG) models[114], a gener-

[102] Box-Steffensmeier and Jones [2004].
[103] That is why the time span goes from 1900 to *potentially* 2010.
[104] Zorn [2006, 322].
[105] Hanley et al. [2003].
[106] Carlin et al. [2001, 402] argue that "[r]elatively minor differences in estimates may arise depending on how the estimating equations are weighted, in particular within the generalized estimating equation (GEE) framework". Westgate and Burchett [2016] and Gardiner et al. [2009, 227] make the same point.
[107] Zorn [2006, 332].
[108] I thank Matthias vom Hau for this suggestion.
[109] Wimmer [2015, 10], Mahoney [2010] and Lange et al. [2006, 1426].
[110] Angrist and Pischke [2008].
[111] Wawro [2002].
[112] Carter and Signorino [2010].
[113] Box-Steffensmeier and Jones [2004, 75].
[114] Andersen and Gill [1982].

alization of the Cox models[115], were employed. Using a slightly different data structure[116] and within a multiple failure-time framework, the *joint* occurrence of income taxation *and* democracy was estimated. One drawback of AG models is that both events are assumed to be the same and independent[117]. Though this paper proposed an endogenous relationship between both outcomes, here I adopt a strategy that tries to break this possible endogeneity "problem"[118]. I fit two Cox models, having taxation on the right-hand-side and political competition on the left-hand-side for the first model, and then invert these two covariates for the second model.

Another model was included to account for spatial dependence[119]. Given that the countries I am modeling are all contiguous neighbors, it is reasonable to expect a "domino" effect. Theoretically, being the first country to implement the income tax cannot have the same effect as being the last one. There are clearly diminishing returns which should be accounted for. First-implementers have no prior experience and, hence, it should be harder for them to pass the law in the first place. Similarly, it should be easier for last-implementers. To account for spatial dependence, a cumulative count of countries which have implemented the law at time t was included[120].

Finally, to rule out modernization theory-like outcomes, a last model including annual per capita GDP was included. Modernization theory argues that higher levels of education, income and urbanization make democratization more likely. Annual per capita GDP is a good proxy of aggregate well-being.

All these models strongly suggest that larger industrial sectoral outputs accelerate the passage of the income tax law and the implementation of the first democratic waves.

I. Results

Table 1 shows ten models[121]. The first three are Cox models, under different time-transformations (splines, logged and log-lagged). The fourth model is a conditional logistic regression ("fixed effects" model). The fifth model is an Andersen-Gill model which predicts the joint realization of both the income tax and democratization. The sixth model shows a GEE logistic regression model.

[115] Therneau and Grambsch [2000, 185]. Box-Steffensmeier et al. [2014, 2] explain that AG models are "Cox model[s] with robust standard errors".

[116] This data structure is different in the sense that countries drop out of the sample once *both* income taxation *and* democracy occur.

[117] Box-Steffensmeier et al. [2006, 240].

[118] I thank Christopher Zorn for this suggestion.

[119] I thank both Christopher Zorn and David Darmofal for this suggestion.

[120] Given the small number of events (no event, democracy or taxation, and taxation and democracy) and the small panel (just seven countries, where some of them experience taxation/democratization rather early, shortening the panel length), the variable could not be introduced on the RHS due to a perfect classification problem. Instead, I opted to cluster the results at the counting variable level. The intuition is that countries are exposed to a cluster number that increases with time.

[121] All tables were produced using the `texreg` package (Leifeld [2013]). All Cox models were computed using the `survival` `R` package (Therneau [2015]). The GEE logistic regression was computed using the `geepack` package (Hojsgaard et al. [2016]). This paper was written in LaTeX using the dynamic report `R` package `knitr` (Xie [2016]), for fully replicable research.

	(1) Cox	(2) Cox	(3) Cox	(4) Cond. Logit	(5) And.-Gill	(6) GEE	(7) Tax.-Dem.	(8) Dem.-Tax.	(9) Spat. Dep.	(10) Modern. Th.
Manufacture Output$_{tt}$	0.742**									
	(0.236)									
Agricultural Output$_{tt}$	−0.440									
	(0.239)									
Manufacture Output (ln)		2.193*		0.921***	0.710**	2.640**			2.193*	
		(0.861)		(0.157)	(0.236)	(0.950)			(1.111)	
Agricultural Output (ln)		−1.347		−0.433	−0.411	−2.605*			−1.347	
		(0.816)		(0.230)	(0.232)	(1.098)			(0.910)	
Manufacture Output$_{t-1}$ (ln)			2.193*							
			(0.861)							
Agricultural Output$_{t-1}$ (ln)			−1.347							
			(0.816)							
Total Population (ln)						5.432**				
						(1.837)				
Manufacture Output							0.003**	−0.000		0.000
							(0.001)	(0.000)		(0.000)
Agricultural Output							−0.000	0.000		−0.000
							(0.000)	(0.000)		(0.000)
Democracy (cum. sum)^2							0.027***			
							(0.005)			
Income Tax (cum. sum)^2								0.004		
								(0.005)		
Per Capita GDP										−0.004
										(0.005)
AIC	12.963	9.271	9.271	3248.152	30.677		8.944	21.704	9.271	21.655
R^2	0.028	0.048	0.049	0.323	0.021		0.060	0.006	0.048	0.006
Max. R^2	0.075	0.075	0.078	0.996	0.127		0.075	0.079	0.075	0.079
Num. events	7	7	7	447	14		7	8	7	8
Num. obs.	181	181	174	621	234	621	181	207	181	207
Missings	0	0	0	0	0		53	27	0	27
PH test	0.795	0.966	0.966		0.817		1.000	0.778	0.854	0.981
Num. clust.						7				

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$. Robust Standard Errors in All Models

Table 1: *Structural Origins of Income Taxation: Income Tax Law and Democratic Development*

The seventh and eighth models show the results for standard Cox models, where the outcome (whether taxation or democracy) is switched. The ninth model controls for spatial dependence while the tenth model controls for per capita GDP. For the Cox, Andersen-Gill, taxation-democracy, democracy-taxation, spatial dependence and modernization theory models, the coefficients are expressed in hazard ratios. That means that "a positive coefficient indicates that the hazard is increasing as a function of the covariate (and hence, the survival time is decreasing)"[122]. In this application, the hazard is either implementing the income tax or democratizing, or both (depending on the model). For the conditional logit and GEE models, the coefficients are in logit scales.

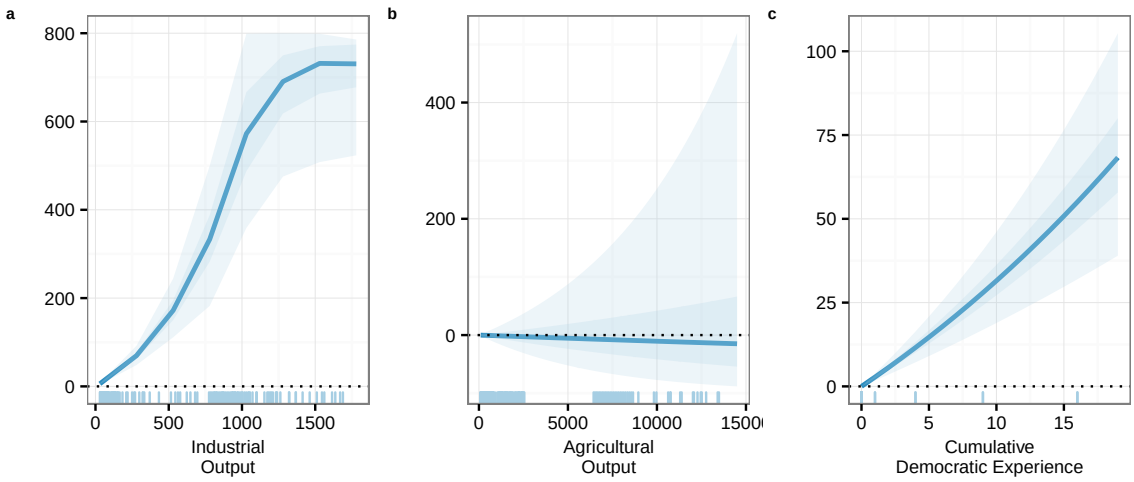

Figure 4: *First Differences of Industrial Output, Agricultural Output and Democratic Experience*

These results strongly suggest that as the industrial sector developed, it challenged the agricultural political monopolists, making the passage of the income tax more likely. Once unobserved sources of heterogeneity are accounted for (in the "fixed effects" model), past stateness levels do not alter the mechanisms presented in this paper. The AG model suggests that once we assume taxation and early oligarchic electoral competition are the same process, the sizes, signs and statistical significance do not change either. However, when we assume them to be different and try to break the endogeneity "problem", we see that oligarchic competition "causes"[123] income taxation, but not the other way around (model 7 and model 8, respectively). When I cluster by early and late-implementers, results remain substantively identical. Finally, when per capita GDP is included, the model crashes and neither this measure of well-being nor higher levels of industrialization predict oligarchic competition/democratization or fiscal development. The GEE model includes a measure of population density. Population has been associated with the probability that elites expanded the

[122] Box-Steffensmeier and Jones [2004, 50].
[123] I use the term loosely, without claiming any causal inference.

franchise[124]. Denser populations also expand the tax base. The scarcity of people meant that local and state governments were extremely concerned with attracting migrants. Because population inflows would lower the cost of labor, and boost land values and tax revenues, these societies were induced to adopt institutions attractive to immigrants. Among these, were cheap land and political participation.

Following Gandrud [2015] and King et al. [2000], the three panels in Figure 4 show different variables of interest each simulated 2,000 times. Using a variant of model 2 in Table 1[125], panel **a** and **b** simulate the average effect of industrial and agricultural outputs on the hazard of passing the income tax law. Using the estimations of the seventh model in Table 1, panel **c** simulates the effect of the cumulative democratic experience on the passage of the income tax law. These plots strongly suggest that higher industrial output substantively boosted the hazards of introducing the income tax, while higher agricultural output did not play a role in the modernization of the fiscal system. I argued in favor of an endogenous process involving oligarchic electoral competition and the development of a fiscal system. However, model 7 in Table 1 suggests that once we include oligarchic electoral competition on the right-hand-side, we find statistically significant results. Panel **c** in Figure 4 simulates those effects. However, income tax adoption does not fit oligarchic electoral competition (model 8). I leave this question open for future research.

VII. Discussion: Slow Industrial Growth and Lack of Contestation

This paper argued that in order to understand state capacities, it is necessary to understand the origins of the main "state-building" institution, income taxation. Direct taxation and especially, income taxation (being a much more complicated tax to collect), require the development of better bureaucracies, a fundamental part of the modern state. Its introduction was not important because of the new resources the treasury acquired, but because it triggered a series of inter-elite compromises as well as other institutional investments. My theory claims that the countries that made the big jump sustained fast industrial growth rates. These rates allowed industrial elites to challenge the traditional sector, forcing it to grant them political concessions. One of the most important of these was the opening of the post-colonial political system, which granted access to industrial organized groups. Specifically, the industrial class accepted an income tax in exchange for the ability to participate in politics. In terms of economic compromises, the industrial elite managed to articulate its demands as a coherent class, including in the bargain protectionist industrial tariffs. In this sense, the mechanism that allowed the rupture of the old political monopoly was similar sectoral output

[124] Engerman and Sokoloff [2005, 892-893].

[125] The `simPH` package does not handle natural logs well. The only difference was the inclusion of the unlogged variable. It is important to stress that *both* sectors were included in the model, hence one sector acts as the control variable for the other. In the appendix section, Table 2 shows the results of the model employed to generate the 2,000 simulations. The numbers differ from the main results in Table 1 because the scales are different.

levels among agricultural and industrial elites. It is inter-elite *equality* that causes state formation and cooperation, not inter-elite inequality as other scholars have claimed[126]. A situation of balanced growth gave elites in each sector the potential to acquire the same level of military power, deterring sustained conflict and forcing both political and economic compromises. It was in this way that industrialization was important (as a contestation device), not in the way modernization theorists have argued. That is, it was not faster *overall* economic growth what created states, but balanced *sectoral* growth, allowing inter-sectoral competition.

[126] Boix [2015, 73] argues that states only exist to counteract potential conflict between agents with *different* economic interests and military capacities.

VIII. Appendix

I. Model used for Simulation Plot

Table 2 shows the estimates used to compute the 2,000 simulations in the Figure 4 (panels **a** and **b**).

	Cox-PH
Manufacture Output	0.00^{***}
	(0.00)
Agricultural Output	-0.00
	(0.00)
AIC	9.26
R^2	0.05
Max. R^2	0.07
Num. events	7
Num. obs.	181
Missings	0
PH test	1.00

$^{***}p < 0.001$, $^{**}p < 0.01$, $^{*}p < 0.05$. Robust Standard Errors in All Models

Table 2: *Structural Origins of Income Taxation: Model Used to Compute Simulations*

II. Robustness Checks

Cox *proportional* models rest on the assumption that hazard rates are *proportional* to time dynamics[127]. Non-proportional hazard models are becoming an increasing problem across all subfields in political science[128]. In this section, I test whether this assumption holds. Non-significant p-values indicate that the proportionality assumption holds. Also, Figure 5 shows that the spline fitted lines are constant across time. Each of the seven dots represents the regression coefficients of the seven countries in the sample[129]. All in all, steady splines confirm that the hazard rates are, in fact, *proportional*.

```
##                       rho chisq     p
## log(constmanufact) -0.365 0.111 0.739
## log(constagricult)  0.360 0.107 0.744
## GLOBAL                 NA 0.117 0.943
```

[127] Box-Steffensmeier and Jones [2004].
[128] Licht [2011].
[129] This is for our main model, column 2 in Table 1.

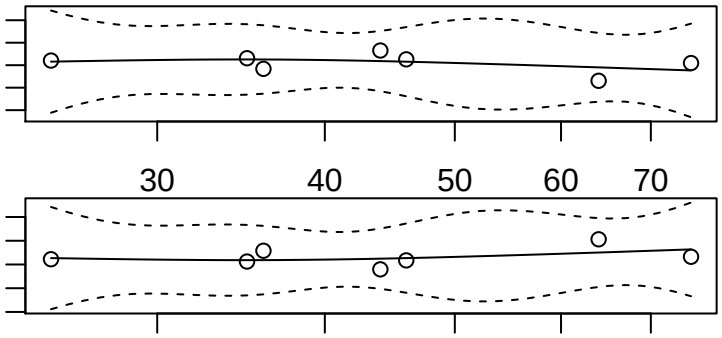

Figure 5: *Plots of the Coefficient Estimates against Time*

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