Structural Transformations and The Political Roots of Fiscal Capacities in Latin America

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Abstract

There is a very strong consensus on the positive role of fiscal capacities on state formation. Unfortunately, current theories focused on Latin America do not sufficiently explain the origins of fiscal capacities. Taking a sectoral politics approach, this paper argues that the political monopoly pursued by agricultural economic elites 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, planting the seed of states with high capacities. When agricultural monopolists were not challenged, these institutional investments never existed or were weak. The paper tests this theory using cross-national panel data from 1900 to 2010 for a sample of Latin American countries. The Chilean example is offered as a shadow case to illustrate the mechanisms at work. Both approaches strongly confirm the theory.

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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, though a consensus has been reached on the importance of fiscal capacities, the political and economic *origins* of fiscal capacities in Latin America remain unclear. *Why do some countries have more effective fiscal capacities than others? What have been the factors that led post-colonial Latin American countries to self-impose a system to directly tax 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. Particularly, it is difficult to extend models originally developed to understand the medieval European case, as wars in Latin America have been insufficient to mobilize domestic resources. Moreover, elite structures were very different, challenging the standard assumptions and incentives of these models. In this paper, we shall inquire what were the *conditions* that promoted the implementation of fiscal capacities and trace its origins in the Latin American context.

Taxation is one of the most important capacities a state can have. Without internal revenue, states cannot perform any of the activities they are supposed to perform. This paper explains the origins of fiscal capacities. It argues that the implementation of a modern fiscal system was possible due to an inter-elite dispute that took place around the 1900's and a posterior bargaining process between these two elites. This dispute was between an elite invested in agriculture and an emerging and politically excluded industrial sector. We argue that the early passage of the income tax law was the tipping point that transformed "weak" states into "strong" states. 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 that 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. Both the taxation and political representation dimensions triggered a series of institutional investments such as institutions of 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)[1]. When industrial output was slow, landowners - who were political monopolists - faced higher opportunity costs and 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 bureaucratic bodies never existed. These countries were then trapped in an underdeveloped sub-optimal equilibria. The paper tests these relationships using econometric methods for panel data, particularly hazard models, and qualitative/historical evidence. Both methodologies strongly support the argument.

II. Taxation and State Formation

The origins of fiscal capacities, and its relationship to state-building, are still subject to great debate. A number of scholars studying Europe correctly point out that there exists a positive relationship between military conflict, taxation and political representation[2]. However, this mechanism has been challenged for the Latin American cases[3]. 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 all these theoretical and empirical difficulties, some have gone up in the "ladder of abstraction" and replaced "war" for "interstate rivalries,"[4] while others have interacted the presence of military conflict and state-military alliances[5]. Though in the Latin American context taxation and state-building seem to be linked, it is not clear what the *origins* of fiscal capacities are[6]. This paper presents an argument

[1] The 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.

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

[3] 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".

[4] Thies [2005].

[5] López-Alves [2000, 37].

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

based on *domestic political and economic* conflicts that lead early Latin American countries to invest in fiscal institutions. The argument is novel since it changes the focus to *domestic incentives* that existed to legally *robber* (i.e. "tax") industrial profit via an income tax.

Building on the "fiscal sociology" paradigm, we argue that the political economy of public finances offers "the key" for a theory of the state[7]. 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[8]. From a theoretical perspective, the mere concept 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*[9].

Not all kinds of taxes play a *formative* 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[10]. Since indirect taxes are easier to levy, this kind of revenue is generally considered "unearned income"[11] or "easy-to-collect source of revenues"[12]. 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. As Campbell [1993, 177] puts it, "[i]n Latin America [...] when the state depends heavily on the taxation of international trade [...] the state apparatus tends to be less developed because the collection of tariffs and duties does not require an elaborate fiscal structure". One clear example is custom duties. They are very simple to levy; hence, they do not require any major institutional development nor major structural transformation to collect them. As Bertola and Ocampo [2012, 132] explain, since "[c]ustoms administrations were concentrated in a few critical locations, especially ports, [c]ustoms duties seemed to be an attractive means of boosting revenues".

Direct taxation involves a *compulsory transfer* from private hands to the government sector for public purposes[13], and hence they are harder to collect[14]. Amongst all types of direct taxes, the most invasive one (and hence the most difficult one to levy) is *income taxation*. This type of tax is quite complex since it classifies and transfers private income into public property[15]. From a historical standpoint, its introduction "was one of the major events in fiscal history that contributed

[7] Musgrave [1992, 99].
[8] Moore [2004b, 298]. This view is also shared by Schumpeter [1991, 100] and Lewis [1965, 42] - See epigraphs.
[9] Schumpeter [1991, 101].
[10] This view is also supported by Moore [2004a, 14].
[11] Moore [2004b, 304].
[12] Coatsworth and Williamson [2002, 10].
[13] *Cfr.* Raja Chellia, "Trends in Taxation in Developing Countries", in Migdal [1988, 282].
[14] Kurtz [2013, 62].
[15] Musgrave [1992, 98].

to the growth in government observed during the past 150 years"[16]. 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[17] and inter-elite class tensions should be resolved prior to adopting these policies. Some have even argued that "tax struggles are among the oldest forms of class struggle"[18], while some others have pointed out that these class conflicts are more likely to resolve in favor of direct taxation where income inequality *within the elite* is low[19]. Here it is argued that the political compromise within the elite was the critical juncture that helped to create the endogenous incentives to overcome the initial lack of administrative skills to collect direct taxes. As others have argued, "administrative constraints are identified as the main constraint to the ability of states to collect [an] income tax"[20]. Cases where the income tax law was imposed very late have 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 ones 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[21].

III. Slow Industrial Growth and Lack of Contestation

When industrial growth was slow, the initial monopolistic conditions that agriculturalists enjoyed were not dramatically contested. Under these circumstances, the necessary structural transformations that led to institutions of state-building were not achieved. Building on the "stationary bandit" concept [22], rulers are better off by encouraging investment and economic development in their territory in exchange for a tax (rather than moving from one place to another to rob). This is especially true when development is fast. Generalizing this idea, rapid industrial output outweighs the costs of delayed liquidity access, and hence a tax is imposed to capture revenue for the elites in power. Slow growth, on the contrary, shifts the incentives to capture that revenue immediately via expropriation. This idea is consistent with 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. Additionally, it is also consistent with Acemoglu and Robinson [2000, 126], in that potentially political losers rather than

[16] Aidt and Jensen [2009, 171].
[17] 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".
[18] Goldscheid (1925), in Campbell [1993, 168]. See also Best [1976, 50] who argues that "tax revenues depend upon the interests of different classes as they attempt to use political power via the state for their own needs and purposes".
[19] Tani [1966, 157] explains that the absence of "wealth groups" makes passing the income tax law easier.
[20] Di John [2006, 5].
[21] Di John [2006, 5].
[22] Olson [2000].

blocking[23] innovation, impose a tax[24]. In the same line, Boix [1999] points out that elites allow both technological and political progress only if it benefits them. That said, we do not present an argument of *economic losers*, in which monopolies block substitute technologies. Contrary to Acemoglu and Robinson [2000, 127], industrial development is not blocked by agricultural elites "because there is no credible commitment to compensate them once economic changes have been implemented". However, expropriation/blocking acts as a way for rulers to provide instantaneous liquidity (i.e. immediate access to monetary resources).

Could rapid industrial growth cause expropriation? We argue that slow industrial output causes expropriation/economic blocking. However, one could argue the reverse. Given that economic changes alter the distribution of political power, when the industrial sector grows, so too does the incentives for agricultural incumbents to expropriate them (rather than tax them, as we argue). For example, Robinson [1999, 28] argues that "[i]f development changes the political equilibrium, then this may deter elites from creating institutions and adopting policies which stimulate development," engaging in predatory policies. However, this paper presents an argument that generalizes this idea by incorporating *degrees* of development. If development is sufficiently "fast," incumbent elites should impose a tax on the subject's revenue, as Olson [2000]'s "stationary bandits" do. We claim that when industrial growth is sufficiently "slow", the *political* threat of being displaced by a weak economic sector is non-credible. Under these conditions, political concessions are not required and institutional investments are less likely. Though Boix [2015, 73] argues that "states only exist to counteract a potential situation of conflict between agents with *different* economic interests and military capacities,"[25] we argue that there will exist "spontaneous cooperation" when there are incentives and a need to cooperate, which happens when their political, economic and military capacities are relatively *similar* (but not equally distributed)[26]. Critically, our theory is stylized in the sense that we assume that economic, military and political power are expressions of the same latent concept. Ultimately, barriers to technology adoption and industrial development were not blocked because of fear by the elites of being politically *or* economically displaced. In the short run, expropriation meant for the elites access to immediate liquidity. However, in the long run, it meant suppressing political and military contestation. Importantly, where industrial output

[23] Inter-sectoral competition and the decision of whether expropriate or tax the industrial sector, link with the "barriers to technology adoption" literature. See Parente and Prescott [1994].

[24] It is important to stress that we do *not* refer to domestic technological innovation. For the Latin American cases, technological innovation should be considered as exogenous. As Bertola and Ocampo [2012, 135] explain, "[t]he main two vehicles for international technology transfer [...] were foreign investment and immigration [...] [m]any immigrants already had the experience of living in an industrial civilization; they brought with them knowledge, practical experience, an entrepreneurial and technical culture, a work ethic, knowledge of new forms of commercial organization".

[25] Emphasis is mine.

[26] Garfias [2015] finds in México the exact opposite: *unequal* relative distribution of political and economical power causes stronger states. The proposed mechanism is that ruling elites, taking advantage of their transitory strengthened position, expropriate weaker elites and send bureaucrats to control local weakened bosses (his proxy for state capacities).

was slow, political and/or economic threats coming from the industrial sector were non-credible. Finally, historians confirm that expropriation was an inter-sectoral issue. Bulmer-Thomas [2003, 255, 342-343] explains that it was very common to nationalize non-agricultural assets such as transport companies, financial institutions, and mining industries, especially oil[27].

IV. Issues in the Literature

Though we argue that inter-elite power balance and political compromises generated the necessary conditions of institutional investments, a simple association between bureaucratization/institutionalization and political development would be incorrect. Several authors correctly argue the linkage between the ("wrong") kinds of institutions and political (under)development. For example, Mahoney [2010, 26] suggests that there is a negative association between "mercantilist institutions" (which did require developed bureaucracies) and political (under)development (Perú). Similarly, Acemoglu et al. [2002] explains how colonial mercantilist countries show little economic growth. This paper explains the origins of income taxation and how it played an important role in the formation of national states *post*-independence.

Bureaucratization *per se* does not cause state capacities either. For example, Soifer [2016][28] explains that when bureaucratization relied on the hands of "local" elites, this created weak states, as they were more likely to pursue their own personal agendas (rather than the central level's). On the contrary, when the central state sent their own agents in what he calls "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 depend on the central level (as Soifer correctly points out), what remains unclear are the mechanisms under which principal-agent problems are solved in favor of the central level. It is still a possibility that, even when perceiving income from the central level, the agenda that is pursued in the periphery is the agent's and not the state's. In the context of poor infrastructure and slow communication between the two levels, what is it that makes the agent's agenda to coincide with the state's? One could argue that the agent fears to be replaced, losing his source of income. However, human capital during the formative years of the late 19th century run in short supply. That is, there was not enough capable individuals to perform complex administrative duties[29]. In fact, Taverne [2014, 208] argues how the *vecinos notables* were the first skilled bureaucrats in the early stages of state building in Chile. They would usually have 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

[27] One interesting possibility could be to develop a count model of number of expropriation conditional on the relative sizes of each sector. We are unaware of such dataset. We leave this for future research.

[28]

[29]

but still capable of performing well as public servants were hard to come by. Sagredo [1997, 293-294] documents how *Director Supremo* Ramón Freire practically forced businessmen Pedro Nolasco Mena, against his will, to serve as secretary of state[30]. Income was not important at all to him. In fact, the day Nolasco Mena was sworn into office, he stated that he was not willing to perceive income as a way to protest against Freire[31].

Inter-elite conflict has a disputed role in the literature. In our theory[32], the degree to which agricultural elites are contested (here through increasing industrial output differentials), is what forces both parties to reach agreements. Cooperation is a conflictual outcome that is incentive-compatible due to the unbalance produced between inter-elite economic equality and inter-elite political inequality. The intuition is very simple. If one elite has more economic power[33], there are no incentives nor needs to cooperate with other groups, as their most preferable outcome can be obtained without cooperation. On the other hand, once each elite reaches similar levels of development, their goals depend on their mutual cooperation. This is especially the case when there exists a disparity between economic equality and political inequality. Kurtz [2009, 2013] builds a theory where "the oligarchic elites [...] despite [their] substantial divisions over some of the questions of the day, [agree] to maintain the capacity for the effective projection of force and to impose the necessary tax burdens on themselves to finance [a strong state]"[34]. What makes these elites reach a sustained agreement is the absence of repressive labor practices[35]. That is, the existence of the legal right to leave the farm[36]. Structurally, our theory follows Kurtz's in the sense that we also believe that the organization of the economy causes (endogenous) changes in the institutional order, especially with respect to taxation. In fact, it complements it by offering one possibility, that the industrial sector is not strong enough to attract labor, for why laborers do not have any other choice than to remain in farming. Industrialists, being excluded from the political system (as they were), cannot alter these repressive institutions from the inside. Hence, in our theory, incorporation of all important elites (economic sectors in our theory) is crucial for state-building. However, it departs from Kurtz's theory given that our theory sees potential conflict as the the tipping point of eventual political agreements.

There are ongoing measurement and conceptual debates in the literature. Though many

[30] 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 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.

[31] 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".

[32] And in Ansell and Samuels [2014]'s theory too.

[33] Which potentially translates into military power.

[34] Kurtz [2009, 508].

[35] Kurtz [2013, 83].

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

scholars find that income taxation is either one of the most important state-capabilities[37] or the one characteristic that explains considerable variance of state capacities[38], others have argued in favor of other measurements of "stateness". For example, some scholars have argued in favor of military conscription or censuses[39]. Multidimensional measurements are also very popular. Contrasting several existent 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 too, one being the *despotic* and the other one being the *infrastructural* power concept[40]. Soifer [2012] proposes a three-dimensional measurement of state capacity, namely *security*, *administrative* and *extractive*. Multidimensional conceptualizations of state capacities do improve our understanding of the complexity of state capacities[41]. Beyond being a measurement commentary, this paper develops a theory for the origins of, what we believe, is one of the *main* state capacities. Moreover, from an empirical and conceptual standpoint, parsimonious explanations about a complex phenomena[42] enjoy different advantages.

Finally, it is important to say that our theoretical model 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 experience clusters of development[43].

The purpose of this paper is to explain the origins of *strong* and *weak state* capacities. We do so by tracing their origins of *strong* and *weak fiscal* capacities. It is important to stress that this paper does not equate *higher taxation levels* with *higher levels of "stateness"*. For example, since "American institutions [were] deliberately designed to weaken or limit the exercise of state power"[44], the U.S. taxes very little. However, it is not reasonable to say that the U.S. has a "weak state." Rather, this paper proposes that the *development* of a direct tax system, particularly, *income taxation*, is causally related to the origins of state capacities and other institutional developments[45]. Fiscal

[37] See for example Besley and Persson [2011], Kurtz [2013, 2009], Cohen [1994], Gallo [1991], López-Alves [2000], Thies [2005] and Soifer and vom Hau [2008], Soifer [2008].

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

[39] For the latter, see for example, Lee and Zhang [2013].

[40] Soifer and vom Hau [2008, 224] argue in favor of the infrastructural approach proposed by Mann [1984].

[41] As Fukuyama [2004, 9] explains, "[a] country like Egypt, for example, has very effective internal security apparatus and yet cannot execute simple tasks like processing visa applications or licensing small businesses efficiently". In Singerman, (1995).

[42] Mann [1984, 112] argues that "[t]he state is undeniably a messy concept".

[43] See Figure 1.

[44] Fukuyama [2004, 6].

[45] See for example Besley and Persson [2014, 117], where they argue that "[t]axation has played a central role in the development of states".

economists do not necessarily look at the actual tax-to-GDP ratio either, but rather at "tax efforts." This index measures the ratio between the proportion of actual collection and taxable capacity[46]. Moreover, as explained in the argument section and illustrated in our case study, the income tax system was fundamental for the formation of the LA states, not for the actual tax money levied but for the set of institutions and political compromises that were needed to implement such a system.

The problem at hand is of the greatest importance. The idea that higher fiscal capacities are related to more capable states is widely accepted by many political economists. However, it is unclear what the *origins* of income taxation are. Much effort has been devoted to the study of tax reforms. For example, Fairfield [2013] studies different strategies policymakers pursue to tax elites starting in 1990. Mahon [2004] and Focanti et al. [2013] study causes of tax reform in Latin America starting around 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. We share Di John [2006, 5]'s diagnosis that "[t]here is no attempt to explain *why* and *how* administrative capacities change. Second, there is no explanation as to why tax capacities differ across countries"[47]. Acknowledging these contributions, we expand on these prior findings by presenting a comparative macro-structural argument that traces under which conditions endogenous investments in fiscal capacities were more likely to happen in Latin America starting in 1900.

The remainder of this paper proceeds as follows. First, we present and develop our argument. Taking a sectoral politics approach, the paper argues that the political monopoly pursued by agricultural economic elites was broken when an emerging industrial sector accepted to be income-taxed in exchange for industrial tariffs (i.e. protectionism) and political representation, leading to the 19th century political oligarchies. These political and economic concessions between the two sectors were accelerated by unfavorable international conditions. A decline on imported goods decreased import taxes, putting internal pressures to generate internal revenue. Second, in the historical section, we present Chile as a shadow case to illustrate in more detail the mechanisms at work. Third, in the econometric section, we test the theory using cross-national panel data on sectoral outputs from 1900 to 2010 for a sample of Latin American countries. Finally, we conclude with a brief discussion.

V. Argument

Our argument comes in four parts for both the "weak" and "strong" state cases. This section lays out the theory in abstract. The next section develops each part of the argument in more detail. The following section illustrates the causal mechanisms at work.

[46] For example, Best [1976, 54] calculates tax efforts for Central America. See also Cohen et al. [1981, 905].
[47] Emphases are mine

Strong State Cases First, following the inertia of the colonial period, early independent Latin American states were governed by agricultural elites. Later around 1900s, an incipient industrial sector established. This sector was comprised of newcomers who were politically excluded. Second, in the strong state cases, industrial output rates were faster than agricultural rates. Third, political elites could play one of the next two strategies. They could either *tax* or *expropriate* industrial output. In cases where industrial output is fast, the benefit of taxing a small sum of money "today" via taxation compensates the long-term losses associated of having those resources "tomorrow". Consequently, agricultural elites are better off taxing industrial output. Fourth, in exchange, the industrial class demanded commercial protectionism (tariffs) and political representation, giving way to the Latin American oligarchic political systems. Both taxation and political representation triggered a series of institutional investments such as institutions of checks-and-balances. These institutions were able to monitor and enforce income taxation, including the development of professional bureaucracies.

Weak State Cases Similarly, these nations were governed by agricultural monopolistic elites. However, in the weak state cases, agricultural incumbents faced slower industrial growth. This sector did not promise enough resources to tax from in the long run. It was too risky to "wait" and tax those resources in the future. Hence, incumbents were better off expropriating or blocking the small industrial output. 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

By definition, monopolies limit the entrance of alternative goods and services. All post-colonial Latin American countries experienced an initial situation of *political* monopoly. That is, there existed a situation where the early political system was dominated by a compact social class invested in land. This sector would impose social and economic policies favorable for them. Eventually, *all* post-colonial nations saw the emergence of a small industrial sector, which grew at different rates (see Figure 1). In countries that eventually turned into strong states, the size of the modern sector grew at faster rates and hence political competition was *artificially* limited. As there *was* in fact a competitor, agricultural elites tried first to block it. However, for several reasons we explain later, cooperation between the two was incentive-compatible. Inter-sectoral economic equality paired with inter-sectoral political inequality introduced the endogenous incentives to build both state and democratic institutions in a series of elite compromises. The end of the political monopoly and the subsequent inter-elite agreements laid the foundation for fiscal capacities and political competition, the root of strong states. However, where the size of the modern sector was small, agricultural elites were *natural* monopolists. In these cases, the modern sector was so small that there was

not enough credible threats to move forward a compromise between the two classes, letting the landowners continue ruling without political opposition. This situation generated long-term political and economic distortions.

For example, Nicaragua was formed in a non-democratic context, just like any 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 3). The lack of inter-elite contestation led this country to develop a fiscal system very late (vertical line in Figure 1). An opposing example is Ecuador, which passed the income tax just before the 1950s, right around when it had its first "democratic" experience. Using Chile as a shadow case, we illustrate the causal mechanisms at work with further details, explaining particularly 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 the 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 also boosted the demand for rudimentary processed raw products too. We provide further details in our case study. Figure 1 shows output differentials (in logarithmic scales) from 1900 to 2010, for a sample of Latin American countries[48]. Contrary to Bulmer-Thomas [2003, 241], we do *not* find that "[e]verywhere [...] industrial growth exceeded agricultural growth".

Sectoral competition is one of our main building blocks, and this paper measures it with output differentials (Figure 1). The first type of conflict is inter-elite political and economic competition. 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

[48]We 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). We elaborate on the income tax law in the next section.

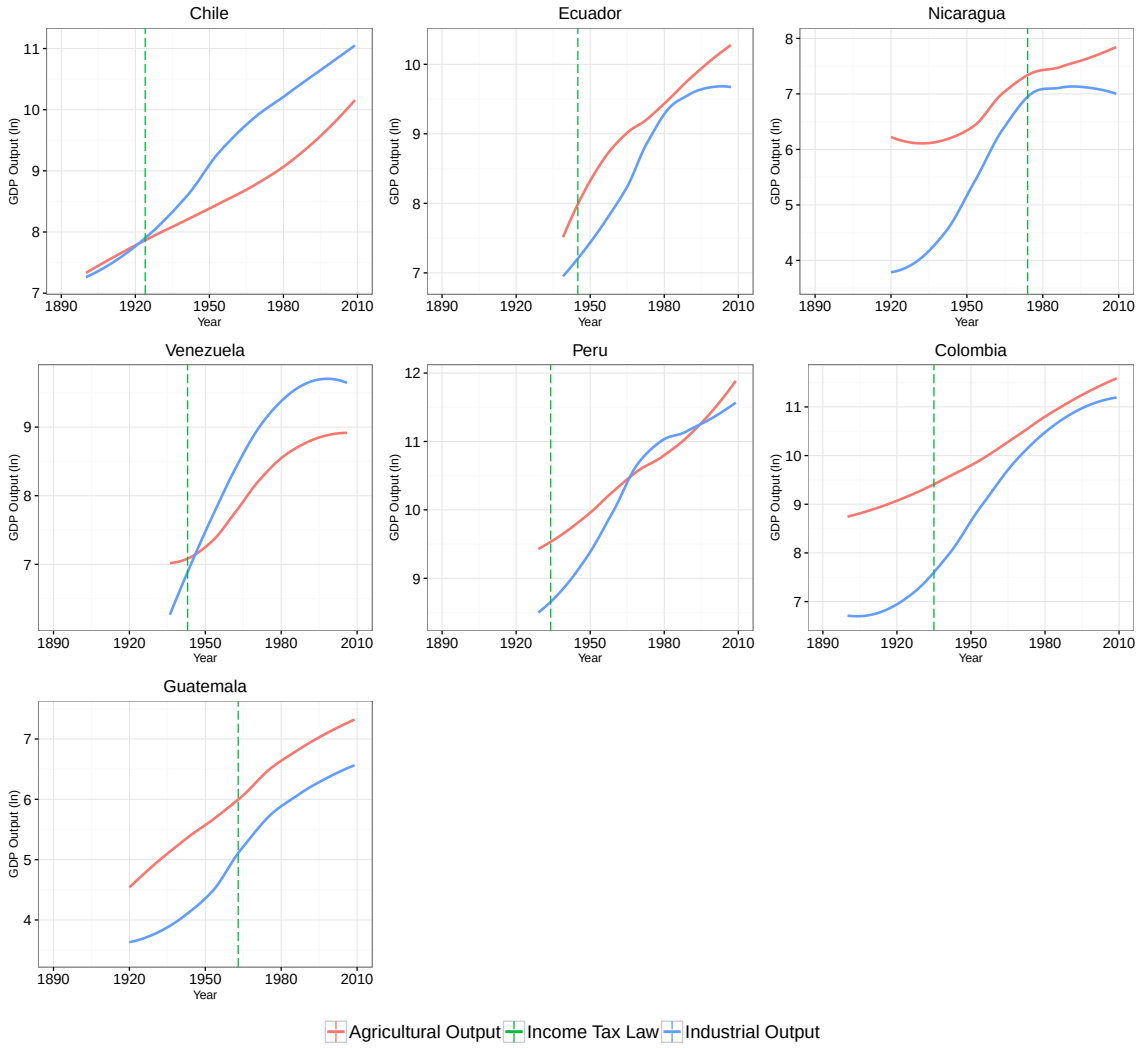

Figure 1: *Industrial and Agricultural Outputs, and The Passage of the Income Tax Law*

capacity"[49].

Though the nature of inter-elite conflicts is both political and military, the conflict itself is deeply rooted in the economic structure. Advantaged economic conditions can relatively easily be translated into better military capacities, which makes it easier for the advantaged group to impose their political agenda in a monopolistic way (Boix [2015]). However, the *origins* of this inter-sectoral (un)balance (expressed in sectoral output differentials) reflects structural economic dynamics between the two sectors that causes them to compete for the limited supply of labor[50],

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

[50] 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].

making the competition between the two elites more evident. In fact, in order for the modern sector to develop, the traditional sector had to decay[51]. For example, 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"[52]. As we will see in our case study section, this is true for Chile[53]. However, it also applies to other Latin American economies too. 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 second type of conflict is a reflection of the first one, and it relates to the sectoral origins of income taxation and its conflictual roots. As development economists argue, there is an intrinsic sectoral conflict between the two elites regarding the generation of income and its potential taxation (Best [1976, 55]). For example, Mares and Queralt [2015] study how income taxation in Europe is associated to inter-elites 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 between different sectors fostered (or not) state-building processes.

III. Taxation and Expropriation

Building on the "stationary bandit"[54] concept, this paper develops two possible strategies for agricultural political incumbents, either *tax* or *expropriate* the industrial sector. Each one is the best response depending on the rate of industrial growth. It is important to stress that industrial growth is not as important as it is for modernization theory scholars. However, industrial development is a necessary cause for state-building, as it starts an endogenous process of institutional investments, such as fiscal capacities and political contestation.

Expropriation is the best response when the rate of industrial growth is "slow". When industries grow slowly, the long-term benefits of having a secured, *but excessively small*, source of tax revenue *do not* offsets the benefits associated to having *immediate* monetary resources due to expropriation. Expropriation brings immediate liquidity (fast access to money) in the short run, but it exhausts the industrial output in the long run. That is, when industrial growth is slow, immediate liquidity becomes more attractive, even when these resources get exhausted in the long run. Moreover,

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

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

[53] But see Robles-Ortiz [2009], who argues that in Chile, one of our strong-state cases, the agricultural sector was quite productive and efficient.

[54] Olson [2000].

since human capital and the technology necessary to administer an industry are non-transferable to the agricultural elite[55], solely expelling the industrial elites and taking over the industries is not an efficient strategy, as it endangers industrial output in the long run. In other words, since landowners do not know how to run industries, they are 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 political. Underdeveloped industrial sector could not transform the institutional order, leaving those countries locked in underdevelopment traps.

Taxation is the best response when the rate of industrial growth is "fast". Imposing a tax allowed agricultural incumbents to "rob" industrial output at small "doses" at a time, without exhausting or precluding industrial development. From a strategic perspective, a healthy industrial sector becomes more attractive for what it has to offer in the future rather than the present. Hence, faster industrial growth shifts the focal point from the short to the long run. In these cases, it was in the agriculture sector's interest to protect and encourage the development of this sector to perceive even higher taxes (though most of the time keeping the same tax rate). Institutionally, the new tax had to be able to closely monitor industrial magnates and their personal incomes. Hence, an *income tax* had to be implemented. 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". It is vital to stress that income taxation did not make a difference for the new extra resources the treasury had, but it was important because it triggered the implementation of new institutions that were necessary to impose to sustain this new policy. The next section explains what those institutional investments were.

IV. Income taxation and Institutional Investments

When it comes to taxation, the public economics literature focuses predominantly on tax revenues. However, the *politics* of taxation is an equally important matter[56]. It is not important only because of the *process*, but also because of the political *consequences* of imposing such policy. We argue that the new income tax was not important because of the extra revenue that income taxation brought to the treasury, but because it triggered a series of institutional investments that helped early states to consolidate. This paper identifies (though not exhaustively) two critical institutions, political competition and bureaucratic consolidation among the elite in the form of oligarchic republics.

It is important to rule out the possibility that income taxation and elite contestation are not

[55] For example, machines used to make glass can't be used to grow potatoes.
[56] Focanti et al. [2013].

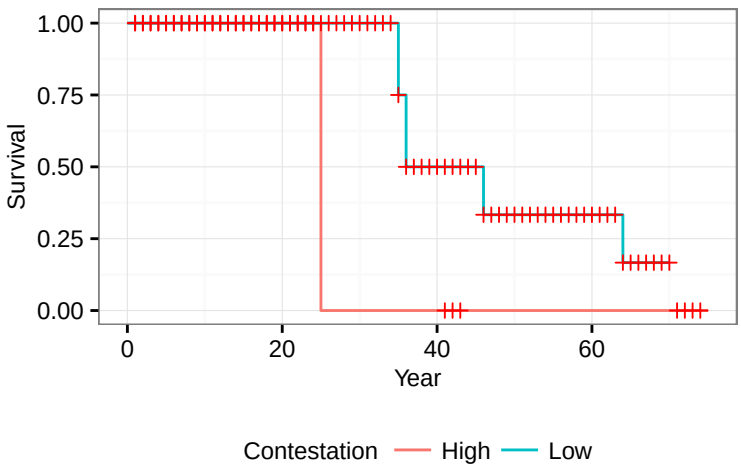

Figure 2: *Kaplan-Meier Curves: Size of the Industrial Sector and the Accelerated Rate of the Imposition of Income Tax Law*

linked through a spurious duration dependence relationship. That is, the occurrence of the outcome of interest (taxation) is not directly related to time itself, but to the degree in which the agricultural sector is contested by the industrial sector. In this sense, what this paper seeks to uncover is how much the size of the industrial sector *accelerates* the imposition of the income tax law. Figure 2 shows the failure rate of the average country in our sample of implementing the income tax law if the size of the industrial sector had increased by half. 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 that both outcomes (inter-elite contestation and fiscal capacities) are not a function of what modernization theorists argue about[57]. As we explain in section VII, economic well-being indicators do *not* predict fiscal capacities nor inter-elite political contestation. Statistical results in section VII strongly suggest that the way in which industrialization is associated to state-building is not channeled through economic "well-being" but through inter-elite contestation.

The imposition of the income tax law opened the political system for inter-elite competition. Figure 3 shows the regime type for each country[58]. We claim that the introduction of the income tax[59] and the first democratic waves were part of the same process of inter-elite conflicts and eventually inter-elite compromises. The nature of this conflictual process is rooted in the unstable

[57] Lipset [1981, 31] for example argues that democracy is "related to the state of the economy. The more well-to-do a nation, the greater the chances it will sustain democracy".
[58] Data from Boix et al. [2012].
[59] The vertical line in Figure 1.

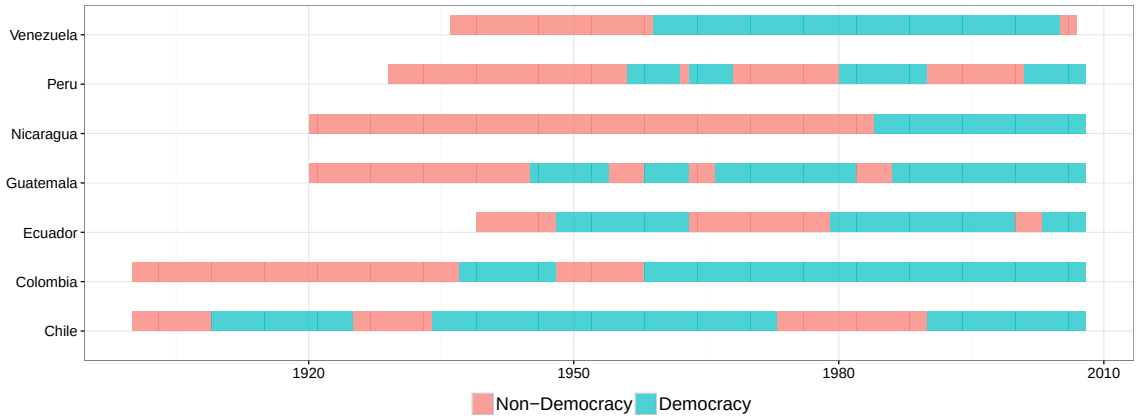

Figure 3: *Historic Regime Type*

relationship between inter-elite political *in*equality and sectoral/economic equality. That is, both the industrial and agriculture sectors being of about the same size, but where only the latter has access to political power, i.e. state power. There have been important recent contributions on the relationship between political development and inter-elite (in)equality[60]. Building on this literature, this paper specifically introduces the state-building question. The argument is related to Stephens et al. [1992, 9], in that the "[c]onsolidation of state power was an essential *prerequisite* for democratization"[61]. However, we relax the causal direction of this mechanism by proposing an *endogenous* causal process between the two. Hence, the opening sentence of this paragraph also reads as a *competitive political system open for elites that made possible the passage of the income tax law*. This endogenous outcome gave way to a number of structural transformations and institutional investments which are detailed now and in the next section.

The mechanism by which progressive industrialization made possible investments in state capacities was the introduction of an oligarchic system that allowed industrial elites to participate in politics in exchange for being income taxed. Open political systems are the most effective ones for processing and aggregating diverse interests[62]. Such a system allowed both sectors to introduce institutions for macroeconomic stabilization and other regulatory institutions. An open-for-the-elites political system also solved commitment problems. As simply promising to keep income tax rates constant was not credible, industrialists sought to use their newly granted political influence to keep those tax rates where they were. This is consistent with what several political economists find. For example, Di John [2006, 8] points out that *in less developed countries*, higher tax collection levels are associated to strong political party systems. Political scientists also find that higher levels of political competition are associated with better institutional designs.

[60] See for example Acemoglu and Robinson [2009, Ch. 9], Ansell and Samuels [2014] and Boix [2015].
[61] Emphasis is mine.
[62] Rodrik [2000, 3].

The introduction of the income tax not only brought political agreements (in the form of an oligarchic democracy), but also inter-sectoral economic compromises. The most important one 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 the middle class and higher levels of urbanization. A common misconception is that industrial protectionism started with the ISI. "The fact that manufacturing was alive and thriving in Latin America before the 1929 crash is now beyond question."[63] ISI in fact is 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." This paper contributes to this literature by arguing that early industrialists were able to bargain tariffs in exchange for income taxation. 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 the "manufacturing production [...] 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"[64].

These transformations triggered a sequence of other institutional investments. Now that both sectors had access to political and military resources, the two elites were interested in protecting each other's property from mutual expropriation. Property rights protection has been associated to economic growth. For example, Grossman and Helpman [1994, 35] argue that secured property rights shifts the incentives to invest in "[i]nnovation [which in turns] sustains both capital accumulation and growth"[65]. Economic growth expanded the tax base too. That is why taxation has also been associated to property rights protection. Timmons [2005, 531] explains that "[t]he more money a state raises from progressive taxes as a percentage of GDP [...] the better it protects property rights."[66] Alternative models developed to understand the European case suggests that the bourgeoisie sought protection against the expropriative policies of the king. However, this paper's claim is that in Latin America, *institutions protected the elite from themselves*. Regime type is also associated to human capital accumulation. Brown and Hunter [2004, 842] find that "[Latin American] democracies devote a higher percentage of their educational resources to primary education." In turn, human capital accumulation laid down the foundation for the emergence of the middle class composed of "urban

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

[64] See also Coatsworth and Williamson [2002, 21]. There is some debate on whether protectionism is associated to 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).

[65] This model has been so called "protection for sale model".

[66] See also Rodrik [2000, 6] for a general overview.

professionals, state employees in the private sector, artisans and craftsmen."[67] The origins of the second critical state-building institution, namely, the formation of modern professional bureaucrats, is endogenous to the formation of the middle-class and the expansion of the state itself. As Collier and Collier [2002, 394] suggest, "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"[68]. **Fiscal capacities, particularly, the imposition of the income tax, was the first state "builder" institution - this paper traces its origins and sketches some of the most important outcomes**.

These structural transformations, namely, accelerated urbanization rates, the formation of the middle class and the improvement of the bureaucracy, are deeply linked to the early development of a strong industrial sector. As a class, they managed to introduce protectionists tariffs and leverage access to the political system. This was possible due to the relatively similar sectoral sizes and as a consequence, relatively similar military capacities. Early in the process, it was in the interest of all parties to sustain both an oligarchic democracy and the income tax law as the "only game in town", in a "*quasi-voluntary compliance*" way[69]. On the one hand, industrialists accepted to be income taxed. On the other, agricultural incumbents granted them political representation and protectionist tariffs. Having both in the same economic/military capacities, no group tries to break the agreement. Industrialists assume a heavier fiscal burden in exchange for exercising political representation in their favor and obtaining protectionist tariffs for their sector. Agricultural elites sacrifice their political monopoly in order to rescue the economy from failure. As the next section explains, the demand for agriculture goods declined, forcing the incumbents to make a compromise with the modern sector. This process was the critical juncture that broke the early agricultural political monopoly. Eventually, the oligarchic systems turned into popular democracies. As human capital accumulated and the levels of urbanization grew, a second structural transformation occurred: the irruption of the masses. As Stephens et al. [1992, 7] argues, "capitalist development is associated with democracy because it transforms the class structure". However, this paper focuses on the first structural transformation (the irruption of a challenging elite) and how that gave way to the first of many institutional investments that eventually transformed the whole economy. Nonetheless, by no means does this paper seeks to find a comprehensive causal path that includes all relevant variables.

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

[68] 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.

[69] Levi [1989].

VI. Unpacking the Mechanisms: Illustrative Case, Chile 1850-1930

This section illustrates the theory by bringing in the Chilean case. From an economic standpoint, in all Latin American economies before and during the colonial period, agriculture was the most important sector. Besides supplying European markets with raw materials, it supplied "a variety of tropical foods and [other] goods [such as] sugar, coffee, and tobacco [...] The demand for such items was stimulated by the rising consumption of the new and prosperous European bourgeoisie"[70].

Politically, agriculturalists monopolized the political realm[71]. For the Chilean case, 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 within a framework in which this cohesive elite increasingly absorbed the elites of the urban commercial and incipient manufacturing sector."

The historiography has contradictory references, however. Some say that they were obvious antagonists. Some have argued, for example, that the landed elite consolidated very strong economic and political monopolies[72]. Others have claimed that this antagonism is wrong[73]. The main argument against this vision is that there was a very blurry division between these "two" classes[74]. For example, landowners were also invested in industry[75]. However, there are some stylized facts that strongly suggest that *in general*, agricultural elites were *primus inter pares*. First, historiographic evidence suggests that the agricultural sector did monopolize politics. 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[76], 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 where the peasantry historically formed a pliable and controllable mass base for conservative and reactionary groups." Second, and as a consequence, fiscal pressures in favor of agricultural taxes were minimal as opposed to mining taxes (as we explain below, one of the first manifestations of industrial activity).

[70] Marichal [1989, 74].
[71] Wright [1975, 45-46].
[72] 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.
[73] See for example Mamalakis [1976, 125].
[74] Bauer [2008, 30, 44, 94, 108].
[75] Coatsworth and Williamson [2002, 23] argue that "[t]he only landowners that mattered in 19th century Latin America politics were those for whom land represented but one asset in a much broader portfolio". In the same line, 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".
[76] Bauer [2008, 45].

As Best [1976, 56] explains, "when all central government taxes are considered, agriculture is still substantially undertaxed relative to the other sectors."[77]. The fiscal structure was heavily biased against non-agricultural interests. As explained by others, "public revenues came almost exclusively from taxes on mining and its exports."[78] Though there was an agricultural income tax, it was weak and abolished after the civil war of 1891. This bias was consistent with any type of governmental interference. Historians argue that "[i]n those areas where the government did interfere in the countryside, the effect was to strengthen the position of the landowning class"[79]. For example, immediately following the independence in 1823, the secretary of the treasury, Benavente, addressed a predominately agricultural congress to propose an agricultural income tax. The congress rejected his idea, especially due to pressures by the landowning class[80]. The few public infrastructure that existed was in favor of the agricultural sector too. 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[81]. For instance, in Chile, a foreign investor "was contracted to build a second state-sponsored railroad that would connect Santiago with the south-central agricultural districts"[82]. This was not an isolated issue, but a clear pattern. Presidents also engaged in the same deliberate 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, which in fact provided most of the state's tax revenues"[83].

The origins of the the industrial sector are much older than the ISI policies of the 1950s. "The development of large-scale, mechanized (and even "heavy") industry can be dated back tothe 1890s in the region's larger economies"[84]. For nearly 400 years, mining was the most important activity unrelated to agriculture. "Minerals had to be processed near the areas where they were mined in order to keep transport costs to a minimum. This led to the construction of foundries and, at times, refineries, which became the cornerstones for the early stages of the industrialization of the mining-based economies"[85]. Although it 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

[77] 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".

[78] Zeitlin [1984, 38].

[79] Bauer [2008, 118].

[80] 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 due to their technocratic skills.

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

[82] Rippy [1971, 85].

[83] Zeitlin [1984, 41].

[84] Haber [2005, 2]. For example, Rippy and Pfeiffer [1948] and Pfeiffer [1952] explain how by the 1870's the carriage industry were put on a firm basis.

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

nineteenth century", but also was very rudimentary showing little or no technological refinement[86]. Most of the mineral-related industry (if not all) was foreign owned, with the exception of Chile[87]. Mining elites made their fortunes during the 1840s-1850s during the mining boom. After the boom, the mining elite shifted their focus to what is considered the first "true" industrial work, which actually was born under agricultural auspices, i.e. the cotton mills[88].

The first "industries" were called *obrajes*[89]. Though servile and slave labor were used at the end of the colonial period, all labor was free and waged 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"[90]. Beyond cotton and the textile industries, early industrialists also processed other agricultural goods[91]. Other industries for domestic consumption also developed around 1900[92]. The industrial sector was boosted by the international arena as well. For example, "[m]eat exports required the development of cold-storage technologies"[93]. 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[94], progressing "from the shop to the factory during the latter half of the nineteenth century"[95]. In Chile, almost all non-agricultural produce were personified by an incipient, yet a strong group of individuals. As historian Francisco Encina described 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 most frequently not

[86] Rippy [1971, 230].
[87] Stephens et al. [1992, 165, 176, footnote 5, 324].
[88] 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 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]).
[89] I.e., Proto-industrial redoubts.
[90] Bethell [1986, 271]. Emphasis in original.
[91] 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]).
[92] Some examples are tobacco, pottery, felt hats, matches, footwear, specially in Argentina, Brazil, Chile, Uruguay and Perú (Rippy [1971, 235]).
[93] Bertola and Ocampo [2012, 129].
[94] Marichal [1989], Rippy and Pfeiffer [1948, 68].
[95] Rippy [1971, 235].

> only close associates, or drawn from the same family, but they were same individuals: Ossa, Edwards, Vicuña Mackenna, Matta, Goyenechea, Cousiño, Urmeneta, Gallo, Subercasaux)"[96].

Most critically, the early industrial class was greatly dominated by foreign investors[97]. Pfeiffer [1952, 139] explains how "[u]nlike a majority of her neighbors, 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 considerably before the turn of the last century" and how the most extensive industrial operations had been dominated by English firms.

From the process of going from mineowners to proto-industrialists, this incipient elite developed a strong sense of social *class* that consistently sought 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."

Additionally, during the 1920s, industrialists started to "form trade associations to engage in lobbying and propaganda as more coherent interest groups,"[98] such as the *Sociedad de Fomento Fabril* (SOFOFA). SOFOA 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 society "was the most powerful associational interest group in nineteenth-century Chile"[99], which was clearly self-conceived in class terms[100].

The first time the agriculture sector engaged in predatory practices was due to the fiscal deficit originated in the deceleration of trade taxes. The deficit put heavy fiscal pressures on rulers to draw on industrial output. Agricultural exports in Chile, such as wheat production, had a boom between 1865-1875 until 1880[101]. 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"[102]. Both fiscal pressures and the lack of a political counterpart forced governments before the 1920s to hold several confiscatory policies. These policies had many "faces". As some historians have argued, incumbents engaged in "nationalization by means of naturalization, government intervention, and

[96] In Zeitlin [1984, 30]. Emphasis in the original. Similarly, Wright [1975, 48] supports the thesis that the nitrate development did lead to the development of an "incipient industrial establishment".
[97] Rippy and Pfeiffer [1948, 295].
[98] Weaver [1980, 107].
[99] Wright [1973, 244].
[100] Wright [1975, 51].
[101] Bauer [2008, 68-69-70]. See also Lederman [2005, 55]. Declining custom duties also happened in several other countries of Latin America. See Bulmer-Thomas [2003, 245].
[102] Lederman [2005, 54-55].

government participation"[103]. Chile, Perú, Uruguay, among others, went through a clear process of nationalization for non-agricultural assets around the 1920s[104].

In Chile, for example, these two sectors had enough antagonistic preferences that they initially confronted each other in two bloody civil wars. 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 economic balance paired with inter-elite political inequality*. The sectoral balance was tested in two wars. However, given the relatively similar military capacities, both sectors were forced to redefine their strategies. The rate of speed of industrial growth leveraged the industrial elite, helping them to get better terms. Three institutional components were incorporated: an income tax, political representation for the industrial elite 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*"[105]. Additionally, the industrial sector heavily campaigned for policies favorable to them, particularly, economic protection. The SOFOFA pursued an agenda in favor of protective industrial tariffs[106]. 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"[107]. 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"[108].

Inter-elite compromises and the introduction of extractive institutions played a mayor role in the Chilean state-building process. The collapse of the agricultural market forced the traditional sector to make both political and economic agreements. The income tax law forced the state to develop skilled bureaucracies to monitor individual incomes, while tying both elites in a political compromise. During the structural transformations, the early Chilean government "was able to impose a substantial tax [...] and pay the salaries of government and military employees"[109]. Importantly, the income tax law was influential beyond Santiago, the capital city, but in the whole territory. *Art. 104* and *Art. 105* of the *decreto* number 1269 empowered all municipalities in the collectection of tax. All municipalities had to send a detailed list of taxpayers twice a year[110]. Additionally, protectionist tariffs helped to develop an even stronger industrial sector, which in turn established the basis for the new middle class, the most important ingredient for the development of

[103] Rippy [1971, 238].
[104] Chua [2010].
[105] Carmenza Gallo, in Brautigam et al. [2008, 165]. Emphases are mine. She refers specifically to nitrate producers.
[106] Lederman [2005, 54] and Haber [2005, 18].
[107] Haber [2005, 18].
[108] Collier and Collier [2002, 393].
[109] Bauer [2008, 80]. He refers particularly to taxes on "nitrate exports", another non-agricultural source of growth.
[110] As article 104th 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".

the modern bureaucracy. The aperture of the political system, while breaking the agricultural-led political monopoly, also helped the industrial class to gain influence in how the income tax was spent and other policies. 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 too. As Collier [1977, 683] points out, "the real story of Chilean industrialization belongs to the Parliamentary period", between 1891 and 1925, right after the civil war. Since taxation was the exchange currency of political representation, the inter-elite compromise was in the interest of all parties involved. As Kurtz [2013, 36], explains, the "incorporation of upper-class actors from all major factions into the national political system [was] crucial to enabling cooperation in state building and public goods provision activities". Furthermore, the inter-elite alliance was key to centralize power and to "impos[e] substantial taxation"[111].

VII. Econometric Analyses

In this section we test that inter-elite economic equality posited challenges to agricultural political incumbents. Following Aidt and Jensen [2009], we model the conditional hazard ratio that a country which has not yet adopted the income tax adopts in a given year as a function of the relative size of the agricultural and industrial sectors. We compute these hazard ratios using several functional forms. First, we assume a Cox proportional hazard parametrization to compute the hazard rate of a country at a given year to "fail" (i.e., implement the income tax law) conditional on baseline covariates[112]. Countries drop out of the sample when they adopt the income tax.

Additionally, we employ other functional forms too. We 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[113]. This method is especially well suited when the data are binary[114]. 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"[115], Zorn [2006, 338] explains that whereas the choice of estimator makes little or no difference, the unit on which the data are grouped introduces a great deal of differences. 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, we assume an "independence" working covariance structure, that is, there are "no within-unit correlation"[116]. From a substantive standpoint, GEE models provide an

[111] Kurtz [2013, 37].
[112] Box-Steffensmeier and Jones [2004].
[113] Zorn [2006, 322].
[114] Hanley et al. [2003].
[115] 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.
[116] Zorn [2006, 332].

estimated marginal mean, that is, the weighted average of all cluster-specific effects (or conditional means).

We also employ a conditional logit form ("fixed effects" model). One important advantage of this strategy is to be able to account for country-specific effects. For example, fiscal capacities could be a function of prior state-building capacities[117]. A number of scholars rightly argue that state capacities at time t are in part a function of state-capacities at time $t-1$ (Wimmer [2015, 10], Mahoney [2010] and Lange et al. [2006, 1426]). Fixed-effects should be able to account for this and other unobserved or/and hard-to-measure covariates, which if left unaccounted for would introduce omitted variable biases[118].

In order to account for time dependency, we included different time-transformed variables, in the form of a lagged dependent variable to account for partial adjustment of behavior[119] and also time-transformed functions[120] "through the use of the natural log transformation [and] polynomials [to capture] different forms (or "shapes") of the baseline hazard"[121].

Additionally, in order to test that income taxation initiated a *path* of institutional investments, particularly opening the political system for oligarchic competition, Andersen-Gill models[122], a generalization of the Cox models[123], were incorporated. Using a slightly different data structure[124] and within a multiple failure-time framework, the *jointly* 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[125]. Though this paper proposed an endogenous relationship between both outcomes, here we adopt a strategy that tries to break this possible endogeneity "problem"[126]. We fit two Cox models, having taxation on the RHS and political competition on the LHS for the first model, and then we invert these two covariates for the second model.

Another model was included to account for spatial dependence [127]. Given that the set of countries we are 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 first effect than 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. For last-implementers, it should be easier. To account for spatial dependence, a

[117] I thank Matthias vom Hau for this suggestion.
[118] Angrist and Pischke [2008].
[119] Wawro [2002].
[120] Carter and Signorino [2010].
[121] Box-Steffensmeier and Jones [2004, 75].
[122] Andersen and Gill [1982].
[123] Therneau and Grambsch [2000, 185]. Box-Steffensmeier et al. [2014, 2] explain that AG models are "Cox model[s] with robust standard errors".
[124] This data structure is different in the sense that countries drop out of the sample once *both* income taxation *and* democracy occur.
[125] Box-Steffensmeier et al. [2006, 240].
[126] I thank Christopher Zorn for this suggestion.
[127] I thank both Christopher Zorn and David Darmofal for this suggestion.

cumulative count of countries which have implemented the law at time t was included[128].

Finally, to rule out modernization-like theory 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. Data and Sample

We estimate all models using the MOxLAD dataset[129]. This dataset provides extended comparable sectoral value-added series in constant purchasing power parity prices[130]. Our sample is given by all Pacific coast countries for which we have available data, that is, Chile, Ecuador, Nicaragua, Venezuela, Perú, Colombia and Guatemala (see Figure 1). The time span goes from 1900 to (potentially) 2010. Observations are left-censored before the timespan and right-censored once they impose the tax income for the Cox models and when *both* democracy and the income tax occur (for the "multiple failure" models[131]).

II. Results

Table 1 shows six models[132]. 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 jointly realization of both the income tax and democratization. The sixth model shows a GEE logistic regression model. The seventh and eight models show 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 a per capita GDP. For the Cox, Andersen-Gill models, 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

[128] 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. Rather than that, we opted for clustering the results at the counting variable level. The intuition is that countries are exposed to a cluster number that increases with time.

[129] "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".

[130] See Astorga et al. [2005, 790].

[131] "Taxation-Democracy", "Democracy-Taxation", "Spatial Dependence" and "Modernization Theory" models.

[132] 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*

increasing as a function of the covariate (and hence, the survival time is decreasing) and a negative sign indicates the hazard is decreasing as a function of the covariate"[133]. In this application, the hazard is either implementing the income tax law or switching to a democratic state, or both (depending on the model). For the conditional logit and GEE models, the coefficients are in logit scales.

These results strongly suggest that higher levels of industrial output are associated to the imposition of the income tax. In substantive terms, 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 significances do not change either. However, once we assume them to be different and try to break the endogeneity "problem", we see that oligarchic competition "causes"[134] income taxation, but not the other way around (model 7 and model 8, respectively). Once we cluster by early and late-implementers, results remain substantively identical. Finally, once per capita GDP is included, the model crashes, neither this measure of well-being nor more industrialization levels predict oligarchic competition/democracy nor fiscal development. The GEE model includes a measurement of population density. Population has been associated to the probability in which elites expanded the franchise. 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[135].

[133] Box-Steffensmeier and Jones [2004, 50].
[134] We use the term loosely, without claiming any causal inference in this paper.
[135] Engerman and Sokoloff [2005, 892-893].

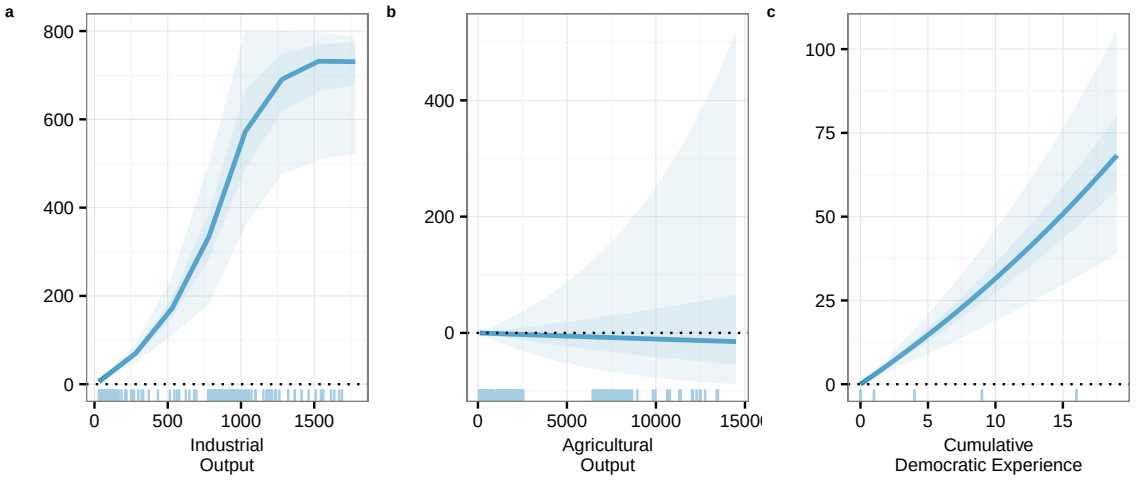

Figure 4: *First Differences of Industrial Output, Agricultural Output and Democratic Experience*

Following Gandrud [2015] and King et al. [2000], Figure 4 shows in three panels, different variable of interests simulated 2,000 times. Using a variant of model 2 in Table 1[136], panel **a** and **b** simulate the average effect of industrial and agricultural outputs on the passage of the income tax. 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 introduction of the income tax, while higher agricultural output did not play a role in the modernization of the fiscal system. We argued in favor of an endogenous process between 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). We leave this question open for future research.

III. Robustness Checks

Cox *proportional* models rest on the assumption that hazard rates are *proportional* to time dynamics[137]. Non-proportional hazard model are becoming an increasing problem across all subfields in political science[138]. In this section, we test whether this assumption holds. Non-significant p-values indicate that the proportionality assumption holds. Also, Figure 5 shows how the spline fitted lines are constant across time. Each of the seven dots represents the regression coefficients of our seven

[136]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, and hence, one sector acts as the control variable of the other sector. 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.
[137]Box-Steffensmeier and Jones [2004].
[138]Licht [2011].

countries[139]. 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
```

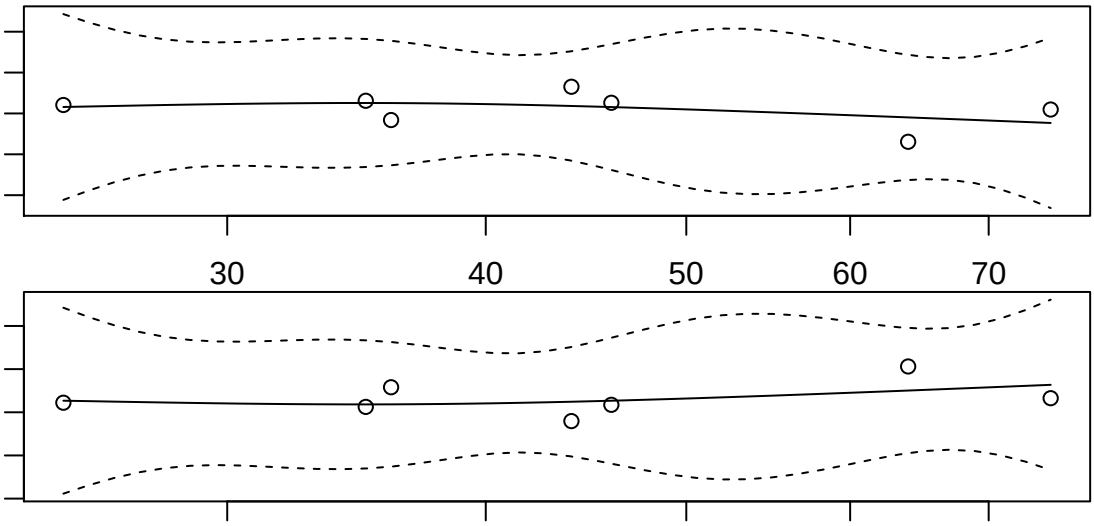

Figure 5: *Graphical Plots of the Estimates against Time*

VIII. Discussion

The paper argued that in order to understand state capacities, it is necessary to understand the origins of the main "state-builder" institution, i.e. income taxation. Direct taxation, and especially, income taxation (being a much more complicated tax to collect), requires 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 and other institutional investments too. Our theory claims that the countries that made the big jump sustained fast industrial growth rates. These rates challenged the traditional sector, forcing them to make political concessions with the modern sector. One of the most important ones was the aperture of the closed post-colonial political system, granting access to industrial organized groups. Specifically, the industrial class accepted to be income taxed in exchange for the ability to participate in politics. In terms of economic compromises, the industrial elite managed to articulate its demands

[139]This is for our main model, column 2 in Table 1.

as a coherent class, eventually passing industrial tariffs to protect their sector. In this sense, the analytical device that allowed the rupture of the old political monopoly was similar sectoral output levels between elites. It is inter-elite *equality* that causes state formation and cooperation, not inter-elite inequality as other scholars have claimed. A situation of balanced growth potentially allowed each sector to acquire the same level of military power, deterring sustained conflict and forcing both political and economic compromises. Importantly, it is in this way that industrialization is important (as a contestation device), not in the way modernization theorists have argued.

IX. 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*

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