

No direct taxation without new elite representation: Industrialization and the domestic politics of taxation

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Abstract. The nineteenth century marked the founding period of modern public finance. We examine the domestic and non-war related determinants of direct taxation in this early democratic period and in a state building context. We argue that the reasons for the expansion of direct taxation can be found in the political competition between different elite groups in the context of industrialization. Systematically differentiating between economic and political arenas, we show that intra-elite competition in industrializing economies leads to higher levels of direct taxation only if the new economic elites are able to translate their economic power into the political arena, either through the representative system or by extra-parliamentary means. In addition, we demonstrate that these processes are directly linked to public investments in policy areas related to the interests of new economic elites such as public education. Our analysis is based on novel subnational data from the period 1850 to 1910, enabling us to concentrate on the domestic determinants of direct taxation.

Keywords: Democracy; Elites; Taxation; State building; Industrialization; Politics of growth/development

Introduction

The state's role in society has dramatically changed throughout the nineteenth century. States evolved from simple providers of security to interventionist actors, increasingly shaping all aspects of their subjects' lives (Scott 1998). In parallel, it became necessary to find sustainable and efficient sources of revenue, most notably to fund infrastructure development and public education (Ardant 1975). The so-called 'liberal age' thus marked the founding period of modern public finance, in particular with regard to the turn to direct taxes (Cardoso & Lains 2010). However, the expansion of the tax state occurred at different paces and at different times. While some states moved to direct taxation early on, that is taxes imposed directly on persons or organizations, others continued to primarily rely on the (indirect) taxation of transactions (Steinmo 1993).

An emerging literature has addressed the question of why states increasingly turned to direct forms of taxation throughout this period (e.g., Aidt & Jensen 2009; Dincecco 2011; Mares & Queralt 2015; Seelkopf et al. 2016, forthcoming; Andersson 2018; Beramendi et al. 2019; Barnes 2020). In terms of extractive capacity, direct forms of taxation were considered superior to other existing forms of revenue generation (Mann 1978; Morgan & Prasad 2009; Cardoso & Lains 2010). Yet, direct forms of taxation may trigger resistance. Given that direct taxation is linked to the subjects' capacity to pay (in terms of wealth and income), opposition could emerge from groups likely to control most of the political power in the nineteenth century. As a result, several scholars have linked direct forms of taxation to the increasing political power of poor members of society (Peters 1991; Acemoglu & Robinson 2000; Boix 2003).

We offer a different account of the determinants of direct taxation. In line with the literature on the role of intra-elite competition in democratization and state-building processes

(e.g., Ziblatt 2008; Ansell & Samuels 2014; Beramendi et al. 2019), we argue that the reason for the growth of direct taxation in early democratic periods can be found in the competition between different elite groups. More precisely, industrialization processes led to the emergence of new economic elites and subsequent calls for a turn to direct taxation to fund an expanded role of the state in society in areas such as public education and infrastructure development (Lizzeri & Persico 2004). Thus, in emphasizing how new economic elites pushed for progressive reforms, our approach challenges existing research claiming that direct taxation was introduced by old elites to extract resources from the emerging economic elites (e.g., Mares & Queralt 2015, 2019).

Differentiating between intra-elite competition in the economic and political arenas, we demonstrate that intra-elite competition and industrialization processes interacted to boost direct taxation. Industrialization led to the creation of new economic elites, but in early democratic societies, non-inclusive political systems made it difficult for new elites to gain political power (Katz & Mair 1995). Existing contributions often conflate these two forms of intra-elite competition, simply assuming that industrialization created intra-elite competition in *both* arenas or taking the existence of multiple economic elites for granted (e.g., Mares & Queralt 2015; Beramendi et al. 2019). We show that spending pressures caused by industrialization did not result in the expansion of taxation. Instead, intra-elite competition in industrializing economies led to higher levels of taxation only if the new economic elites gained political power. These new elites often pushed for direct forms of taxation because of their potential for revenue growth, but also because political representation allowed new economic elites to monitor and control spending, ensuring that spending would have positive economic benefits. In addition, we show that while intra-elite competition typically works through the representative system, it can also involve extra-parliamentary means. Finally, we demonstrate that direct taxation is associated with public investments in policy areas related to economic growth and state building such as public education.

Periods of warfare complicate the analysis of direct taxation. Echoing research on the early modern era (e.g., Tilly 1975; Levi 1988; Kiser & Linton 2001), recent contributions show how interstate wars triggered growth in direct taxation also in the nineteenth century (e.g., Scheve & Stasavage 2016; Queralt 2019). We certainly do not question the relevance of war. Yet, the effect of war is often such that it overshadows *complementary* explanations emphasizing domestic factors (Bartelson & Teorell 2018). By focusing on Swiss cantons in the period 1850–1910, we control for the effect of war by examining the domestic determinants of direct taxation in a setting where our cases were not involved in any interstate war. Importantly, throughout this period, the Swiss federal state had no prerogative to introduce direct taxes.

The next section develops our argument about the conditional effect of intra-elite competition on direct taxation. After the discussion of our case selection, we introduce the dataset. Subsequently, we present quantitative and qualitative evidence on the effect of intra-elite competition. The final section discusses the implications of our findings.

The domestic roots of direct taxation

This section develops an argument to account for the domestic roots of direct taxation in the ‘liberal age’, that is the period from the early nineteenth century to World War I during which most of the groundwork for the modern tax state was laid (Cardoso & Lains 2010). We first highlight the role of industrialization processes in creating revenue needs. Subsequently, we conceptualize the politics of taxation in newly industrializing states as a conflict between two or more elite groups.

Finally, we address the question why new elites preferred to rely on direct rather than indirect forms of taxation.

The literature on modern public finance highlights – next to war and democracy – the role of industrialization in creating the need to expand the state’s role in society (Ardant 1975; Steinmo 1993; Morgan & Prasad 2009). Prior to industrialization, an old elite – typically linked to pre-industrial economic activities – monopolized economic and political power. This old elite had little interest in fiscal capacity, as its main economic interests were based on landholding and agricultural production, which did not require large investments in public goods (Lizzeri & Persico 2004; Galor et al. 2009; Beramendi et al. 2019). In this period, indirect taxes such as excise taxes (e.g., on alcohol) or taxes on trade constituted the principal source of revenue (Peters 1991: 227–228), while intra-elite competition did typically not reflect economic interests but other societal conflicts.¹

Industrialization led to the emergence of new economic elites linked to commerce and industrial forms of production. These new elites had an interest in expanding fiscal capacity to fund public goods that contribute to improving economic productivity and state building, most notably infrastructure development and public education (Ardant 1975; Lizzeri & Persico 2004; Galor et al. 2009; Aidt et al. 2010; Baten & Hippe 2018; Beramendi et al. 2019).² Unsurprisingly, these new elites also challenged the old elites’ claim to power (Tilly 2004; Ziblatt 2008; Ansell & Samuels 2014). Yet, whether new elites were able to expand fiscal capacity to fund state building was a function of political processes. By itself, industrialization does not lead to an increase in fiscal capacity if political control is monopolized by the old elite.

In early democratic societies, such monopolization of political power is the rule rather than the exception. Non-inclusive political systems tend to benefit old elites and make it difficult for new elites to gain political power (Schedler 2002; Birch 2011). Hence, there is nothing automatic about the translation of industrialization processes into political competition. In the absence of intra-elite competition in the political arena, the political system is not responsive to the new economic elites’ demands for increases in fiscal capacity. In this case, industrialization might lead to the creation of new economic elites, yet their inability to influence public policy neutralizes any effect on direct taxation.

If industrialization has led to the emergence of new economic elites with an interest in expanding fiscal capacity, we expect intra-elite competition in the political arena to boost taxation. Intra-elite competition is carried forward into the political arena if new elites are able to gain substantive representation in parliament or, in particular, government. In nineteenth century Swiss cantons, political power mainly rested with the cantonal executives, which consisted of up to 15 politicians (Walter & Emmenegger 2019b). Members of the executive were elected individually, which allowed for political competition. While new economic elites were often unable to gain political dominance in the nineteenth century, they sometimes participated in coalition governments with old elites or even temporarily gained government control. The representation of multiple political groups in government thus indicates that there is a minimum level of intra-elite political competition.

However, new elites need not necessarily mobilize through the representative system. Alternative, extra-parliamentary pathways to political competition are provided by extra-institutional mobilization (Barzachka 2014), citizen assemblies and town hall meetings (Hinnerich & Pettersson-Lidbom 2014), or direct democratic institutions (Leemann & Wasserfallen 2016). In the Swiss political context, we focus on direct democratic institutions, which allow new elites

to pursue their political interests by means of popular votes.³ While direct democratic instruments may be used by any citizen, their successful use requires a level of organization and resourcefulness that turns them into instruments of intra-elite competition – in particular in the context of nineteenth century politics with suffrage restrictions even in formally democratic countries (Gruner 1964; Neidhart 1970). Hence, even if other elite groups are excluded from political power in the representative system, direct democratic instruments give these elite groups extra-parliamentary opportunities to influence political decision-making.

Next to overall taxation, elite groups had to decide on the form of taxation. In the context of nineteenth century politics, there were several options available, most importantly trade taxation and other forms of indirect taxation (in particular excise taxes). However, trade taxation increasingly fell out of favour in the ‘liberal age’ (Cardoso & Lains 2010), in particular with the new economic elites themselves, as it hampered international trade and economic activity (Mann 1978; Seelkopf et al. 2016). Landed elites were typically more favourable to trade taxation, but mostly for its protectionist effects (Morgan & Prasad 2009; Barnes 2020). Indirect taxation remained popular with the elites, but repeatedly triggered tax revolts by the masses (Tilly 2004), as it disproportionately affected low-income citizens. In addition, there was limited room for expansion, as modern forms of the general sales tax had not yet been discovered (Helgason 2017; Seelkopf et al. 2019), while indirect taxes on specific goods (e.g., alcohol) were already common.

In this situation, attention increasingly turned to direct forms of taxation (Beramendi et al. 2019), which were also generally considered to be the most effective and least distorting form of revenue collection (Morgan & Prasad 2009) – not least by the advocates of liberal forms of modern public finance themselves (Mann 1978; Cardoso & Lains 2010). Throughout the nineteenth century, states increasingly managed to develop the administrative grid necessary to extract from their subjects revenue that was more closely tied to their actual capacity to pay (Scott 1998: 23). In addition, this form of revenue collection also offered the most potential for growth. Thus, even if new elites had preferred trade or other forms of indirect taxation, these forms of revenue generation would not have been sufficient to fund the demanded public goods. The politics of taxation in the nineteenth century is thus primarily the history of direct taxation (Mann 1978; Cardoso & Lains 2010; Beramendi et al. 2019).

Yet, most importantly, new economic elites pushed for direct taxation because political representation allowed them to monitor and control spending. Building on the contract theory of taxation (e.g., North & Weingast 1989; Timmons 2005), Dinicecco (2011) argues that more substantial tax revenue was possible because new economic elites themselves could ensure that spending would have positive economic benefits. As a result, new elites were willing to shoulder a large share of the fiscal burden, because they could expect to be among the main beneficiaries of public spending (Lizzeri & Persico 2004; Aidt et al. 2010). In line with recent research emphasizing intra-elite competition in democratization and state-building processes (e.g., Ansell & Samuels 2014), we therefore do not expect increased government revenue to have resulted in redistributive spending. Instead, additional government resources flew into spending on public policies with positive economic benefits such as infrastructure development and public education (Lizzeri & Persico 2004; Galor et al. 2009; Aidt et al. 2010; Baten & Hippe 2018). Hence, while we also expect to find a conditional effect of political competition on overall taxation, we expect to find a particularly strong effect on direct forms of taxation.

Direct taxation in Swiss cantons

Empirically, we focus on the development of direct taxation in 25 Swiss cantons in the period 1850 to 1910. We thus analyse the effect of intra-elite competition on direct taxation in an early democratic and state-building context and in the absence of war. Although Switzerland is often considered a full democracy since the mid-nineteenth century, single-party dominance was common. For instance, the average number of parties in cantonal governments remained below two until late in the nineteenth century (Walter & Emmenegger 2019b: 10). In addition, Swiss politics was characterized by electoral engineering and the underrepresentation of political minorities. Although such processes have primarily been documented for the federal level (Gruner 1978; Natsch 1972), the situation was not any different at cantonal level (Walter & Emmenegger 2019a).

Upon the creation of the federal state, the constitutional division of fiscal competencies between levels of government was decisively decentralized. The cantons retained almost all of their fiscal autonomy since only the right to levy custom duties at the border (i.e., trade taxation) was transferred to the federal level. In particular, Swiss cantons maintained the exclusive right to introduce direct forms of taxation.⁴ It was not until 1958 that the federal state was awarded the constitutional right to collect direct taxes. In turn, the federal state was responsible only for external security, foreign policy, and the single market during the first decades. Hence, throughout our period of investigation, Swiss cantons had complete freedom in designing their systems of direct taxation, while they could not resort to trade taxation.⁵

In addition, throughout the period 1850 to 1910, Switzerland was not involved in any interstate war. Swiss military spending took place at federal level, but was financed by means of cantonal transfers, which were determined as a function of the cantons' size. Hence, military spending, which remained low throughout the period, affected cantons in similar ways. Nevertheless, we conclude our investigation before World War I, because this conflict triggered new revenue needs, although Switzerland was not directly involved. Focusing on Swiss cantons in this period thus allows examining the *domestic* determinants of direct taxation. We do not intend to question the relevance of war for tax development, but its substantive effect is often such that it overshadows complementary explanations focusing on domestic factors (Bartelson & Teorell 2018).

However, direct taxation often preceded World War I (Mann 1978; Cardoso & Lains 2010; Seelkopf et al. 2019). Figure 1 displays the share of Swiss cantons relying on the taxation of income and wealth, respectively, in a given year. The figure shows that all Swiss cantons had introduced permanent direct taxes already during the nineteenth century. By 1910, all cantons knew a wealth tax, while more than 70% of the cantons had introduced a tax on income. Moreover, revenue from direct taxation increased on average by a factor of 6.2 (median 7.9) in the period 1850 to 1910 (see Figure 2). In contrast, revenue from indirect taxation increased on average 'only' by a factor of 3.0 (median 3.2). As a consequence, the average share of direct taxation in total taxation grew from 46% (median 52%) in 1850 to 73% (median 76%) in 1910. There is thus considerable variation in direct taxation that cannot be explained by interstate war.

A second reason to conclude our investigation in 1910 is related to the fact that this period marked the 'end of elite politics' (Natsch 1972: 152) and the creation of national parties, thus the beginning of modern mass democratic politics. Switzerland's main political parties were created in the period from 1888 to 1919. However, while established (nationally) in 1888, the Social Democratic Party remained politically weak until World War I, holding only around 2% of all seats in cantonal governments in the period 1900 to 1910 (Walter & Emmenegger 2019b: 7).

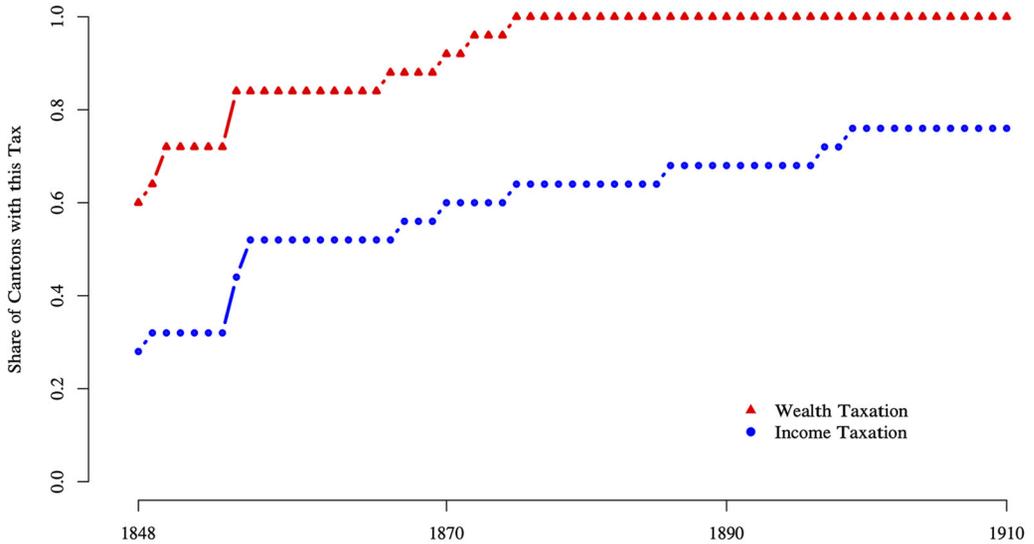


Figure 1. Cumulative share of cantons with taxes on income and wealth, 1848–1910. [Colour figure can be viewed at wileyonlinelibrary.com]

Notes: Points indicate the share of cantons that have a tax on income and wealth, respectively, in a given year.

Instead, cantonal politics was characterized by elite competition between several liberal and conservative groups (Gruner 1977; Vatter 2016), which together controlled almost 100% of the seats in cantonal governments in the period 1850 to 1910 (Walter & Emmenegger 2019b: 5). However, these local elite groups did not form national parties until 1894 (Radicals), 1905 (Democrats), 1912 (Catholic Conservatives), 1913 (Liberals), and 1919 (Protestant Conservatives), respectively. Research further shows that members of cantonal parliament in the period 1850 to 1910 were almost exclusively recruited from local elite groups (Gruner 1978: 931–935). Therefore, in order to avoid conflating different factors, we focus exclusively on the period 1850 to 1910. However, in order to demonstrate that our results also hold for the period before the creation of *any* national parties, we run models focusing on the period 1850 to 1885 in the section on robustness tests.

By selecting the Swiss cantons as cases, we follow the recent literature that increasingly focuses on developments within single countries (Pepinsky 2019). In contrast to cross-country studies, this design helps to reduce the number of unobservable and unquantifiable historical differences because all cantons were similarly affected by broader trends. For instance, all cantons were early democracies in the mid-nineteenth century, thus allowing us to hold constant the regime type (on the role of democracy, see, for instance, North & Weingast 1989; Kato & Tanaka 2019). Hence, the focus on Swiss cantons increases our confidence that the results are not driven by omitted variable bias or changing units of analysis. Despite providing a more homogeneous sample, however, we still have considerable variation across cantons and time. Given the advantageous attributes of our research design, we are not the first to focus on the Swiss cantons to investigate the link between socioeconomic development, political institutions, and economic policies (e.g., Wasserfallen 2014). Therefore, our case selection is well established in the study of public policies.

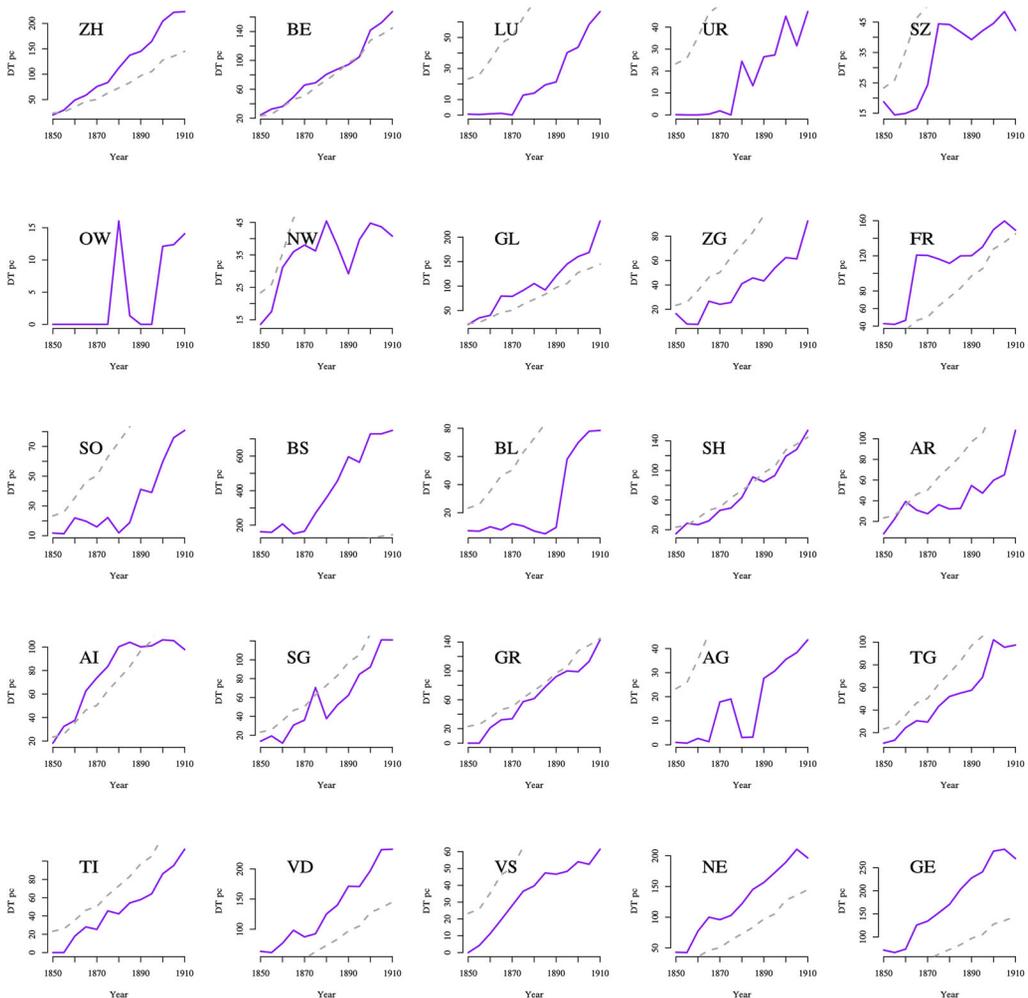


Figure 2. Direct taxation per capita in Swiss cantons, 1850–1910. [Colour figure can be viewed at wileyonlinelibrary.com]

Notes: Each plot shows the development of direct taxation per capita in a given canton in the period 1850–1910. Solid line shows p.c. cantonal direct taxation, and dashed grey line shows the average across all cantons.

Data

We have engaged in a multiyear data collection effort to create a novel data set on cantonal political systems and public income patterns. To address concerns about the quality and comparability of data in comparative research, we have followed a systematic coding procedure.

Our dependent variable is direct taxation, measured in five year steps, expressed per capita and deflated by using the annual consumer price with the base year 2000 (see Figure 2). We have collected the original cantonal budgets and constructed an indicator for direct taxation (i.e., taxes imposed directly on persons or organizations). The measure primarily consists of taxes on income and wealth but also head taxes or specific corporate taxes. In addition, we re-run our models using

total taxation as our dependent variable. As Table A8 in the online appendix demonstrates, we find the same, albeit considerably weaker, conditional effect of intra-elite competition on total taxation. This finding should not come as a surprise though, as direct taxation constituted a large and growing share of total taxation (see above).

Scholars often rely on the adoption year of specific forms of direct taxation without taking into account how they relate to the existing tax system (e.g., Aidt & Jensen 2009; Mares & Queralt 2015). Yet, income and wealth taxes are often complemented by a large number of other direct taxes on specific forms of income or wealth. In addition, the adoption of certain taxes might be delayed in some countries because of fiscal decentralization or other direct taxes (e.g., on wealth) acting as substitutes.

Therefore, we follow Beramendi et al. (2019) and examine how intra-elite competition affects the yield from direct taxation. However, we analyse potentially more homogeneous data and focus on a specific period in the history of direct taxation. While Beramendi et al. (2019) analyse data from a rather diverse group of 31 countries over a 140 year period (1870–2010) intersected by several cases of interstate war, we focus on early democratic politics and the period of state building (1850–1910) in a country not involved in any interstate war in this period.

We use a number of political variables in our model specifications. To capture the political representation of new economic elites, we calculate the negative Herfindahl index using party seat shares in government. Higher values (closer to 1) indicate that new elites were increasingly able to enter cantonal governments and thus undermine the old elites' dominant position. Data on the partisan composition of cantonal executives comes from Walter and Emmenegger (2019b).⁶

We rely on the Herfindahl index, because elite competition is often not restricted to two elite groups (e.g., Liberals vs. Conservatives). Instead, several elite groups compete with each other. In addition, elite competition is not simply about rural versus urban interests, as is often, inspired by the British case, assumed in the literature. Rather, elite competition may also concern social stratification within industrialized areas. For instance, in Swiss cantons, the Liberals emerged as the main competitors to the Conservatives in the early nineteenth century. The Liberals aimed for progress in the sense of a modern liberal-radical federal state and additional state intervention, whereas the Conservatives favoured the old confederation with complete sovereignty of cantons and supported an anti-modern conservatism (Gruner 1977: 53; Vatter 2016: 101).

However, after the Liberals' successful access to political power, a new group *within* the liberal movement appeared, the Radicals, which attacked the Liberals for their insufficiently democratic and modernizing policies, branding the latter 'Liberal-Conservatives' (Zitt 1928; Gruner 1977; Vatter 2016). Towards the end of the nineteenth century, the Democrats emerged, now attacking these groups for their 'elitism' and demanding more interventionist policies (Gilg 1951; Schaffner 1982). The Democrats were followed by the Social Democrats at the end of the nineteenth century. However, the Social Democrats were no longer an elite party and increasingly turned their attention to redistributive policies rather than policies aimed to create economic benefits (Meierhans 1921; Gruner 1977), which is why we stop the empirical analysis before the Social Democrats became a relevant political force. Hence, we use the Herfindahl index to capture this process of expanding the number of elite groups.

We argue that intra-elite competition in the political arena leads to higher levels of direct taxation in industrialized economies. However, new elites need not necessarily mobilize through the representative system. In Switzerland, new economic elites could also rely on direct democracy. We employ a composite measure of different direct democratic instruments to capture

such extra-parliamentary forms of political competition. The historical direct democracy index consists of different instruments such as initiative and referendum rights (Leemann 2019). Higher values indicate that more direct democratic instruments are available and their use is linked to lower economic costs such as low signature requirements and longer signature collection periods.

We control for the emergence of modern mass democratic politics using data on the representation of the Social Democratic Party and the Democratic Party in cantonal governments. The Social Democratic Party is clearly the first Swiss ‘mass party’ and thus the harbinger of modern mass democratic politics. Yet, as mentioned, the Social Democrats were a marginal political group until World War I. The Democratic Party was more influential, although its status as a modern mass party is certainly more questionable (Gruner 1977). Before its creation at national level in 1905, the Democratic Party primarily organized local elites who were in opposition to dominant elite groups (Gilg 1951; Schaffner 1982). However, the Democrats were strong advocates of direct democracy and pursued a rather left-wing political agenda (Kriesi & Wisler 1999). Hence, among the old ‘elite parties’, the Democrats probably come closest to a politically relevant representation of non-elites.

To control for the tax–vote link (Mares & Queralt 2015), we rely on a binary indicator to measure whether suffrage is limited by excluding specific economic groups such as those who do not pay any direct taxes (Leemann 2019). In addition, we include different socioeconomic, administrative and budgetary measures provided by the national census and cantonal budgets, respectively. Most importantly, we use the share of non-agricultural employment to capture industrialization. To capture spending pressures that are not directly the result of industrialization, we include the annual deficit and federal payments to cantons (both per capita). In addition, as a proxy for administrative capacity (Kiser & Kane 2001; D’Arcy & Nistotskaya 2018; Brambor et al. 2020), we code whether cantons had printed rather than hand-written accounting documents.

Finally, we control for agricultural inequality (Zibblatt 2008; Mares & Queralt 2015). This measure is often based on farm size, which is reasonable for a predominantly grain-based agricultural system. The agricultural system in nineteenth century Switzerland was, however, mainly focused on dairy because imported grain was cheaper (Steiger 1982). We therefore rely on an agricultural inequality measure based on herd numbers, specifically the number of cows per farm. In the online appendix, we show that cow-holding inequality is more closely related to landholding than any other inequality measure (based on pigs, goats and horses). The animal counts stem from records that were updated roughly every 10 years, beginning in 1866. We interpolate from 1866 onward and extrapolate for the years before 1866. A more detailed description of the indicator is provided in the online appendix.

Empirical tests

We estimate different panel models to test our hypotheses. We vary the model specifications according to the political mechanism emphasized in the theoretical argument. The outcome data displayed in Figure 2 show certain common shocks. Therefore, we add unit- and time-fixed effects. The outcome is regressed on its lag, and we use corrected standard errors that are robust to heteroscedasticity and autocorrelation (Arellano 1987). The explanatory variables are stacked in a matrix ($\mathbf{X}_{t,c}$). In the main models below, $\mathbf{X}_{t,c}$ contains our three main variables of interest

(industrialization ($IND_{t,c}$), political representation of new elite groups ($REP_{t,c}$), extra-parliamentary political competition (i.e., the historical direct democracy index, $HDDI_{t,c}$), the lagged outcome variable, deficit per capita, federal payments per capita, a dummy for cantons that exclude certain citizens from voting for economic reasons, the political strength of the Social Democrats and the Democrats and our indicators of administrative capacity and rural inequality. To capture the hypothesized mechanisms, we further interact the political variables ($REP_{t,c}$ and $HDDI_{t,c}$) with our indicator of industrialization ($IND_{t,c}$). Finally, the fourth model includes both forms of political competition and their interaction with industrialization.⁷

$$DT_{t,c} = \beta X_{t,c} + \alpha_t + \alpha_c + \varepsilon_{t,c} \quad (1)$$

$$DT_{t,c} = \beta X_{t,c} + \delta_1 \cdot IND_{t,c} \cdot REP_{t,c} + \alpha_t + \alpha_c + \varepsilon_{t,c} \quad (2)$$

$$DT_{t,c} = \beta X_{t,c} + \delta_2 \cdot IND_{t,c} \cdot HDDI_{t,c} + \alpha_t + \alpha_c + \varepsilon_{t,c} \quad (3)$$

$$DT_{t,c} = \beta X_{t,c} + \delta_1 \cdot IND_{t,c} \cdot REP_{t,c} + \delta_2 \cdot IND_{t,c} \cdot HDDI_{t,c} + \alpha_t + \alpha_c + \varepsilon_{t,c} \quad (4)$$

The four equations above describe the four main models presented in Table 1. However, to address endogeneity concerns, we also present a baseline model, which does not contain our political variables of interest (model 0 in Table 1). The empirical implications of the hypotheses are that the estimates of δ_1 and δ_2 should be positive as higher values on $REP_{t,c}$ reflect the political representation of new elite groups in government and higher values on $HDDI_{t,c}$ indicate more extra-parliamentary competition by means of direct democracy.

Table 1 shows that the measure for the public deficit is negatively related to the outcome across all models, albeit not significant. In addition, there is some evidence that administrative capacity has a positive effect on the yield from direct taxation, while federal payments and suffrage restrictions reduce the tax yield. Finally, there are no robust findings for the share of left parties in government and rural inequality.

Turning to our main variables, model 1 shows that industrialization does not have an unconditional effect on direct taxation. Model 0 shows that this finding also holds when our political competition variables are removed from the equation. In models 2–4, we add the interaction between industrialization and our two indicators of political competition. In all three models, the interaction terms have the expected signs and their coefficients are significantly different from 0. Hence, in line with our theoretical expectations, Table 1 shows that political competition boosts direct taxation in the presence of high levels of industrialization, while industrialization does not have an unconditional effect on direct taxation.⁸

Figure 3 visualizes the interaction effects by displaying the marginal effect of the two forms of political competition at varying levels of industrialization (based on model 4 in Table 1). The left panel shows that at higher levels of industrialization, political representation of new elites is positively associated with direct taxation. Similarly, the right panel shows that at higher levels of industrialization, direct democratic instruments have a positive effect on direct taxation.⁹

Table 1. The domestic determinants of direct taxation

	Model 0	Model 1	Model 2	Model 3	Model 4
POLITICAL REPRESENTATION (REP)		19.69** (9.12)	-78.98** (36.42)	13.77 (8.39)	-71.03** (29.99)
DIRECT DEMOCRACY (HDDI)		2.00 (1.74)	2.13 (1.67)	-19.62** (7.78)	-17.18** (6.53)
INDUSTRIALIZATION (IND)	-42.19 (35.02)	-40.70 (52.19)	90.32 (59.18)	-104.01* (61.85)	16.24 (61.64)
REP × % IND			158.78** (63.55)		137.49*** (52.59)
HDDI × % IND				36.92*** (12.80)	32.95*** (10.85)
LAGGED DEPENDENT VARIABLE	0.89*** (0.04)	0.89*** (0.04)	0.85*** (0.03)	0.86*** (0.04)	0.82*** (0.03)
DEFICIT	0.01 (0.04)	-0.00 (0.04)	-0.02 (0.04)	-0.02 (0.04)	-0.03 (0.04)
SUFFRAGE RESTRICTIONS	-16.94 (12.29)	-11.72 (11.16)	-13.40 (10.15)	-16.68 (10.82)	-17.59* (9.72)
SEAT SHARE POLITICAL LEFT		-6.38 (6.63)	-8.34 (6.83)	-0.33 (6.98)	-2.67 (6.57)
RURAL INEQUALITY	40.11 (50.56)	60.58 (76.22)	109.15 (73.42)	106.44 (71.54)	143.57** (72.10)
FEDERAL PAYMENTS	-0.34** (0.15)	-0.39** (0.18)	-0.32** (0.16)	-0.32** (0.15)	-0.27* (0.15)
ADMINISTRATIVE CAPACITY	7.88** (3.80)	15.71** (6.08)	14.64*** (5.61)	1.09 (6.51)	1.73 (6.16)
R ²	0.98	0.98	0.98	0.98	0.98
Num. obs.	234	234	234	234	234
Cantonal FE	✓	✓	✓	✓	✓
Annual FE	✓	✓	✓	✓	✓

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Long-term effects on direct taxation

The dynamic models displayed in Figure 3 show the short-term effect. The long-term effect can be modelled as the sum of a geometric series and is thus equal to $\frac{\beta}{1-\beta_{LDV}}$. However, in our case, the calculation of long-term effects is slightly more complicated because the effect of political competition is moderated by industrialization. Hence, we need to compute the long-term marginal effect, which will depend on the specific values chosen for industrialization. We select two cantons to illustrate long-term effects (see Figure 4): Zurich, with a slightly above-average level of industrialization (share of non-agricultural employment at about 66% in 1860), and Neuchâtel, which had one of the highest levels of industrialization (about 79% in 1860), mostly due to the watchmaking industry in this region.

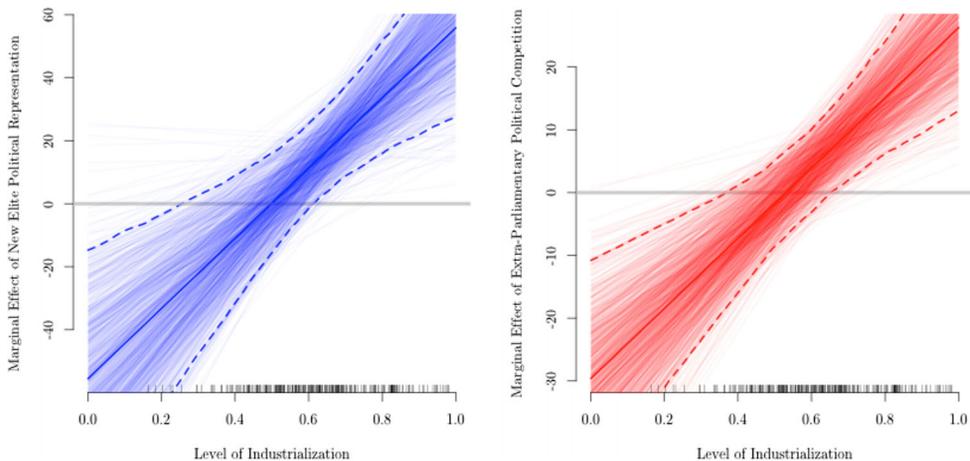


Figure 3. Illustration of interaction effects. [Colour figure can be viewed at wileyonlinelibrary.com]

Notes: Each plot illustrates the marginal effect of political competition as a function of industrialization. This illustration is based on 1,000 draws of the posterior vector.

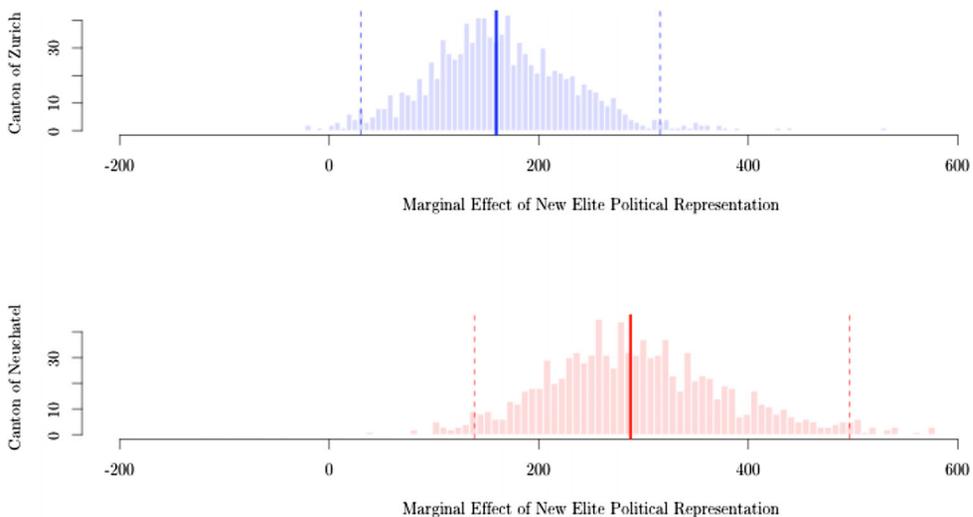


Figure 4. Long-term effect of political representation. [Colour figure can be viewed at wileyonlinelibrary.com]

Notes: Each panel shows the long-term marginal effect of political representation on direct taxation. Uncertainty generated via simulated draws from the posterior. The solid line shows the long-term marginal effect and dashed lines indicate the 95% confidence interval.

Political representation is measured by the inverted Herfindahl index. If the measure was higher by 0.5, the long-term marginal effect for Zurich would be 160, that is direct taxes would be higher by about 80 Swiss Francs (CHF). This is a large effect given that direct taxation per capita in Zurich in 1910 was at 233 CHF. Since the 95% confidence interval does not overlap with 0, this is a significant difference.

The canton of Neuchâtel, at a higher level of industrialization, displays an even larger long-term impact. If the representation index increased by 0.5, direct taxes would be higher by about

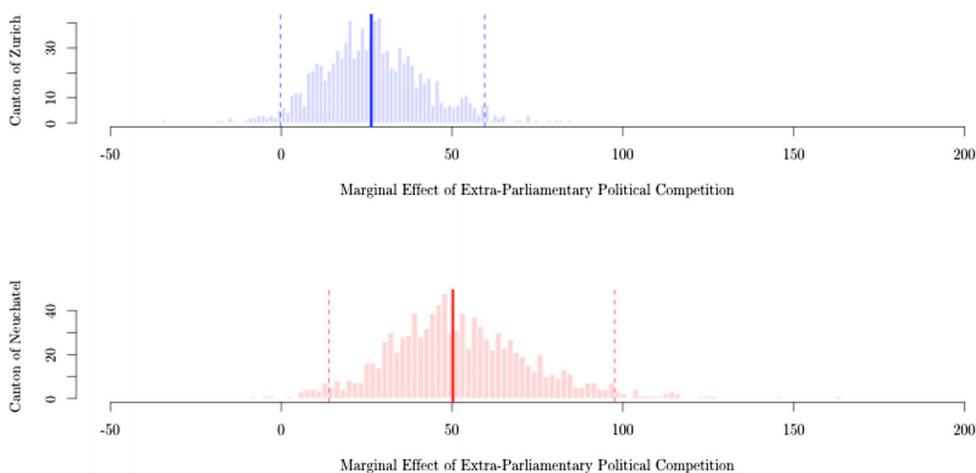


Figure 5. Long-term effect of extra-parliamentary political competition. [Colour figure can be viewed at wileyonlinelibrary.com]

Notes: Each panel shows the long-term marginal effect of extra-parliamentary political competition on direct taxation. Uncertainty generated via simulated draws from the posterior. The solid line shows the long-term marginal effect and dashed lines indicate the 95% confidence interval.

144 CHF. Direct taxation in Neuchâtel in 1910 was at 196 CHF. The long-term effect would thus have almost doubled taxes. The effect is significant because the confidence interval (dashed lines) excludes 0.

Figure 5 displays the long-term marginal effect of extra-parliamentary political competition, which is measured by an index capturing the presence of direct democratic instruments ranging from 0 to 6. Over the entire sample used in this analysis, the inter-quartile range is 3 and we use this difference to illustrate the substantive effects.

If we assume that the canton of Zurich experienced a three-point increase on the index of extra-parliamentary political competition, the long-term marginal effect of about 29 would translate into an increase of direct taxation of more than 86 CHF. Given that direct taxation in Zurich in 1910 was 233 CHF, the substantive impact of more extra-parliamentary political competition would have increased direct taxation by about 37%. This effect is significant as the confidence interval (dashed lines) excludes 0.

The marginal effect is again larger in Neuchâtel as the canton was more industrialized. If we assume higher levels of extra-parliamentary political competition, that is by increasing Neuchâtel's index score by 3, direct taxation per capita would have been higher by almost 148 CHF in the long term. This effect is significant as the confidence interval (dashed lines) excludes 0. In comparison, direct taxation per capita in Neuchâtel in 1910 was a meager 196 CHF. Hence, more extra-parliamentary political competition would have almost doubled direct taxation.

Robustness tests

In this section, we show that the substantive results also hold across a number of different operationalizations and samples.

In the main models presented so far, we have captured the extent of political representation of new elite groups by measuring negative power concentration in the executive. As robustness tests, we now employ two alternative measures. We first create a binary indicator whenever a party has an absolute majority in the executive and does not have to rely on compromise to govern. The second alternative measure, dominance, codes the difference in seat shares between the largest and second largest party and is an indicator of how threatened the majority party may be. Across all specifications, our findings remain substantively unchanged (see Table A3 in the online appendix).

Second, some cantons have a special form of direct democracy where citizens meet annually to vote on political matters. Throughout the period under investigation, these are the cantons of Appenzell Ausserrhoden, Appenzell Innerrhoden, Glarus, Nidwalden, Obwalden and Uri (Schaub 2016: 112). This form of direct democracy, citizen assemblies, may work in different ways, and it may be that our indicator of extra-parliamentary political competition cannot fully capture this. We therefore re-estimate our four models for all years but exclude the six cantons that rely on citizen assemblies. The results are robust and also hold on this restricted sample (see Table A4 in the online appendix).

Third, to anticipate concerns that the last decades in our period under investigation were already characterized by modern mass democratic politics, we run models focusing exclusively on the period from 1850 to 1885 (the first national party in Switzerland, the *then* marginal Social Democratic Party, was created in 1888). Table A5 in the online appendix shows that our results hold for the earliest decades of the federal state.

Fourth, we examine an alternative hypothesis, which suggests that direct taxation is expanded to appease the poor (e.g., Acemoglu & Robinson 2000; Boix 2003). We capture poverty using data on child mortality (cf. Leemann 2019) and replicate all models presented in Table 1. The results, displayed in Table A6 in the online appendix, do not show an effect of poverty on the expansion of direct taxation. More importantly, however, across all specifications, our findings remain substantively unchanged.

Finally, we have modelled the cantons as independent units and assumed that there is no interdependence. However, current-day literature argues that in the area of tax competition, cantons respond strategically to the behaviour of other cantons (e.g., Wasserfallen 2014). One concern that arises from this is that the results may be biased due to this mis-specification. We provide an additional model in which we add a spatial lag variable to account for spatial dependence. The results are again substantively identical (see Table A7 in the online appendix).

The robustness tests have employed a number of different samples, added further control variables and used alternative variable operationalizations. Across all models, the main results remain constant in terms of direction and significance.

Additional evidence for the argument

Our argument suggests that intra-elite political competition in industrializing societies leads to higher levels of direct taxation *in order to* fund public investments. In the following, we examine whether direct taxation is indeed a substantially important determinant of public education spending at cantonal level.

Industrialization and the emergence of new economic elites often led to educational expansion, which was typically related to the (new) elites' desire to access a skilled workforce (Ardant 1975; Mann 1978; Lizzeri & Persico 2004; Galor et al. 2009; Cardoso & Lains 2010; Beramendi et al.

Table 2. Direct taxation and public spending on education at cantonal level

	Model 5
Direct taxation	0.30** (0.14)
Federal payments	-0.07 (0.09)
Poverty	18.87 (70.12)
Deficit	-0.03 (0.04)
Lagged dependent variable	0.18 (0.21)
R ²	0.99
Num. obs.	100
Cantonal FE	✓
Annual FE	✓

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

2019).¹⁰ Fortunately, in Switzerland, public education spending was primarily located at cantonal level (including primary education, teacher training colleges and universities). Like direct taxation, education policy was thus almost exclusively the prerogative of cantons (the main exception being the Federal Institute of Technology). Hence, if our argument holds water, we should be able to observe an effect of change in direct taxation on education spending at cantonal level.

Table 2 examines the effect of direct taxation on education spending per capita. Data on public education spending at cantonal level is available from 1890 onward. The model shows a strong positive and significant effect of direct taxation on education spending. Substantially, an increase of 1 CHF in direct taxation increases cantonal spending on education by 0.30 CHF. This effect size is remarkable given that education is just one among several policy fields that we should expect direct taxation to affect. Table A9 in the online appendix shows a similar relationship between total taxation and education spending. Yet, in the case of total taxation, the coefficient fails to be significantly different from zero, once again indicating the important role of direct taxation.

In the following, we provide some qualitative evidence on the link between intra-elite competition, direct taxation and investments in public education. Consider the canton of Zurich, today Switzerland's largest canton. Historically, cantonal politics was dominated by the (Protestant) Conservatives. In 1831, when the Liberals began to seriously challenge the previously dominant Conservatives, they enforced two important changes. First, in 1832, the Liberals introduced – for the first time in the canton of Zurich – a progressive tax on income and wealth (Schanz 1890: 387–397). Second, they immediately channeled resources into the creation of a public university and a teacher training college (von Matt 2012: 259–260). The politicized nature of these developments did not escape foreign observers. For instance, the (conservative) German Confederation immediately banned students from the (liberal) University of Zurich to enter public service in any of its 39 member states (Holenstein 2018: 27).

The Liberals were soon to be challenged by new elite groups. After the Liberals' successful access to political power, the Radicals emerged from within the liberal movement, turning politics into a competition between three groups. The Radicals attacked the Liberals (and the Conservatives) for their insufficiently democratic and modernizing policies, thus demanding a more 'radical' turn to liberalism and modernism (Gruner 1977). The Radicals wanted further public investments and state centralization. In addition, the Radicals were 'passionate proponents of income and wealth taxes' (Zitt 1928: 42), because they considered these taxes the most 'rational' way to generate revenue needed for modernization (see Mann [1978] for a discussion of such modernist arguments in tax politics). They therefore pushed for the adoption of direct taxes also in cantons other than Zurich and at federal level (Zitt 1928: 42–44; Neidhart 2010: 163–164).

The situation became even more complicated, when the Democrats began to challenge the Conservatives, Liberals and Radicals in the second half of the nineteenth century. The Democrats criticized these groups for their apparent "elitism" and lack of support for democratization. For instance, the Democrats were strong supporters of direct democracy, hence their name (Kriesi & Wisler 1999). After their access to power in 1869, the Democrats immediately channelled public resources into the expansion of public schooling (Gilg 1951; Schaffner 1982). Importantly, the Democrats (successfully) requested a stronger emphasis on direct taxation to fund these public interventions (Schaffner 1982: 61–63).

Similar developments can also be observed in other cantons, for example, the creation of the University of Bern (Holenstein 2018: 27) as well as at national level, for example, the creation of the Federal Institute of Technology (Neidhart 2010: 113), whereas cantons politically dominated by the Conservatives either had low levels of direct taxation per capita (e.g., Obwalden, Uri, Zug) and/or introduced the direct taxation of incomes at very late stages (e.g., Fribourg, Valais).

A particularly striking example is offered by the canton of Lucerne. Here, the liberal government tried to introduce a tax on income in the 1860s, but faced massive conservative resistance. Interestingly, the debates about additional revenue needs centred on public education. The Conservatives, led by Philipp Anton von Segesser, who was also the leader of the Catholic Conservatives in the federal parliament, argued that additional revenue was not needed. Instead, schools were to focus on the basics such as reading, writing and calculating, while other subjects such as singing, drawing, physical education 'or other such things, which take away time without offering anything relevant' were to be abolished (von Segesser, cited in Bossard-Borner 2008: 608–609). He also advocated the closing of the teacher training college. Instead, teacher trainers were to travel from school to school, training teachers on site (Bossard-Borner 2008: 613). Yet, the Liberals eventually prevailed. In 1867, the cantonal parliament enacted a new tax on income, with 53 (52 Liberals and one Conservative) against 32 (all Conservatives) votes (Bossard-Borner 2008: 610).

After the income tax had passed in 1867, the tenure of the Liberals ended in 1871. Interestingly, the Conservatives, which were in power for the next decades, did not repeal the new tax. However, when facing spending pressures and budget deficits, the Conservatives increased revenue from indirect taxes (1872) and turned their attention to school reform (Bossard-Borner 2008: 724–732). Facing renewed budget deficits in 1892, the Conservatives responded by increasing tax rates for the lower income groups. To counteract, the urban Liberals launched in 1893 a popular initiative, trying to force the conservative majority in parliament and government to make income taxation more progressive. Yet, the liberal proposal narrowly failed (Bossard-Borner 2017: 197–198).

Conclusion

This paper explored the domestic determinants of direct taxation in an early democratic and state-building context. In line with the literature on intra-elite competition, we demonstrated that the reasons for the expansion of direct forms of taxation can be found in the political competition between two or more elite groups in industrializing societies. Absent any competition by new elites in the political arena, established elites keep overall taxation low, continue to rely on traditional forms of revenue generation, and do not invest in public goods. There is thus nothing automatic about the translation of economic into political power. While old elites are typically in a strong political position, the political power of new elite groups may vary dramatically because of non-inclusive electoral systems in early democratic societies. We showed that levels of direct taxation increase only when industrialization is combined with intra-elite competition in the political arena. In addition, such political intra-elite competition can be achieved through the representative system or by extra-parliamentary means, which serves as another robustness test for our argument about the importance of domestic politics. Finally, these processes are associated with public investments in policy areas related to the interests of the new elites such as education spending.

Empirically, we relied on novel archival data on government revenue in Swiss cantons in the period 1850–1910, which allows focusing on the domestic determinants of direct taxation because Switzerland was not involved in any interstate war in this period and military spending was almost entirely disconnected from cantonal finances. Yet, other than its decisively decentralized political and fiscal structure as well as the striking absence of interstate war, Switzerland is remarkably similar to other industrializing early democracies in Europe. In fact, nineteenth century Swiss politics had little in common with the consensus democracy for which Switzerland is known today. Nineteenth century Swiss cantons thus offer a rare opportunity to explore the domestic determinants of direct taxation in an early democratic and statebuilding context.

Yet, there might be two limits to the generalizability of our findings. First, while other studies also find a positive link between direct democratic institutions and expenditure at the beginning of the twentieth century (for the United States, see Matsusaka 2000), the importance of extra-parliamentary forms of political competition might differ between countries.

Second, an important question for future research concerns the role of democracy and state building for the domestic politics of taxation. We focused on an early democratic case in which government formation was tied to elections. More specifically, we found that new economic elites pushed for direct taxation to fund investments in public goods. In addition, in line with the contract theory of taxation, we showed that these new economic elites could rely on democratic means to ensure that public spending would have positive economic benefits.

However, in a number of countries such as Imperial Germany or the Austrian Empire, governments were dependent on the approval of or even appointed by autocrats. In cases of constitutional monarchies or autocratic regimes, it is unclear whether open contests between elite groups are linked to taxation because the power of parliaments might be constrained by aristocratic upper houses and unaccountable governments. Thus, it is unsurprising that Mares and Queralt (2019) arrive at a different conclusion when they argue that conservative political groups in Prussia pushed for a new income tax to shift the tax burden to new economic elites and create disincentives for suffrage expansion. Importantly, in their case, tax reform was not concerned with state building, revenue from income taxation as a share of total taxation never exceeded 10%, and new economic

elites had little means to influence public spending. Clearly, more research is needed to identify the conditions under which direct taxation is linked to a liberal modernization project (as in Switzerland) rather than conservative attempts to postpone economic and political change (as in Prussia).

Our results are also relevant for related literatures. For instance, our findings align with research on coalition governments and public expenditure. Larger coalitions have been associated with larger public sectors, caused by the narrow focus of parties on specific interests and their ability to externalize costs to the larger public (Bawn & Rosenbluth 2006). We add that the entry of new elites into government has also changed the structure and size on the revenue side, allowing for the emergence and growth of the modern interventionist state in the first place. Hence, the long view back to the nineteenth century is not only relevant to the question at hand but also informs related literatures that mostly rest in the twentieth and twenty-first centuries.

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Supporting Information

Additional supporting information may be found online in the Supporting Information section at the end of the article:

Figure A3: Monte Carlo Analysis

Figure A4: Various Measures for Agricultural Inequality

Table A3: Alternative Measures for Parliamentary Competition

Table A4: Estimation without Citizen Assemblies

Table A5: Models For Early Period (1850-1885)

Table A6: Models Including Poverty

Table A7: Including a Spatial Lag

Table A8: The Domestic Determinants of Total Taxation

Table A9: Total Taxation and Public Spending on Education at Cantonal Level

Notes

1. In the Swiss context, such conflicts mostly concerned religious (e.g., dissolution of monasteries in Thurgau in 1836–1867) or regional disputes (e.g., Oberwallis vs. Unterwallis).
2. A recent literature focusing in particular on the second half of the twentieth century has demonstrated that the existing tax system as well as patterns of public spending shape preferences for taxation (cf. Ganghof 2006; Beramendi & Rehm 2016; Kemmerling 2017). To our knowledge, there is no similar literature on nineteenth

century taxation and how this translated into political conflicts. However, it should be emphasized that such reverse causation cannot be ruled out entirely.

3. We do not expect new elites to demand new taxes by means of direct democracy. Instead, we expect them to demand investment in public goods, which in turn require additional government revenue.
4. In 1878, a nation-wide direct tax was introduced on male residents who did not participate in the mandatory military service. However, this tax was marginal in size and was collected by the cantons before roughly half of the revenue was transferred to the federal state.
5. This case selection strategy implies that we need not be concerned about the possibly complicated coalitional dynamics influencing the choice between direct and trade taxation (Barnes 2020; Mares & Queralt 2019).
6. The panel is not balanced since information on executive partisan composition is not available for some cantons in earlier years.
7. The two measures of political competition are not strongly correlated. The largest absolute correlation is 0.32, and the median correlation across the years is 0.08.
8. In Table 1, political representation of new elite groups has an unconditional, positive effect on direct taxation. However, this unconditional effect is not entirely robust (see model 3) and becomes considerably stronger when modelled as an interaction effect.
9. The marginal effects for both competition variables display the opposite sign for very low levels of industrialization. However, there are hardly any cases in the range of significant estimates with negative signs as the rug plots at the bottom of Figure 3 demonstrate.
10. Alternatively, we could examine public spending on infrastructure development (Aidt et al. 2010), but in the period under investigation, infrastructural expenses were located at all levels of government.

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