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Magnus Neubert,
Leibniz Institute of Agricultural Development in Transition Economies (IAMO), Martin-Luther-Universität Halle-Wittenberg

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Magnus Neubert[1],
Leibniz Institute of Agricultural Development in Transition Economies,
Martin-Luther-Universität Halle-Wittenberg

Abstract

What is the effect of state capacity on economic development? I argue that strong and centralised states are capable of mobilising the resources required to establish an efficient administration and provide public goods, which are preconditions for modern economic growth. To test this hypothesis, I consider the long-lasting division of Yugoslavia between the Habsburg and the Ottoman empire whose state capacity diverged enormously. I introduce a novel dataset of decomposed GDP, industrial labour force shares and state capacity of 344 micro-regions in Yugoslavia shortly after the dissolution of those empires. By applying a spatial regression discontinuity design along the imperial border, I find that the Habsburg empire had a substantial positive effect on economic development and state capacity. Three types of causal mechanism analysis allow me to estimate the causal effect of state capacity on economic development. I find that a one standard deviation increase in state capacity enhances GDP per capita by 8-11% and the industrial labour force by 21-29%. My results shed new light on the medium-term effects of state capacity on economic development and the mechanisms at work.

JEL Codes: H41, H70, N14, O18, O43, R12

Keywords: State Capacity, Economic Development, Habsburg Empire, Yugoslavia

[1]Corresponding Author: Magnus Neubert (neubert@iamo.de)

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1 Introduction

State capacity matters, but what is the causal effect of state capacity on economic development? This article contributes to the growing literature on the economic consequences of state capacity in several ways. First, based on established theory and historical evidence, I argue that state capacity fosters regional development and industrialisation. Strong and centralised states are able to mobilise the resources required to build up an efficient administration and to provide various public goods that constitute the preconditions for modern economic growth.

Second, I opt for a within-country approach to overcome the limitations of cross-country studies and introduce a new and rich micro-regional dataset. I combine census data and additional sources to decompose the national GDP to 344 micro-regions in Yugoslavia, 1931. The quasi-natural experiment of the imperial division of the Yugoslav lands before WWI allows me to exploit the divergence in state capacity between the Habsburg and the Ottoman empire for identifying causal effects. Such regional studies on state capacity are rare and focus mostly on certain aspects of state capacity.[1]

Third, my results suggest that state capacity has a substantial positive effect on economic development and industrialisation, because the Habsburg empire built up a well-functioning administration that was capable of extracting taxes and investing in public goods. By providing public goods, such as elementary schooling, the long-standing Habsburg regions were equipped with better preconditions for economic development.

Fourth, this article makes a major contribution to understanding the origins of the regional economic divergence that persists until today within the former Yugoslavia. It offers a first quantitative exploration into how the Habsburg empire in particular stimulated economic development due to enhanced state capacity and public goods provision. This also allows us to draw more general conclusions, because it implies that differences in state capacity partially explain the late industrialisation in Southeast Europe, which has not been considered yet (Kopsidis and Schulze 2020).

Empires have left their imprint on the societies they once ruled over. The Habsburg legacies on their successor states are especially well known and manifold: Most prominent is the persistent effect on people's trust in local or regional public institutions (Becker et al. 2016; Tkalec 2020; Vogler 2022), but also on human capital accumulation (Backhaus 2019; Popescu and Popa 2022). However, it has been less explored what consequences empires have had on economic development in the medium term.[2] Limited evidence for Yugoslavia indicates that the Habsburg empire seems to have had a positive impact on economic development: Former Habsburg regions attracted industrial settlements during the inter-war period (Nikolić 2018), they also thrived under labour-managed socialism (Kukić 2020) and they mastered the post-socialist transition better (Dimitrova-Grajzl

[1] See Acemoglu, García-Jimeno and Robinson (2015); Acemoglu, Moscona and Robinson (2016); Acharya and Lee (2019); Lee (2019); Rogowski et al. (2021); Chambru, Henry and Marx (2021).

[2] Wolf (2005) is an exception here and there is a larger literature on market integration of post-Habsburg countries (Trenkler and Wolf 2005; Nikolić 2016; Miladinović 2020; Chilosi and Nikolić 2021).

2007). State capacity might be the common cause of these imperial legacies and might influence present-day development outcomes directly or via path dependency.

I argue that the Habsburg empire was forced to improve its state institutions by the Ottoman onslaught. After the final imperial border was settled, the Habsburg empire modernised state institutions and increased fiscal capacity due to the implementation of the cadastre. Higher tax revenues allowed the Habsburg empire to invest in mass schooling and railway infrastructure. As a consequence, the Yugoslav regions under Habsburg rule enjoyed better preconditions for economic development. Therefore, I test three hypotheses: *H1*: The Habsburg empire had a positive effect on state capacity and economic development. *H2*: State capacity has a positive effect on economic development. *H3*: The Habsburg treatment effect on economic development works through enhanced state capacity. Moreover, I unbundle state capacity and explore the effects of some aspects of state capacity.

In order to test these hypotheses, I construct a micro-regional dataset of decomposed GDP per capita, industrial labour force share and a latent state capacity index from the 1931 census and other sources. I exploit the long-lasting division of the Yugoslav lands by the Habsburg and the Ottoman empire as a source of exogeneity. I deploy a spatial regression discontinuity design (RDD) and use the imperial border of the Habsburg empire to test *H1*. In both cases, I find substantial, positive and significant effects: The Habsburg treatment enhanced economic development by 26%, industrialisation by 38% and state capacity by more than one standard deviation. These estimates are robust to a battery of sensitivity and falsification tests. For testing *H2* and *H*3 I opt for an instrumental variable (IV) approach and use the duration of the Habsburg rule among other polities as an instrument for state capacity. I find that one standard deviation increase in state capacity increases per capita GDP by 11% and the industrial labour force share by 29%. Then, I apply a mediation analysis with state capacity as a mediator between the Habsburg treatment and development outcomes. Around 50% of the total Habsburg treatment effect on economic development works through state capacity and 60-80% of the total effect on industrialisation. However, the effect of state capacity on economic development decreases slightly since the Habsburg treatment seems to affect economic development through unobservable channels too. A causal mediation analysis corroborate these findings. Furthermore, I replace state capacity as the mediator with literacy rates, civil servant density and railway density to explore the mechanisms in more detail. I find that human capital and administrative capacity mattered, but railway infrastructure not so much.

The rest of the article is structured as follows. In Section 2, I summarise the existing literature on state capacity and its effects on economic development followed by historical background information on the imperial border as well as the institutional divergence and economic development during the imperial divide in section 3. I present the methodology and sources behind my dataset in section 4. In section 5, I provide my empirical strategy and the subsequent results, and I conclude this research in section 6.

2 Literature

State capacity is a complex concept and requires some definition. Savoia and Sen (2015) dissect state capacity into five sub-capacities: a) bureaucratic and administrative capacity, b) legal capacity, c) infrastructural capacity, d) fiscal capacity, and e) military capacity. Bureaucratic and administrative capacity is the backbone of every state and no government can implement policies without a well-functioning organisational form run by professionals. Fiscal capacity is strongly intertwined with administrative capacity, because a state need sufficient funds to build up a modern bureaucracy, but raising enough funds requires sufficient administrative capacities. However, legal, infrastructural and military capacity might be subsumed as public goods provision. Property rights, law enforcement, internal and external security, as well as infrastructure, cannot be provided by private agents, because nobody can be excluded from their consumption and natural monopolies require public agency to be efficient. Therefore, the state has to step in and provide them publicly and extract the required resources in return. Furthermore, the term *public goods provision* is more inclusive because it also encompasses mass education and social security. Hence, I define state capacity in short as the ability of a state to collect taxes, implement policies, and provide public goods.

A growing literature investigates the links and mechanisms between state capacity and economic development. One of the first scholars who emphasises the importance of the state for capitalism was Engels (1962),[3] followed by Hobbes, Weber and Tilly (1992). Modern theories on that matter are rare, but Acemoglu (2005) provides a model that helps to understand the link between state capacity and economic development. According to this model, both weak and strong states are inclined to distort the economy by discouraging either the ruler in public goods or the citizens to invest privately. The equilibrium revolves around the consensually strong state, where the citizens accept a strong state and high taxation if the revenues are invested in public goods. In this equilibrium, state capacity enhances economic development via the provision of public goods. Since public goods provision is a bundle, Dincecco (2017) pins down the main mechanisms: a) An effective state enforces the rules of the game, which means law and contract enforcement, secure private property rights, and military protection against external threats. A clear legal framework reduces uncertainty and transaction costs and, hence, encourages private investments. (b) Centralised states integrate their domestic markets by reducing internal tariffs and other trade barriers, which promotes the exchange of goods and services. (c) Public transportation infrastructure lowers transport costs and fosters the division of labour and the subsequent economies of scale. (d) Mass education due to public schooling increases human capital with positive effects on productivity and technology

[3] »[D]er moderne Staat ist wieder nur die Organisation, welche sich die bürgerliche Gesellschaft gibt, um die allgemeinen äußeren Bedingungen der kapitalistischen Produktionsweise aufrechtzuerhalten gegen Übergriffe sowohl der Arbeiter wie der einzelnen Kapitalisten. Der moderne Staat, was auch seine Form, ist eine wesentlich kapitalistische Maschine, Staat der Kapitalisten, der ideelle Gesamtkapitalist. [And the modern State, again, is only the organization that bourgeois society takes on in order to support the external conditions of the capitalist mode of production against the encroachments as well of the workers as of individual capitalists. The modern state, no matter what its form, is essentially a capitalist machine — the state of the capitalists, the ideal personification of the total national capital.]« (Engels 1962, 222)

innovation. (e) Social spending only becomes central for modern states over the course of the 20th century, therefore, I neglect it here.

Most of the empirical literature that quantifies and tests the hypothesis of a positive state capacity effect on economic development relies on case studies (Johnson 1982; Amsden 1992; Centeno 2002; Evans 2012) or cross-country data (Evans and Rauch 1999; Dincecco and Prado 2012; Herbst 2014). They can explain cross-country variation in national income levels by differences in state bureaucracies or fiscal capacity. These findings have been supported by scholars from economic history recently (Dincecco 2017; Johnson and Koyama 2017) and Dincecco and Katz (2016) find a positive long-run effect of fiscal centralisation on economic development, which seems to be base of fiscal capacity and, thus, of state capacity too. Even though they support the hypothesis linking state capacity and economic development, cross-country data raises the issue of unobservable country characteristics that might drive these results. Moreover, spatial autocorrelation might bias these results (Kelly 2019). According to an argument by Geloso and Salter (2020), the evidence might result from a survivor bias: weak states with a prospering economy become potential prey for stronger states and can only decide either to invest in state capacity or to be conquered by stronger states.

Going regional avoids these flaws, but within-country studies on state capacity are rare. Dittmar and Meisenzahl (2020) show that the Reformation changed the political economy in German citites, leading to improved public goods provision and subsequently to higher urban growth. Acharya and Lee (2019) provide evidence that medieval conflicts over successions to the throne persistently weakened state institutions and reduced development outcomes in present-day Europe. Acemoglu, Moscona and Robinson (2016) find that post offices as infrastructural capacity of the US predict patent activity and Rogowski et al. (2021) go further along that way and find positive growth effects in the short and long term. For the case of the Indian countryside under colonialism, Lee (2019) reports a positive correlation between village officials and tax revenues on the one hand and agricultural productivity as well as public goods provision on the other. By exploiting the historical presence of public infrastructure in Colombia, Acemoglu, García-Jimeno and Robinson (2015) provide evidence that local administrative capacity has positive direct and spillover effects on life quality and poverty reduction, as well as on public goods coverage. All of these studies focus on infrastructure as a key aspect of state capacity and also as a public good, finding stimulating effects on economic activity. The most advanced study on the spatial effects of state capacity on economic development is a pre-published one by Chambru, Henry and Marx (2021). They provide evidence that shocks to state capacity in French cities are associated with advanced public goods provision in the medium term and faster urban growth and industrialisation in the long term. Yet they cannot clarify whether these effects are efficiency gains or rather a re-allocation of resources and economic activity.

I contribute to this literature by capturing state capacity beyond public infrastructure and across urban and rural regions. My novel dataset allows me to estimate the total effect of state capacity on regional development outcomes in the medium term. The historical case of the imperial

divide of the Yugoslav lands and the subsequent divergence in state capacity serves as a source of exogeneity. Since the multi-ethnic Habsburg empire had a native administration, there was a high persistence in personnel after the empire's dissolution (Becker et al. 2016; Vogler 2019). However, I go beyond Becker et al. (2016) and use my dataset to explore economic outcomes and to unveil transmission mechanisms other than public infrastructure or cultural norms.

3 Historical Background

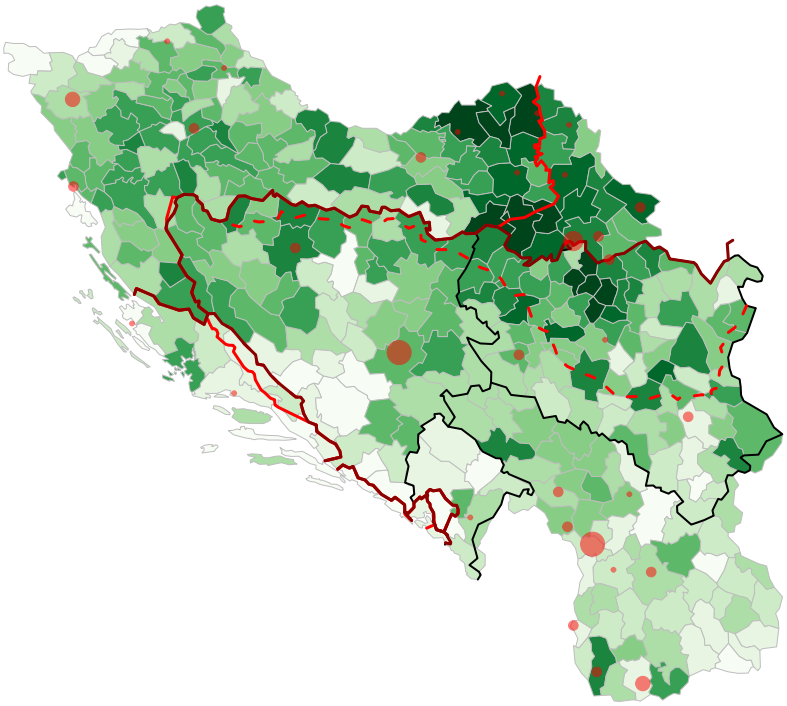
3.1 Imperial Borders

Since the 16th century, the Yugoslav lands had been a battleground for the Austro-Turkish wars for more than 250 years, shifting the imperial border back and forth. When the Ottomans sieged Vienna for the second time in 1683, the Ottoman empire reached its zenith of power in Europe and almost all the Yugoslav lands were ruled by the Ottomans. The Holy League of the Holy Roman empire, Habsburg Hungary, Venice, Russia and Poland-Lithuania fought back the Ottomans and pushed them back behind the Sava and Tisa Rivers. In 1699, the Treaty of Karlowitz settled the border close to the final lines, with the Dinaric Alps (Ottoman-Venetian border) and the Sava and Tisa Rivers (Autro-Ottoman border) as natural borders (see the red solid line in Figure 1). During this time, the economically prosperous regions of the Yugoslav lands were still in the Ottoman empire, with Beograd, Sarajevo, and Prizrep as the largest cities. Hence, the Habsburg and the Venetians did not seek to conquer prosperous cities or regions, but rather aimed to push back the Muslim invaders and liberate the oppressed Christians living there. The Austro-Turkish war between 1716 and 1718 was started by the Ottomans to recapture the lost territories, but it ended in another Ottoman defeat. According to the Treaty of Passarowitz in 1718, they lost the Banat, Serbia including Beograd, and small strip of Northern Bosnia to Austria. The Venetian empire also gained some Dalmatian hinterlands and settled the final Venetian-Ottoman border. However, this peace did not last long: The next Austro-Turkish war began when Austria joined Russia to fight against the Ottomans in 1737 to gain more territory in the Balkans, but this time the Ottomans defeated the Austrians and retook Serbia, including Beograd. In 1739, the Treaty of Beograd settled the imperial border along the Sava and Danube Rivers for the first time, and this remained the formal imperial border (see the dark red line in Figure 1). Entering the last Austro-Turkish war in 1788, the Austrians forced the invading Ottomans out of Croatia and the Banat and captured Beograd and Serbia again. However, because of war threads from Prussia and Poland, Austria left the battlefield in 1790 and gave up these notable acquisitions. Moreover, the French Revolution caught Austria's attention, not to mention the Napoleonic wars to come. The Ottomans on the other hand were under pressure from an expanding Russian empire, hence, the Treaty of Sistova in 1791 re-established the northern part of the imperial border along the Sava and Danube Rivers. Although the Napoleonic era changed the political entities in the Yugoslav lands, the imperial border remained untouched and after the Vienna Congress in 1815 all the Yugoslav lands were ruled either by the Habsburg or the Ottoman empire, except for the autonomous principality of Montenegro (Aksan 2007; Hötte 2015; 2016; Vrandečić 2021). In 1878, the Treaty of Berlin reshaped Southeastern Europe: both, Montenegro and Serbia (autonomous since 1829) gained independence, while Bosnia-Hercegovina was occupied and eventually annexed in 1909 by the Habsburg empire. Hence, the Habsburg imperial border did not change until 1909, because priorly it remained the demarcation line between Serbia, Montenegro, and the Habsburg colony of Bosnia-Hercegovina.

Economic considerations might have led the Habsburg empire during the conquest of the Yu-

goslav lands, but the decisive forces were the military power of the Austrians and the Ottomans, as well as war threats posed by rival imperial powers such as Prussia or Russia. Furthermore, the exact imperial demarcation line ran along natural borders that were exogenous by nature and better defendable. Therefore, the imperial border was arguably exogenous to the economic potential of the Yugoslav regions that the border divided.

Figure 1: Habsburg Conquest, 1699-1878



Note: Borders after 1699 (red solid line), 1718 (red dashed line), 1739 (dark red line), 1878 (black). Greens indicate wheat suitability - the darker the more suitable. The red dots represent the cities in the sample, with dot size based to their population in 1700.

3.2 Institutional Divergence and Persistence

Warfare was the main origin for state formation and fiscal centralisation in early-modern Europe[4] and with Vienna having been sieged twice the Habsburg empire was forced to invest in its military

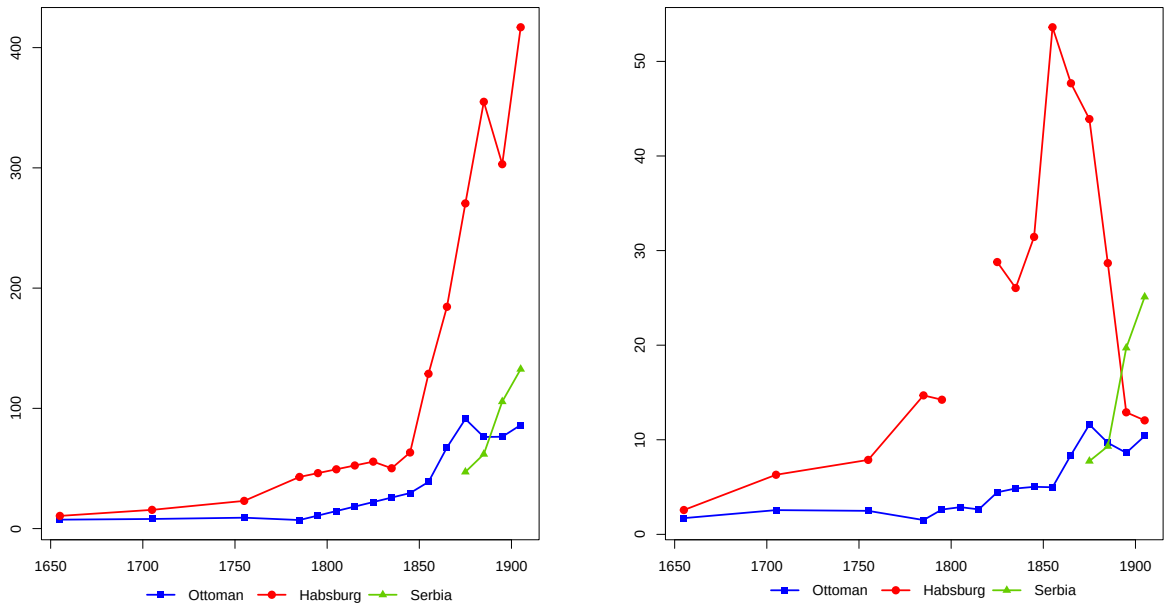
[4]See Besley and Persson (2008; 2010); Dincecco and Prado (2012); Karaman and Pamuk (2013); Gennaioli and Voth (2015).

and fight back the Ottomans. Exactly then, in the second half of the 17th century, the divergence in fiscal capacity between the Habsburg and the Ottoman empire originated, as Figure 2 shows. However, this divergence accelerated at the end of the 18th century after the imperial border dividing the Yugoslav land was finally settled. As Figure 2a shows, the tax revenues per capita rose dramatically in the Habsburg empire from the 1840s onwards, whereas the Ottoman state capacity also increased, but too late and too hesitant to prevent the beginning of the dissolution in the 1870s. Moreover, the Ottoman central bureaucracy never became as effective in taxation as the Habsburg one (see Figure 2b). The Habsburg administration extracted up to 50 days of labour per year in taxes, which had driven the tax revenues in the first place. Later, sustainable income growth allowed for even more tax revenues per capita by taxing only 10-15 days of labour. The causes for these diverging trajectories are manifold and beyond the scope of this study, but one of the most important fiscal techniques was the establishment of the cadastre in the Habsburg empire, which was never realised under the Ottoman empire or one of its successor states. Even before the French Revolution, in 1785, the first equal and general taxation of land in Europe was introduced within the Habsburg empire, using gross profits per tract of profitable land as the tax base. In 1806, the first systematic land survey began to map the empire's entire territory. The emerging land register recorded real estate, issued land-register documents, and assessed the profitability of each tract of land. First Austria and later Hungary were included into the land register (Scharr 2015). This cadastral system was run efficiently by a reliable administration and ensured increasing tax revenues in a predominantly agrarian economy. Under the Ottoman empire, tax farming emerged after the decline of the feudal *timar* system, but all attempts at replacing tax farmers by government officials failed. Therefore, the Ottoman empire fell behind other European powers regarding state capacity (Karaman and Pamuk 2010; Pammer and Tunçer 2021). Cadastral practices as in the Habsburg empire were uncommon and, if anything, deeds of ownership (*tapijska knjiga*) were held and the tax burden was based on self-declaration and remained in kind (tithe and socage). This hardly changed in Serbia after gaining autonomy in 1829 despite switching to monetary taxation and the tax burden for the powerful small-holding peasantry having even decreased. However, Serbia managed to increase tax revenues from the growing middle class by a centralised fiscal authority (Palairet 1979; Müller 2020; Pammer and Tunçer 2021) as depicted in Figure 2a.

The divergence in fiscal capacity also reflects diverging investments in public goods. The Habsburg cadastre system not only increased tax revenues, but it also created incentives to exhaust the potential of the land and guaranteed clearly defined land property rights. Furthermore, the bureaucracy running the cadastre system was centralised and enforced legal norms in other matters as well across the entire empire. Increasing tax revenues enabled the Habsburg empire to invest in education and infrastructure. Obligatory primary education was introduced in the 1770s followed by enormous efforts to grant schooling to everybody.[5] Particularly in Slovenia, Croatia-Slavonia, and the Vojvodina a publicly owned dense railway network emerged during the second half of the

[5]Even though the curriculum focused more on religious instructions rather than practical knowledge and stimulated economic activity only a little (Cvrček and Zajíček 2019). Hence, insufficient human capital endowment hampered the Habsburg empire in catching up to Britain and Germany (Schulze 2007*a*).

Figure 2: Fiscal capacity, 1650-1910



(a) Tax revenues per capita [g Ag]

(b) Tax revenues per capita/daily wage

Source: Ottoman empire (Karaman and Pamuk 2010), Habsburg empire (Mitchell 2003; Allen 2003), Serbia (Sundhaussen 1989; Mijatović and Milanović 2021). For more details see Appendix.

19th century. Under Habsburg colonialism, Bosnia-Hercegovina was integrated into the empire by introducing a rudimentary cadastre system and making the region accessible by railway, but colonial interests neglected public schooling and the abolition of serfdom as in the rest of the empire (Lampe and Jackson 1982; Mayer 1995; Palairet 1997). Even though the Ottoman empire was never before as centralised as at the beginning of the 20th century, it still relied on local elites for enforcing the law and collecting taxes. All attempts to centralise fiscal authorities failed. Hence, the investments in public goods were restrained. During the *tanzimat* era, modernisation efforts resulted only in a half-hearted reform of property rights and although the schooling system was laicised, primary education remained a privilege without any obligation. Railways were constructed and operated by private companies and, thus, the railway network in the Ottoman regions was not ramified (Lampe and Jackson 1982; Mayer 1995; Palairet 1997; Pammer and Tunçer 2021). Developments in Serbia took a slightly different direction after gaining autonomy: Switching to individual monetary taxation in the 1830s induced a shift towards market-oriented farming and the property rights granted in 1844 opened a market for land. A proper schooling system was not established until 1882, when compulsory education was introduced as a mean of nation building. Facing scarce funds prevented independent Serbia not only from properly providing primary education, but also from constructing a dense railway network (Lampe and Jackson 1982; Mayer 1995; Palairet 1997).

Although Montenegro is often depicted as a backward tribal society, especially by Palairet (1997), national independence there also started a moderate modernisation process: A modern property code was introduced (1888), primary education was declared obligatory (1879), and even a first but isolated railway track was built (1909). Yet the implementation of these reforms was restricted by a lack of funds and professionals (Treadway 2021). Both independent nation states were somewhat more successful in modernising than the Ottoman empire, but they never did reach the Habsburg standard.

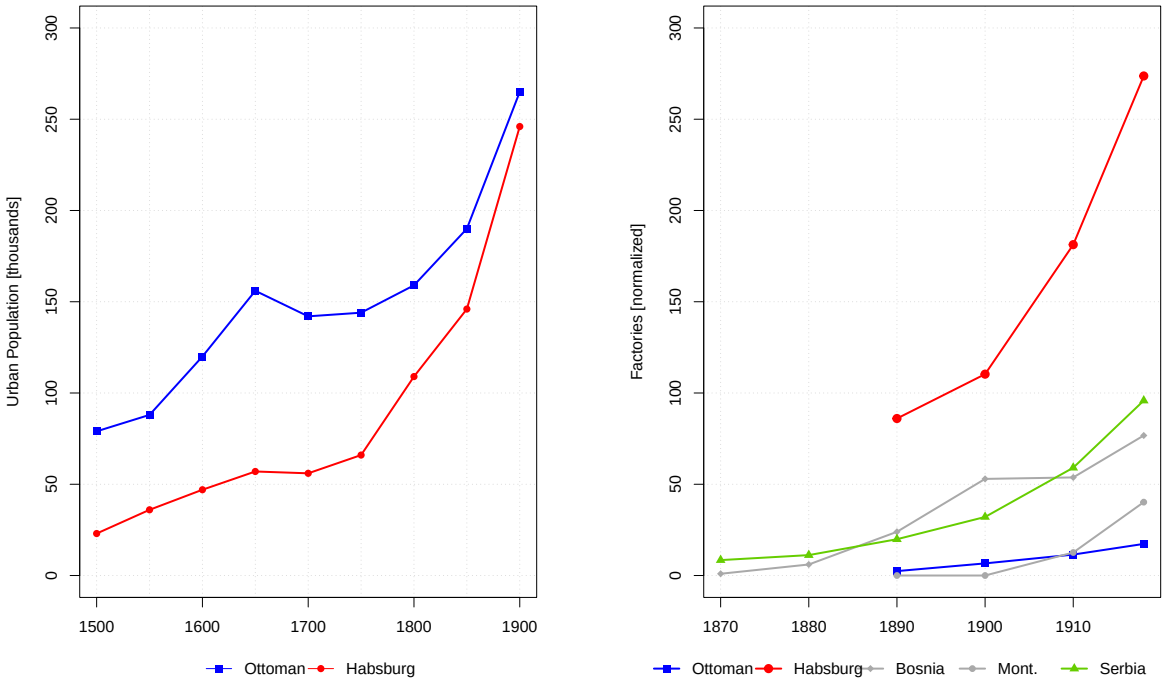
After two Balkan Wars and World War I, Yugoslavia inherited, on top of a war-torn country, three banking systems, five currencies, five railway systems, six customs unions, twelve tax codes, and a variety of other institutions. Some of these disparities were not unified by 1931 and remained informally throughout the inter-war period (Aldcroft 2006; Bićanić and Škreb 1994; Lampe 1980). According to Müller (2012; 2020), Yugoslavia was not able to adjust the legal institutions of non-Habsburg territories to Habsburg standards due to a lack of professionals, funding, and nationalist resentment. The Habsburg bureaucrats were mostly natives trained at Austrian or Hungarian universities and returned to their home towns afterwards to work for the government. After the dissolution of the Habsburg empire, the well-trained civil servants stayed and kept the institutions running efficiently. This personal persistence of the Habsburg administration is excessively described by Miroslav Krleža in the five volumes of his opus *Zastave*: The protagonist's father Emerički senior from Zagreb studied in Vienna and came back to serve as high-ranking civil servant in the administration of Habsburg Croatia-Slavonia. After the foundation of Yugoslavia, he stayed and served the government of the new state (Krleža 2016). In effect, taxation remained enormously uneven across Yugoslavia. According to Bićanić (1938, 51), a peasant in the Vojvodina paid effectively more than a fivefold in land taxes than a peasant on the other side of the Danube in Serbia. Even though this source might exaggerated the actual disparities (bearing the Serbo-Croatian antagonism in mind), another source found that a real estate owner in Ljubljana payed 230% more in taxes than one in Belgrade (Jelčić and Bejaković 2012, 46-7). As a result, the new state failed to unify the country and the provision of public goods remained highly uneven across Yugoslavia. The Habsburg legacy of public mass schooling, a dense railway network, and well-designed legal institutions run by an efficient bureaucracy persisted throughout the inter-war period and is clearly visible in the 1931 dataset (see the Appendix).

3.3 Economic Development

Reliable data on the economic development in the Yugoslav lands before WWI is only available for the Habsburg regions and Serbia since the 1870s (Schulze 2007*b*; Mijatović and Zavadjil 2022), which is insufficient for comparison and detecting possible pre-treatment trends. For the early-modern period, I use urban population in the Ottoman and Habsburg regions, presented in Figure 3a, as a proxy for economic development (Bairoch 1988; Buringh 2021) and I find that until the mid-17th century, the urban population in the Ottoman regions was larger and faster growing than in the Habsburg regions. One century later, the tide turned in favour of the Habsburg regions where

the urban population grew faster and converged to the Ottoman urban population. This suggests that the Habsburg regions were less prosperous before the imperial border was finally settled and the modernisation of the Habsburg state began. The implementation of these enlightened reforms coincides with faster urban population growth in the Habsburg regions and, thus, growing economic activity. Another source (Tomasevich 1955) provides insight into the industrial development in the Yugoslav regions before WWI and shows the clear and growing advance in industrialisation of the Habsburg regions (see Figure 3b). Despite all the flaws of the presented data, the overall picture suggests that the pre-treatment trend was rather in favour of the Ottoman regions and the economic divergence already happened at the end of the 19th century. Regional differences in industrialisation during the inter-war period stagnated or converged slightly (Nikolić 2018; Kukić and Nikolić 2020).

Figure 3: Economic Development, 1500-1918



(a) Urban population

(b) Factories per one million inhabitants

4 Data and Methodology

4.1 Economic Development

In order to quantify the regional development levels across Yugoslavia I decompose the national GDP estimate in 1931 to 344 districts according to Geary and Stark (2002) based on census and urban wage data. The first comprehensive census was conducted in 1931 and offers a detailed insight into the socio-economic division of Yugoslavia. This census was the first and last one in the inter-war period that measured population, illiteracy rates, and sectoral labour force at the district (*srez*) level. Hence, this firstly digitised dataset is the bedrock of the following analysis.[6] Additionally, regional sectoral wage data serves as a proxy for the regional differences in sectoral labour productivity. Here, two different sources are available, each one with strengths and flaws: a) The Statistical Yearbook (Statistički Godišnjak, henceforth SG) published nominal wages for 4 occupations in 10 cities and b) the Central Office for the Insurance of Workers (Središnji ured za osiguranje radnika, henceforth SUZOR) published annual wages for a variety of sectors (but on national level) and the average wages in 17 SUZOR districts. The SUZOR data has more spatial variation, but SG wage data has the advantage of regional variation within and between sectors, especially agricultural wage data which is underrepresented in the SUZOR data. Furthermore, price data for various everyday-life items in 10 cities published by the Statistical Yearbook allows for the calculation of real wages and the spatial limitation of the SG data can be resolved by spatial interpolation. Thus, I use the SG real wage data for the baseline estimations, but I also account for the alternative estimates (for details see the Appendix, Table 17). Combining the occupational census with the wage data allows me to decompose the national GDP estimate by Bolt et al. (2018) to a micro-regional level. For that purpose, the methodology by Geary and Stark (2002) is applied, which assumes that regional GDP adds up to the known national GDP,

$$Y = \sum_{i=1}^{n} Y_i, \tag{1}$$

and that regional GDP is constituted by labour productivity y_i and labour force L_i of each sector j:

$$Y_i = \sum_{j=1}^{k} y_{ij} L_{ij}, \tag{2}$$

where sectoral labour productivity y_{ij} is approximated by the regional sectoral wage w_{ij} relative to the national sectoral wage w_j in each sector. Wrapping up all the equations results in the following expression for the decomposition:

$$Y = \sum_{i=1}^{n} \sum_{j=1}^{k} \Big(y_j \beta_j \frac{w_{ij}}{w_j} \Big) L_{ij}, \tag{3}$$

[6] Popović (2021) also digitised and visualised beautifully the full census online.

where β_j is a scalar which scales the bottom-up estimates to the known national sectoral estimate. All the variables in equation 3 are known, including $y_j = \frac{Y_j}{L_j}$ (for more details see the Appendix). Hence, I can apply this methodology to the novel micro-regional dataset and map the spatial distribution of GDP per capita.

Figure 4: Spatial Distribution of GDP per Capita in Yugoslavia, 1931

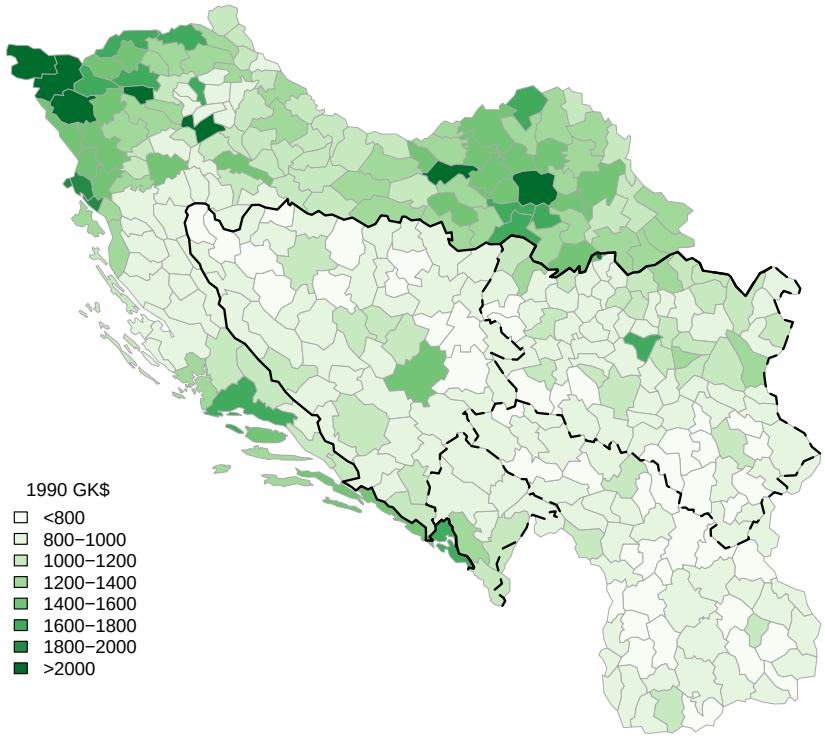
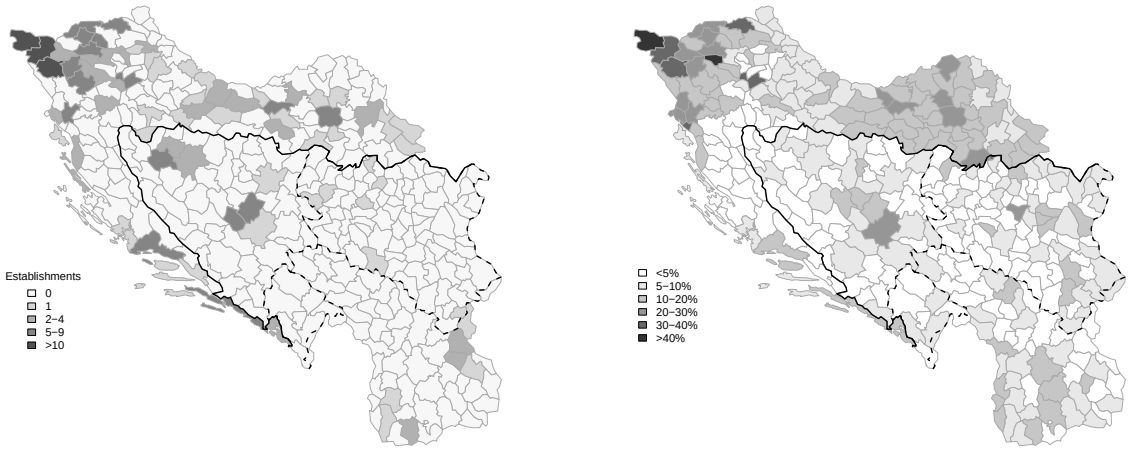


Figure 4 shows the levels of GDP per capita in each district across Yugoslavia in 1931. The solid bold line is the imperial border after 1739, while the dashed lines illustrate the emerging borders in 1878 until 1912. Differences in economic development are clearly visible especially along the northern part of the imperial border. This supports my elaboration on the persistence of regional inequality during the inter-war period. Slovenia, Slavonia, and the Vojvodina grew ahead of the other regions. However, the illustrated regional disparities have to be taken cautiously, because the sectoral productivity captured by the SG real wage in 10 cities is only spatially interpolated. It is not unlikely that productivity in rural areas was well below urban centres, which would not be captured by spatial interpolation. Consulting the spatial distribution of the industrial labour shares

obtained from the occupational census (see Figure 5b) shows a similar pattern, which indicates that the spatial distribution of economic development levels is not driven exclusively by the real wage data. To address concerns that the location of industries can be explained by path dependence (Crafts and Wolf 2014; Nikolić 2018), I georeferenced a map of proto-industrial establishments in the Yugoslav lands around 1800 (Zorn and Schneider 1974) and reaggregated it at the district level (see Figure 5a). Proximity to northwestern Europe and path dependence of industrial location explains some of the economic divergence, but the sharp discontinuity at the imperial border is not visible in the proto-industrial data and, hence, must have emerged during the 19th century.

Figure 5: Industrialization in Yugoslavia



(a) Proto-industrial establishments around 1800

(b) Industrial Labour Share, 1931

4.2 State Capacity

State capacity as a latent feature is directly unobservable and thereby hard to measure (Dincecco and Wang 2022). Many modern indices exist at the country level, but regionally hardly anybody has ever tried to quantify state capacity. State capacity appears as public administration or public goods provision, and I have detailed data for some of these aspects of state capacity, namely elementary education, public administration, and railways. Inspired by Fortin (2010) and Hendrix (2010), I approximate state capacity by applying a factor analysis approach. Factor analysis is a tool to capture latent variables that are orthogonal to each other and affect a larger number of observable variables. The underlying model assumes J observed variables x_j to be linear combinations of K

factors f with $1 \leq K < J$ and an error term ϵ:

$$x_{ji} - \mu_j = \sum_{k=1}^{K} \lambda_{jk} f_{ik} + \epsilon_{ji}, \tag{4}$$

where λ_{jk} is the loading for the observed variable x_j of factor f_k. If I assume a) F and ϵ to be independent, b) $\mathbb{E}(F) = 0$ since I am only interested in the variance around the mean, and c) $cov(F) = I$ (orthogonality of the factors), I can rewrite the model in matrix notation:

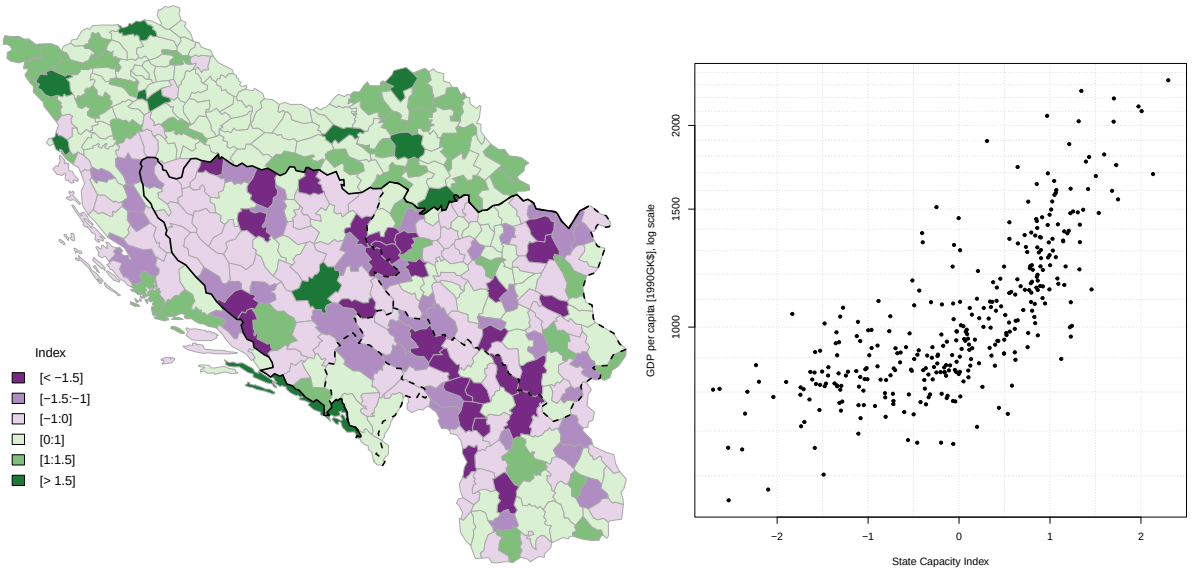
$$cov(X) = cov(\Lambda F) + cov(\epsilon), \tag{5}$$

$$= \Lambda\Lambda' + cov(\epsilon), \tag{6}$$

which indicates that the variation in the observed data is the combination of a joint variance $\Lambda\Lambda'$ (communality) and some unique variance. Given the estimated loading matrix Λ, I can calculate the individual manifestation of the factors $F = X\Lambda^{-1}$, where X is a vector of the de-meaned observed variables x_j.

For this case, I opt for a model with state capacity as a single factor that manifests in four observed variables: female and male literacy rates, civil servant density and railway density in 1931. They are highly significantly correlated with each other, and the resulting loading matrix is $\Lambda = [0.997, 0.847, 0.433, 0.375]$ respectively. The sum of squared loading $SSL = 2.04$ exceeds one and, hence, the factor has sufficient explanatory power according to Kaiser's rule.

Figure 6: State Capacity in Yugoslavia, 1931



(a) Spatial Distribution

(b) Correlation with GDP per capita

The approximated state capacity index, as illustrated in Figure 6, is z-normalized with $\mu(F) = 0$ and $\sigma(F) = 1$. Two patterns become visible: a) State capacity is largest in urban centres across all

Yugoslav regions, but the correlation between state capacity and population density is weak. This is in line with similar findings for France where some administrative centres were equipped with more extractive and coercive capacities and invested more in public goods in the medium term (Chambru, Henry and Marx 2021) and b) in the case of the rather rural districts, the imperial legacy still lasts in 1931. The old imperial border appears to divide Yugoslavia into former long-lasting Habsburg regions with above-average state capacity and former Ottoman regions with below-average state capacity.

Table 1: Balance Check for the Border Sample (100km Bandwidth)

	Full sample			Treatment group		Control group	
	n	Mean	SD	Mean	SD	Mean	SD
GDP per capita, 1931	229	1078.790	258.827	1233.430	271.517	949.876	188.747
Industrial labour share, 1931	229	0.076	0.056	0.100	0.062	0.057	0.046
State capacity index, 1931	229	0.033	0.921	0.539	0.715	-0.405	0.876
Distance to imperial border	229	-0.552	54.051	47.710	28.375	-44.046	28.336
Years of Habsburg rule	229	104.707	89.751	194.477	35.464	23.140	14.296
Years of Serbian autonomy	229	22.376	37.215	0.000	0.000	43.041	42.162
Years of Montenegrin autonomy	229	2.402	16.999	0.000	0.000	4.545	23.221
Years of other rule	229	0.008	0.024	0.015	0.033	0.003	0.009
Proto-ind. establishments, c.1800	229	0.572	1.451	0.908	1.630	0.264	1.189
Distance to printing press, c.1700	229	89.615	47.860	83.423	51.403	94.464	44.498
Literacy rate, 1931	229	51.586	21.753	69.465	16.250	35.791	11.455
Civil servants density, 1931	229	9.859	10.249	12.123	12.410	8.570	11.102
Railway density, 1931	229	4.887	9.725	6.999	13.240	2.997	3.778
Domestic market potential, 1931	229	97.343	17.156	100.189	17.190	96.821	28.185
Foreign market potential, 1931	229	2415.576	272.024	2591.340	226.086	2255.401	202.668
Population loss, c.1910-1921	229	16.273	9.181	8.050	4.520	23.507	5.593
Orthodox population share, 1931	229	0.534	0.377	0.287	0.279	0.758	0.307
Catholic population share, 1931	229	0.372	0.375	0.669	0.296	0.103	0.190
Muslim population share, 1931	229	0.072	0.152	0.001	0.002	0.135	0.188
Ethnic fractionalization index, 1931	229	0.282	0.253	0.338	0.245	0.232	0.250
Coal deposits	229	0.555	0.498	0.349	0.479	0.736	0.443
Wheat suitability	229	5622.411	1936.467	5866.156	1910.807	5418.135	1941.973
Elevation	229	408.062	320.771	308.662	276.526	495.153	332.850
Ruggedness	229	67.587	43.777	50.646	40.076	82.518	41.514
Distance to sea harbour	229	189.954	103.214	185.536	108.090	194.776	98.850
Access to navigable river	229	0.279	0.450	0.376	0.487	0.198	0.400
Longitude	229	18.437	2.056	17.375	1.849	19.410	1.734
Latitude	229	44.609	0.899	45.171	0.811	44.103	0.631

5 Empirical Strategy and Results

Exploiting the imperial divide as a quasi-natural experiment and a large cross-sectional dataset ($n = 344$) allows me to explore the causes and mechanisms at work. For that purpose, my strategy is as follows: First, I apply a spatial regression discontinuity design (RDD) to estimate the treatment effect of the long-standing Habsburg rule on the economic development and state capacity. Second, I assume state capacity to cause the regional differences in economic development and employ an IV approach to test this relationship. Third, since I cannot exclude any unobserved mechanisms between the exogenous treatment variable and economic development, I conduct a mediation analysis to account for these unobserved mechanisms beside state capacity and to figure out which aspect of state capacity is doing the work. Fourth, I ensure these results by applying a causal mediation framework.

5.1 Spatial Regression Discontinuity Design

Spatial RDD has become a convenient method for causal inference in economics and economic history. In order to identify the reduced-form effect that the Habsburg empire had on state capacity and economic development, I use the imperial border to assign the observations to treatment and control group. The general idea is that treatment assignment is determined by an exogenous forcing variable crossing a threshold. This ensures randomisation of treatment and if all covariates prior to the assignment vary smoothly around the threshold, discontinuities at the threshold are caused by the treatment (Angrist and Pischke 2009; Lee and Lemieux 2010). In the spatial context, this forcing variable is the location of a spatial object, say a district, relative to another spatial object, say the imperial border. If the distance of a district to the imperial border is the forcing variable, the border is the threshold, meaning that crossing the threshold assigns the district to the treatment group. For Yugoslavia, I define the forcing variable to be the Euclidean distance of a district's centroid to the closest point of the imperial border d_i, which is positive on the Habsburg side of the border and turns negative on the other side so that the Habsburg treatment H_i is assigned as follows: $H_i = 1$ if $d_i > 0$ and $H_i = 0$ if $d_i < 0$.

5.1.1 Model Specification

In the spatial RDD literature, it is common to apply a one-dimensional and a two-dimensional parametric approach. The one-dimensional approach relies on the polynomial function of one single forcing variable. In this case it is the Euclidean distance of a district to the imperial as defined above and as illustrated in Figure 7. Illustrating the one-dimensional spatial RDD specification without controls gives an intuitive insight into the method. The dependent variables as a smooth function of distance to the imperial border display a clearly visible discontinuity at the imperial border, which indicates a substantial and significant Habsburg treatment effect. Interestingly, the shape of the function tells us that the economic development of a district is driven by the proximity to the industrialised economies in northwest Europe, but state capacity seems to be related to

the proximity to the imperial centre. However, none of these drivers explain the sharp border discontinuity, which must have been caused by the Habsburg treatment. Formally this model is specified as follows:

$$Y_i = \alpha + \tau H_i + f(d_i) + long_i + lat_i + \mathbf{X}_i\beta + \epsilon_i; \text{ if } i \in \text{border sample}, \tag{7}$$

where I add the longitude and latitude of district i to the polynomial function of the distance to the imperial border $f(d_i)$ as the forcing variable. Y_i is the outcome variable, which is GDP per capita, industrial labour share, or state capacity index. H_i is the binary Habsburg treatment variable, $\mathbf{X}_i$ is a vector of control variables, and ϵ_i is an iid error term. τ is the treatment effect of interest.

The two-dimensional approach introduced by Dell (2010) treats the border as multi-dimensional discontinuity in longitude-latitude space. Instead of using the distance to the border as the forcing variable, the two-dimensional approach controls flexibly for the exact location of the district:

$$Y_i = \alpha + \tau H_i + f(long_i, lat_i) + \mathbf{X}_i\beta + \epsilon_i; \text{ if } i \in \text{border sample}, \tag{8}$$

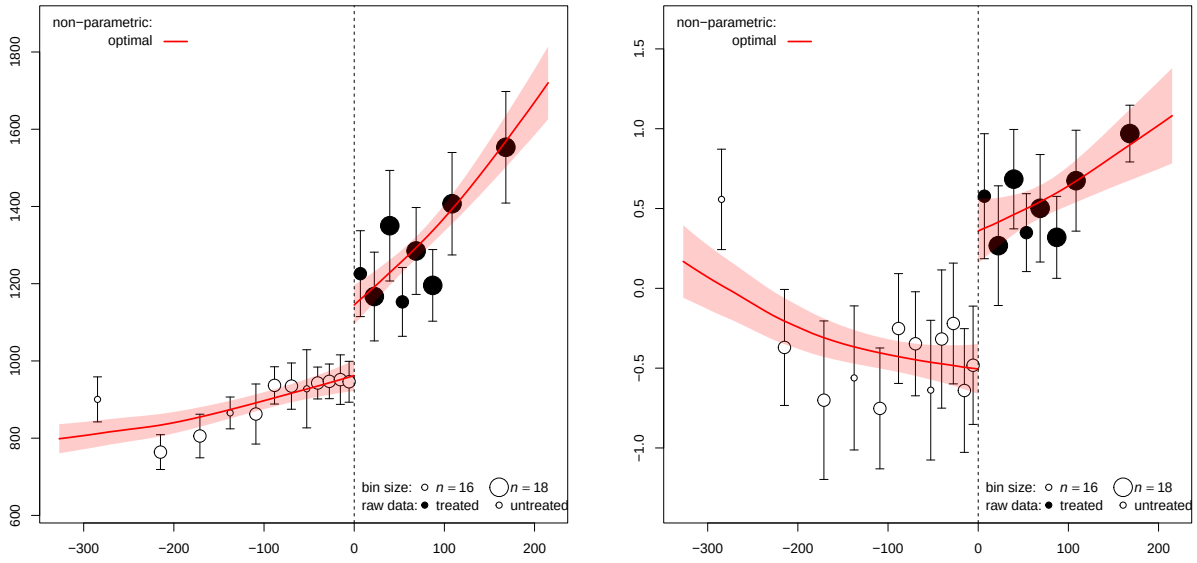
with the same variables as in the one-dimensional specification. For both specifications I opt for a quadratic specification of $f(\cdot)$ in order to avoid an overfitting of the model (Gelman and Imbens 2019). Equally important is the choice of the bandwidth around the threshold, because I face a trade-off between the statistical power and the proper specification of the models. Thus, I choose a 100km bandwidth with 229 observations within the border sample as a starting point and narrow it down to 20km where the border sample contains only 62 observations. Figure 10 shows that a bandwidth of around 60km and above yields stable results and lets the point estimates of the one- and two-dimensional specification converge.

5.1.2 Validity of Spatial RDD

In contrast to the general geographic RDD, the imperial border was already gone in 1931, so I do not estimate the short-term effects of a treatment implemented on one side of the border. Similar to Becker et al. (2016), the Habsburg treatment in my model is not orthogonal to all covariates, because the empires and nation states shaped non-economic outcomes as well, such as the religious composition of the population. Important is that the Habsburg treatment is exogenous and, thus, I must ensure that the imperial border is quasi-randomly drawn.

The imperial border was established in 1739 and divided the Yugoslav lands into the Habsburg, Ottoman, and until 1797 the Venetian empire (which became Habsburg thereafter). After some transitory French presence along the Adriatic coast, the same imperial border divided the Habsburg and the Ottoman empire between 1815 and 1878. Even after the independence of Serbia and Montenegro in 1878, the Habsburg border remained unchanged and separated the Habsburg empire on the one side and the remaining Ottoman regions, the new nation states, and Bosnia-Hercegovina as a Habsburg colony on the other side. All these emerging polities on the Ottoman side of the imperial border did not catch up to the Habsburg level of state capacity and economic

Figure 7: One-dimensional Spatial RDD



(a) GDP per capita [1990GK$]

(b) State Capacity Index

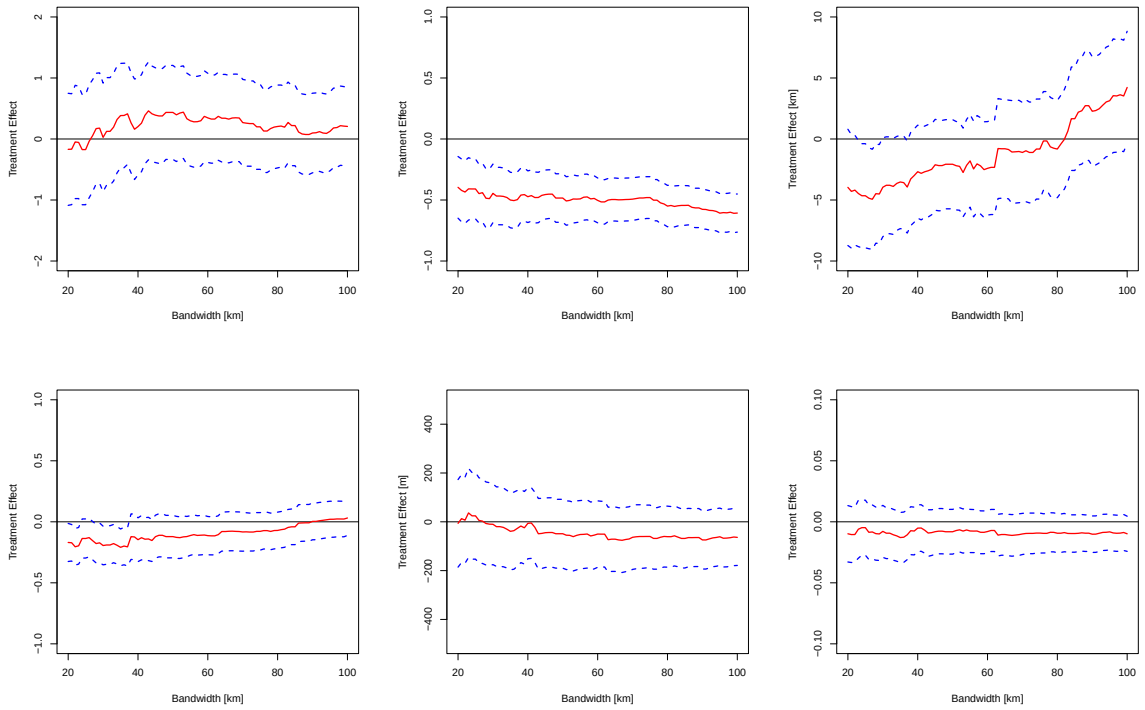
development as I argue in Section 3. The imperial border was established before the Habsburg empire implemented state modernisation in the spirit of the enlightenment and, thus, serves as a threshold in the spatial RDD.

However, the assignment to treatment and control group deserves some justification. Our baseline design uses the long-standing imperial border to sort the micro-regions into treatment and control group, although the Habsburg Kingdom of Serbia (1718-1739) and Bosnia-Hercegovina (1878-1918) also received some sort of Habsburg treatment, but I assign them to the control group. The reasons are, on the one hand, that the treatment on the Habsburg Kingdom of Serbia did not last long enough and ended before the modernisation of the Habsburg state institutions. Bosnia-Hercegovina, on the other hand, was de facto the only Habsburg colony, meaning they implemented a similar administrative structure there, but they insisted on financial self-reliance and drew heavily on non-native civil servants. Despite many achievements in administration and railway construction, the Habsburg empire failed to provide public goods such as elementary education and to reform the quasi-feudal agrarian relations (Ruthner 2014; Donia 2014; 2021). In both cases, the treatment was different from what the long-lasting Habsburg regions received. However, I check and estimate the Habsburg treatment effect on development, industrialisation and state capacity by using the largest extent of the Habsburg empire for the treatment assignment. The results reported in Table 21 suggest that if I include the Habsburg Kingdom of Serbia and Bosnia-Hercegovina in the treatment group, even the short and half-hearted Habsburg presence in these regions has left a positive legacy in terms of economic development and state capacity. Yet this treatment effect is

much smaller, which supports my argument of a reduced treatment intensity. Consequently, I stick to my baseline treatment assignment, because the existence of a mild treatment effect on Serbia and Bosnia-Hercegovina in the control group stacks the cards against my hypotheses.

Nonetheless, I face two crucial concerns: First, other covariates or pre-treatment differences might explain the divergent economic development and correlate with the treatment variable (Becker, Mergele and Woessmann 2020). Second, the treatment might be endogenous, because the Habsburg empire only conquered regions that were more prosperous or had a larger growth potential in the first place.

Figure 8: Spatial RDD of Covariates

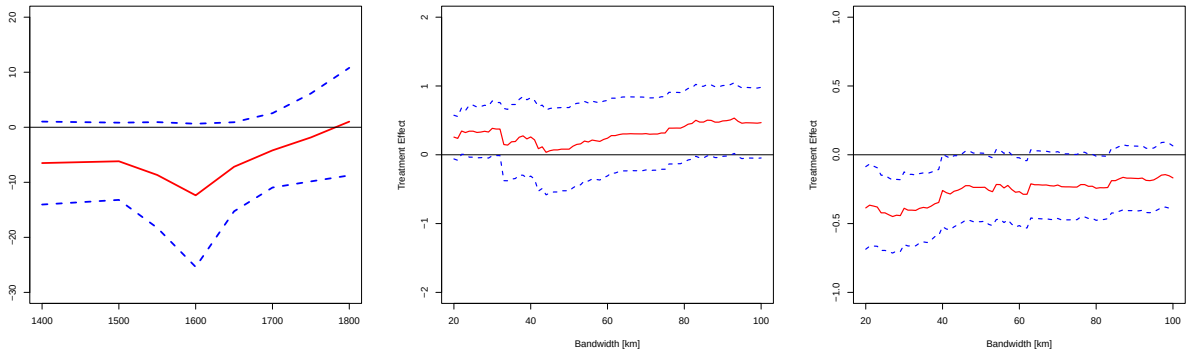


Note: Treatment coefficients (solid line) and 90% confidence intervals (dashed lines). From top left to right: (1) wheat suitability, (2) coal deposits, (3) distance to harbour, (4) access to navigable river, (5) elevation, and (6) ruggedness.

To address the first concern, I apply the spatial RDD to the covariates orthogonal to the Habsburg treatment in order to find potential discontinuities along the imperial border. The results in Figure 8 suggest that all covariates vary smoothly around the imperial border except for coal deposits. Here, the imperial border effect is negative, which means that if coal deposits drive the Habsburg treatment effect, I would expect this effect to be negative, because coal as an energy source was a major prerequisite for industrialisation. This also points to the second concern regarding the Habsburg anticipation of the economic potential: Soil quality and coal deposits as potential sources of agricultural development and industrialisation might predict the Habsburg treatment if

the Habsburg empire anticipated the regional growth potential. And indeed, the treated districts have a slightly better soil quality, but the differences are insignificant. Additionally, the Habsburg empire did not aim at the coal deposits on Ottoman territory and the significantly negative effect stacks the cards against my hypothesis.

Figure 9: Pre-Treatment Border Effects



(a) Urban population ($n = 35$) (b) Proto-industry ∼1800 (c) Log dist. printing press ∼1700

I overcome the second concern by using urban population data from the updated Bairoch database in the Yugoslav land between 1400 and 1900 (Buringh 2021). Urban population serves as an approximation of economic development in pre-modern times (Bairoch 1988). As a first step, I apply the spatial RDD to this urban population dataset in each year in the sample and find a negative but insignificant Habsburg treatment effect until 1750, when the imperial border had finally been settled. Only thereafter, the estimated effect switches signs, but remains insignificant (see Figure 9a). Furthermore, I exploit the panel structure and estimate a simple fixed-effects model (see Table 2). With the expansion of the Habsburg empire, I utilise the time dimension and the variation in the treatment variable due to the Habsburg conquest. Both results indicate that the Habsburg regions were economically less prosperous before the establishment of the imperial border, therefore, the imperial border did not follow any economic rationale. Moreover, it seems very likely that cities under Habsburg rule grew at a larger rate only after the Habsburg treatment. According to Figure 9b, the Habsburg regions were more proto-industrialised by 1800 and also human capital endowment might have been more favourable in the Habsburg regions, since they were closer to a printing press around 1700. The printing press is related to human capital accumulation and spillovers (Dittmar 2011). Although the Habsburg treatment predicts proto-industrialisation and human capital endowment, the pre-treatment effect is hardly significant. Notwithstanding, I control for these two confounders in the robustness section and find almost no confounding impact on the baseline estimates (see Figure 11).

The attentive reader might raise two additional problems: One is potential spillover effects at the border due to migration, institutional adaption, and other diffusion processes. And indeed, autonomous Serbia recruited experienced civil servants and experts from the Habsburg Vojvodina,

Table 2: Fixed-Effects Model

	Urban Population Growth	
	1500-1800	1500-1900
Habsburg	0.374***	0.292***
	(0.090)	(0.086)
Other	0.166	0.119
	(0.112)	(0.087)
L(Population)	Yes	Yes
Year FE	Yes	Yes
Observations	238	306
Groups	34	34

Note: Standard error in parentheses. *p<0.1; **p<0.05; ***p<0.01

Habsburg institutions, such as the cadastre, were adapted by some long-standing Ottoman micro-regions after 1918 (Müller 2012; 2020). Furthermore, Kukić and Nikolić (2020) provide data for regional industrialisation in Yugoslavia, which suggests a slight convergence between the long-standing Habsburg and Ottoman regions during the 1930s. Note that such spillover effects would decrease the discontinuity at the imperial border and, therefore, work against my identification strategy. Besides, I run a spatial donut RDD where I exclude the observation directly located at the imperial border to account for diffusion and find an even larger border effect (see Appendix, Table 18). On the other side, selective sorting of more productive individuals from regions with lower to regions with higher state capacity might be a problem. If this really happened, which I am sceptical of, this is another unobservable mechanism through which state capacity affected economic development.[7]

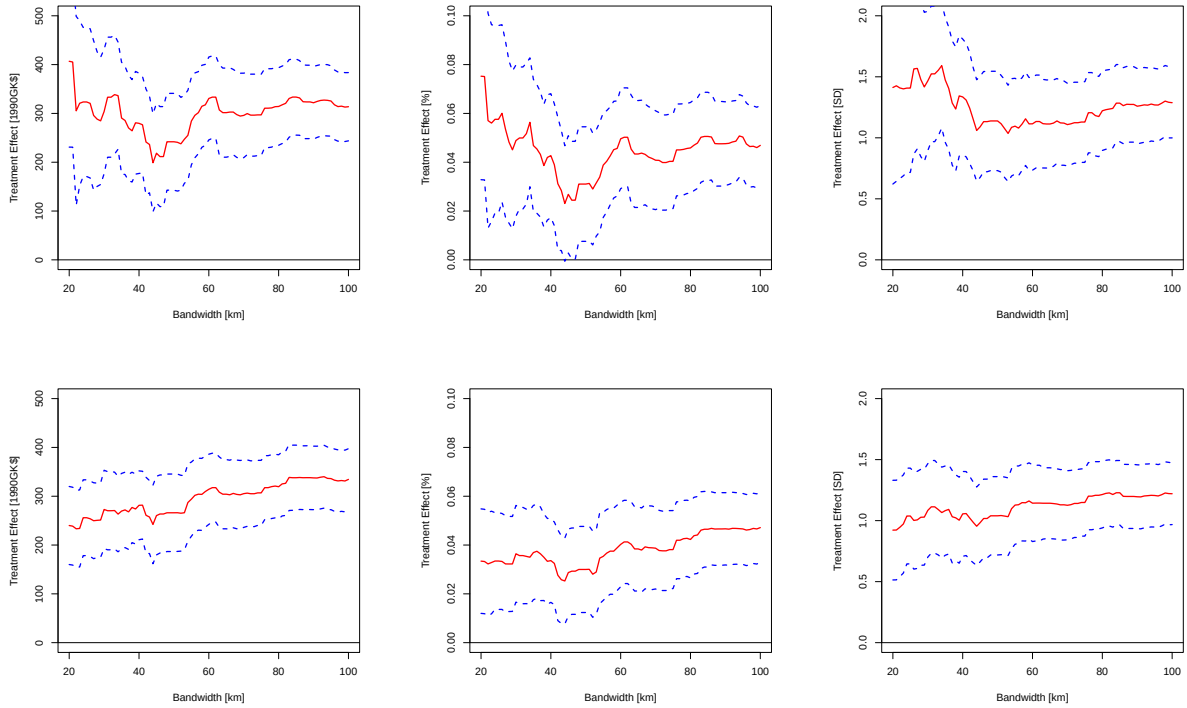
5.1.3 Baseline Results

Since I have ensured that the identification assumptions of the spatial RDD model hold in the context of Yugoslavia, I can proceed to the estimation. Estimating my baseline model with varying bandwidths around the imperial border yields substantial, highly significant, and robust results, as displayed in Figure 10. The Habsburg treatment effect on GDP per capita converges to around 300 1990GK$, which is an effect size of 26% of the national average. If a long-standing Ottoman district would have been conquered by the Habsburg empire and would have received the Habsburg treatment, then its GDP per capita would have been around 300 1990GK$ larger in 1931. Correspondingly, the industrial labour share would have been circa 4 percentage points (38% of the

[7]Permanent migration in Yugoslavia was rare, because the population consisted mostly of small-holding peasants that were bound to their small plot of land and commuted daily to the next town for non-agricultural employment rather than giving up the land and moving to another region. Another factor that hampered migration was the religious, ethnic and lingual diversity in Yugoslavia. Muslims for instance stayed in their communities instead of moving to long-standing Habsburg regions, especially if they were Albanian-speaking. To the best of my knowledge, there exists no evidence of selective sorting on a relevant scale in inter-war Yugoslavia. Once Yugoslavs decided to migrate, they migrated to the New World and they did so in large numbers (Brunnbauer 2012).

national average) and state capacity more the one standard deviation larger.

Figure 10: Spatial RDD Baseline Results



(a) GDP per capita (b) Industrial Labour Share (c) State Capacity Index

Note: Treatment coefficients (solid line) and 90% confidence intervals (dashed lines). The row number corresponds with the dimensionality of the spatial RDD specification.

5.1.4 Robustness

To test the robustness of the baseline results I conducted a battery of tests. First, I have dropped Beograd as an observation in the baseline estimation. Beograd was the capital of Yugoslavia and attracted physical and human capital from the entire country. Moreover, it is technically the only completely urban district in our sample that, by construction, leads to above-average values for almost all socio-economic variables. Therefore, I also estimate the baseline specification and include Beograd in our sample. The subsequent results are much smaller and less significant. However, the sign remains positive and the significance only drops below the standard level of 10% in small border samples where the outlier has the largest impact. Including Beograd does not undermine my hypothesis. Second, I analyse the sensitivity of the model regarding different GDP estimates discussed in Section 4.1 and do not find any different treatment effect, which assures that the Habsburg treatment effect is not driven by limited real wage data (see Appendix, Figure 23). Actually, the treatment effect on the industrial labour share already proves this and there

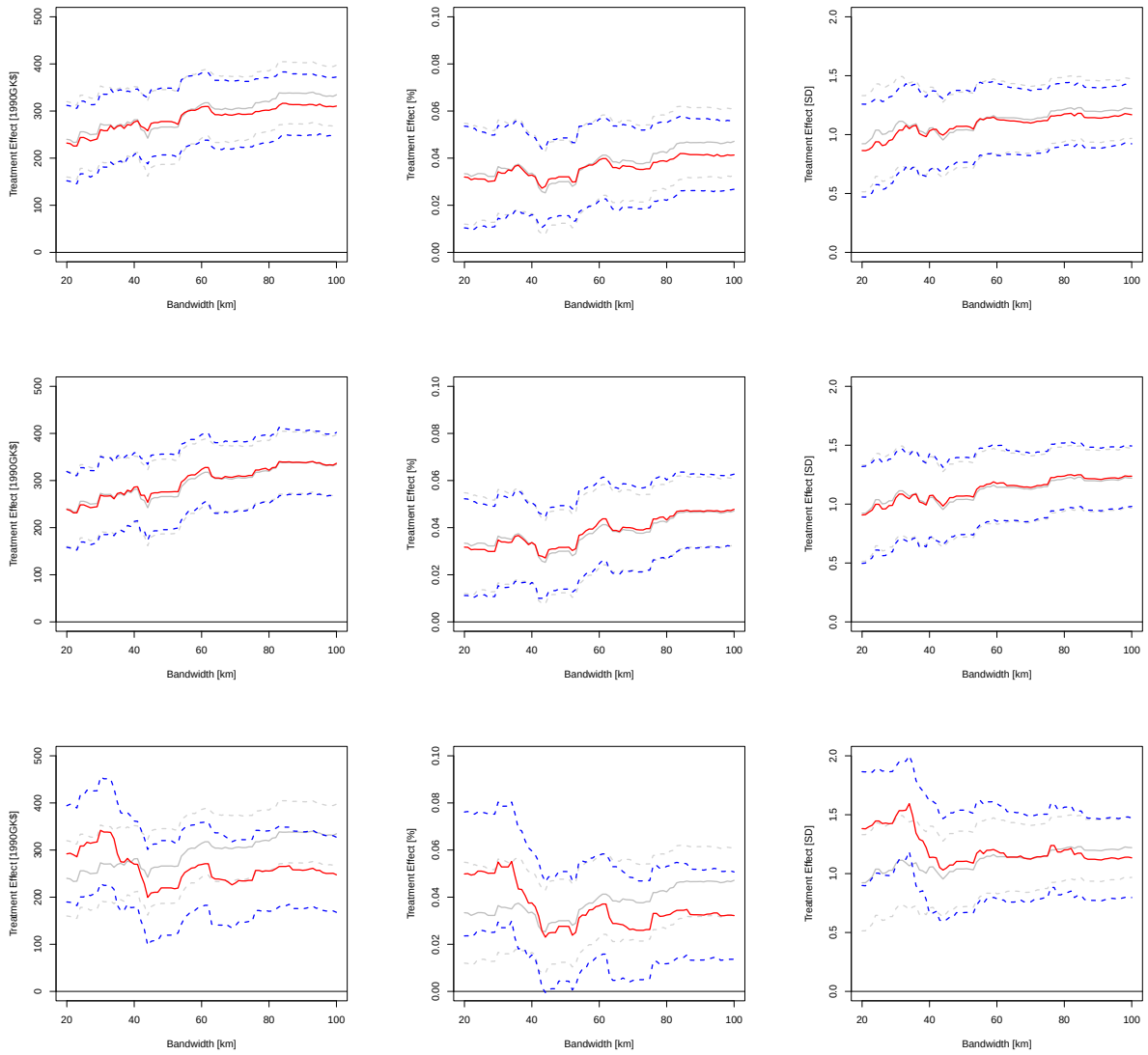
also exists a treatment effect on the service labour share (unreported). Third, I apply a donut RDD specification to account for spillovers immediately at the imperial border by removing all observations directly at the border from the sample (Almond and Doyle 2011; Barreca et al. 2011; Eggers et al. 2015). The results (see Appendix, Figure 24) suggest the existence of spillover effects, which work against my hypothesis and accounting for them yields larger Habsburg treatment effects.

Fourth, the imperial border effect might be driven by factors other than the Habsburg treatment or at least by mediators. Therefore, I control for path dependence (proto-industrial establishments around 1800), pre-treatment human capital endowment approximated by distance from a printing press (Dittmar 2011; Popescu and Popa 2022), and religion (the Muslim and Orthodox population share against the Catholic population share). As a result, the estimated treatment effects deviate only slightly from the baseline estimates, except if I control for religion. Yet, even if I control for religion, the treatment effects neither disappear nor are they rendered insignificant. This suggests that the Habsburg treatment affected economic development after 1800 and that it is not explained by religious sorting along the imperial border.

Fifth, the last check concerns the possibility of the imperial border effect to be spurious and I conduct a placebo test in order to tackle this issue. I shift the actual border randomly north and south and re-estimate the spatial RDD model. For this purpose, the full sample is used and the two-dimensional specification is estimated with placebo borders 20, 40, 60, 80, and 100km north and south of the actual border. The estimated treatment coefficients and the 95% confidence interval are provided in Figure 12 and show that a positive and significant coefficient appears only at the actual border. Shifting the border yields rapidly decreasing estimates, indicating that the positive and significant effect at the imperial border is unique and does not occur by chance at any of the placebo borders.

These robust results are strong evidence in favour of $H1$ that the Habsburg empire had a positive impact on state capacity and economic development.

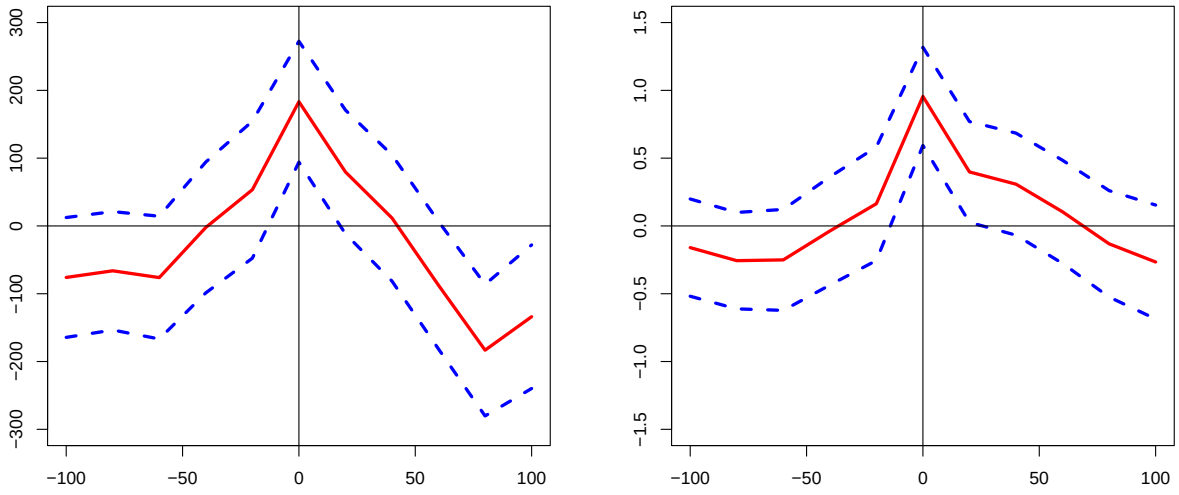
Figure 11: Spatial RDD with Confounders



(a) GDP per capita (b) Industrial Labour Share (c) State Capacity Index

Note: Treatment coefficients (solid line) and 90% confidence intervals (dashed lines). Grey indicates baseline results. Confounders according to the rows: i) proto-industrial establishments around 1800, ii) log distance to printing press around 1700, iii) the Muslim and Orthodox populations' shares in 1931. The two-dimensional spatial RDD specification is estimated.

Figure 12: Placebo Border Test



(a) GDP per capita [1990GK$]

(b) State Capacity Index

Note: Treatment coefficient (solid line) and 95% confidence interval (dashed lines) if shifting the imperial border x km south (−) and north (+).

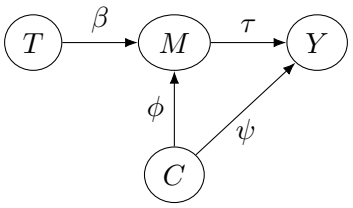
5.2 Causal Mechanism Analysis

So far, I find a positive, substantial, robust and highly significant Habsburg treatment effect on economic development and state capacity. These findings are in line with the claim that the Habsburg empire has enhanced economic development by a higher level of state capacity, but they do not provide sufficient evidence with respect to the relationship between state capacity and economic development. Therefore, I want to test hypothesis *H2* that state capacity stimulates economic development and *H3* that the Habsburg treatment affects economic development through state capacity.

5.2.1 IV Approach

Since a simple regression model is always confronted with endogeneity concerns such as reverse causality, I opt for an IV approach where I assume state capacity to be endogenous. Similar to Acemoglu et al. (2011), I allow for more variation in the Habsburg treatment variable by using the years of Habsburg rule between the Treaty of Karlowitz (1699) and the beginning of the Balkan Wars (1912). The idea is that the longer a district was ruled by the Habsburg empire, the stronger the state institutions that could have been built up are. Higher state capacity enabled the local administration to provide the public goods needed for economic development. The 2SLS estimator regresses state capacity M on the instruments $\mathbf{T}$ on the first stage and regresses economic development outcome Y on the fitted values of state capacity $\widehat{M}$ on the second stage:

Figure 13: IV Model



(a) DAG

$$M = \alpha_1 + \mathbf{T}\beta + \mathbf{C}\phi + \epsilon_1, \tag{9}$$

$$Y = \alpha_2 + \widehat{M}\tau + \mathbf{C}\psi + \epsilon_2, \tag{10}$$

(b) 2SLS Estimator

where $\mathbf{C}$ is a vector of controls and ϵ_1 and ϵ_2 are iid error terms. In order to interpret τ as a causal effect of state capacity on economic development outcomes, the exclusion restrictions must hold: a) the exogenous instrument $\mathbf{T}$ must be correlated with the causal variable M ($\mathbb{E}[M|\mathbf{T}] \neq 0$), but has to be uncorrelated with unobservable determinants of the economic outcome variable Y ($\mathbb{E}[\epsilon|\mathbf{T}] = 0$).

Since this is assured for the baseline model with years of the Habsburg rule as single instrument, we can interpret the second stage results causally. Including instruments does not change the results and their significance. A one standard deviation larger state capacity increases per capita income by 180-200 1990GK$ and industrialisation by 3.6-4.6 percentage points, which supports $H2$ that state capacity has a positive causal effect on economic development.

Table 3: 2SLS Results

	GDP per capita		*Industrial Labour Share*	
	(1)	(2)	(3)	(4)
	Panel A: OLS			
State Capacity	121.91^{***}		0.035^{***}	
	(11.30)		(0.003)	
	Panel B: IV, second stage			
State Capacity	184.32^{***}	200.22^{***}	0.036^{***}	0.046^{***}
	(35.29)	(34.93)	(0.008)	(0.009)
	Panel C: IV, first stage			
Years of Habsburg rule	0.0066^{***}	0.0090^{***}	0.0066^{***}	0.0090^{***}
	(0.0011)	(0.0014)	(0.0011)	(0.0014)
Habsburg Military Frontier		-0.462^{***}		-0.462^{***}
		(0.145)		(0.145)
F statistic	34.52	21.12	34.52	21.12
n	343	343	343	343

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01.

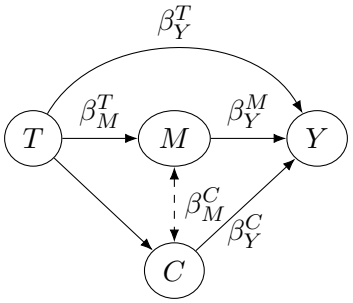
5.2.2 Mediation Analysis

The last major concern regarding the effect of state capacity on economic development remains unresolved: I find large and robust imperial border effects in favour of the Habsburg side and this effect works through state capacity, but other unobserved mechanisms linked to the Habsburg empire might do the job instead. Even though I checked the exclusion restrictions and do not find any significant correlation of the Habsburg treatment with the OLS disturbance term, this assumption is implausible. Protective tariffs or legal traditions for example might have caused this effect instead of state capacity. In order to rule out these unobserved mechanisms and test *H3*, I estimate a mediation model as illustrated in Figure 14a. I assume that the Habsburg treatment T has a direct effect β_Y^T on the final development outcome Y via unobservable mechanisms and an indirect effect $\beta_M^T \cdot \beta_Y^M$ via state capacity M. Moreover, I control for other observable pre- or post-treatment confounders C.

The results show that the 2SLS estimates of the state capacity effect are too large: The isolated effect of state capacity on economic development and industrialisation has the size of 95-120 1990GK$ (8-10% of national average) and 2.2-3.0 percentage points (21-28% of national average), respectively. If a region levelled up its state capacity by one standard deviation, it increases its per capita income by 8-10% and its industrial labour force by 21-28%. Although this effect is smaller than the 2SLS result, this is still a substantial effect and corroborates $H2$.

The indirect Habsburg treatment effect via state capacity ranges between 105 and 160 1990GK$, which is almost half of the total treatment effect. Interestingly, there is no direct Habsburg treatment effect on industrialisation and 60-80% of the total effect is working through the state capacity

Figure 14: Mediation Model with Exogenous Treatment



(a) DAG

$$T = \epsilon_T, \tag{11}$$
$$M = \beta_M^T \cdot T + \beta_M^C \cdot C + \epsilon_M, \tag{12}$$
$$Y = \beta_Y^T \cdot T + \beta_Y^M \cdot M + \beta_Y^C \cdot C + \epsilon_Y, \tag{13}$$

(b) Model Equations

channel, while the rest is associated with other observable mediators such as path dependency or the settlement of Germans (Nikolić, Blum and Vonyó 2022). This implies that if a non-Habsburg region would have adapted to the Habsburg level of state capacity, this region would have increased its 1931 income level by 105-160 1990GK$ and its industrial labour force share 2.5-3.3 percentage points (9-13% and 24-31% of the national average, respectively). Furthermore, $H3$ seems to be supported by the presented evidence.

Table 4: Mediation Analysis, Second Stage Results

	GDP per capita			*Industrial Labour Share*		
Bandwidth [km]	100	50	25	100	50	25
β_Y^M	122.272***	94.162***	115.135***	0.030***	0.022***	0.024***
	(14.095)	(13.229)	(16.954)	(0.004)	(0.003)	(0.005)
DE: β_Y^T	120.562**	140.104**	176.675*	-0.007	-0.003	0.008
	(54.182)	(66.929)	(97.985)	(0.012)	(0.013)	(0.021)
β_M^T	0.983***	1.140***	1.377**	0.983***	1.142***	1.377**
	(0.310)	(0.371)	(0.592)	(0.310)	(0.371)	(0.592)
IE: $\beta_M^T \times \beta_Y^M$	120.19	107.36	158.54	0.029	0.025	0.033
TE (estd. in Table 4):	315.63	241.95	300.34	0.047	0.030	0.051
S=IE/TE	0.380	0.443	0.527	0.617	0.833	0.647
n	229	123	70	229	23	70

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01.

For further inquiry, I estimate this mediation model with literacy rates, civil servant density and railway density as mediators instead of state capacity. I estimate the Habsburg effect for several possible mediators (see the Appendix, Table 19) and use the estimates of those three variables to calculate indirect effects on economic development and industrialisation. The bottom line is that literacy as a human capital proxy seems to do the major work and administrative capacity seems to be important too, but railway density does not have any substantial effect neither on economic development nor on industrialisation. The Habsburg empire established a well-functioning

administration that was capable of enforcing law and order, extracting taxes and implementing other policies. As a result, the Habsburg empire provided public elementary schooling among other public goods and improved the human capital endowment. Both factors fostered economic development in the long-standing Habsburg regions, but these factors are by no means exhaustive. A richer dataset might reveal more mechanisms between state capacity and economic development.

Table 5: Extended Mediation Analysis, Second Stage Results

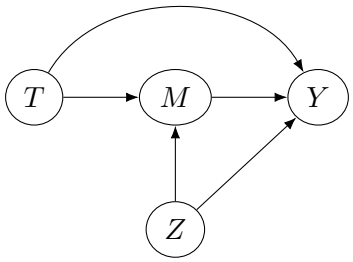
	GDP per capita			*Industrial Labour Share*		
Bandwidth [km]	100	50	25	100	50	25
β_Y^L	3.364***	2.553*	4.614**	0.001***	0.001***	0.001*
	(1.253)	(1.388)	(2.293)	(0.000)	(0.000)	(0.000)
β_Y^A	10.961***	8.704***	6.731***	0.002***	0.001***	0.001***
	(2.356)	(1.998)	(1.519)	(0.001)	(0.000)	(0.000)
β_Y^R	1.388***	1.802***	2.667	0.001***	0.001***	0.001**
	(0.504)	(0.507)	(2.446)	(0.000)	(0.000)	(0.000)
DE: β_Y^T	61.801	96.306*	72.611	-0.024*	-0.012	-0.011
	(57.032)	(52.783)	(107.276)	(0.013)	(0.011)	(0.020)
$\beta_L^T \times \beta_Y^L$	98.17	72.30	151.47	0.032	0.022	0.026
$\beta_A^T \times \beta_Y^A$	99.73	64.27	56.78	0.019	0.011	0.011
$\beta_R^T \times \beta_Y^R$	7.25	-1.90	22.98	0.003	-0.001	0.009
IE: $\Sigma\beta_M^T \times \beta_Y^M$	205.16	134.67	231.24	0.054	0.032	0.047
TE (estd. in Table 4):	315.63	241.95	300.34	0.047	0.030	0.051
S=IE/TE(estd.)	0.650	0.556	0.769	1.153	1.066	0.932
n	229	123	70	229	123	70

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01.

5.2.3 Causal Mediation Analysis

Even though the treatment is exogenous, this mediation model is only identified by the strong assumption that variation of the mediator (state capacity) causes variation of the development outcome and not vice versa. This assumption is theoretically well founded, but also theoretically I cannot exclude reverse causality, meaning that higher productivity allows for higher tax returns and better public goods provision. Hence, I conduct a causal mediation analysis with a regression discontinuity design to check the validity of the mediation analysis. Most of the causal mediation models instrument for the treatment variable (Celli 2022), but in my case the treatment is already exogenous and, thus, there exists no suitable instrumental variable. Hence, I apply the novel non-parametric estimator proposed by Celli (2020), which requires to satisfying a few assumptions. Additional to the assumptions of the conditional randomness of the treatment and continuity of the potential outcome at the cut-off point, which I have ensured already in Subsection 5.1.1, the treatment must be conditionally independent of the forcing variable, the mediator must be a deterministic function of the treatment and the forcing variable, and comparable observations given the forcing variable and covariates must exist in the treatment and the control group. These assumptions arguably hold if I use the two-dimensional specification (Dell 2010), because it does not assume the treatment to be a function of the forcing variable, which would violate the assumption of conditional independence between the treatment and forcing variable. State capacity as mediator is a deterministic function of the Habsburg treatment as I have argued in Section 3 and it is also visible in Figure 8a. Moreover, the overlap assumption holds too as the propensity score in the Appendix indicate. Therefore, I can apply the non-parametric estimator as proposed by Celli (2020) and as presented in Figure 15.

Figure 15: Causal Mediation Model with Spatial RDD



$$\hat{\theta}(0) = \frac{1}{n}\sum_{i=1}^{n}\left\{\left[\hat{\mu_Y}(1, M_i, Z_i, X_i) - \hat{\mu_Y}(0, M_i, Z_i, X_i)\right]\left(\frac{\hat{\rho}(m_i, x_i)}{1-\hat{p}(x_i)}\right)\middle| Z = \bar{z}\right\}, \tag{14}$$

$$\hat{\delta}(1) = \frac{1}{n}\sum_{i=1}^{n}\left\{\hat{\mu_Y}(1, M_i, Z_i, X_i)\left(\frac{\hat{\rho}(m_i, x_i)}{\hat{p}(x_i)} - \frac{1-\hat{\rho}(m_i, x_i)}{1-\hat{p}(x_i)}\right)\middle| Z = \bar{z}\right\}, \tag{15}$$

where $\theta(0)$ is the direct Habsburg treatment effect for non-treated regions and $\delta(1)$ is the indirect effect for the treated regions via state capacity. $\hat{\rho}(m_i, x_i)$ and $1-\hat{p}(x_i)$ denote the propensity score

estimates $Pr(D = 1|M = m_i, X = x_i)$ and $Pr(D = 1|X = x_i)$, respectively.[8]

The non-parametrical estimates of the total treatment effect and its components seem to corroborate my results, even though they deviate in size and significance. The general pattern of the mediation analysis remains: The Habsburg treatment has a positive and substantial direct and indirect effect on GDP per capita, which is within the range of the standard mediation estimates, even though the indirect effect becomes highly insignificant. The total effect is, however, in line with the baseline estimate of around 300 1990GK$. In the case of the industrial labour force share, the direct and indirect effect are positive and highly significant. Although the ratio of indirect to total effect is close to the standard mediation analysis, the effect sizes are implausibly large as is the total effect with respect to the spatial RDD baseline results. Yet, at least it allows me to rule out that the standard mediation model overestimates the direct and indirect effect. This suggests that my estimates turn out to be robust in a causal mediation model. To derive the causal effect of state capacity on economic development, I do a back-of-the-envelop calculation and divide the estimated indirect effect by the causal Habsburg treatment effect on state capacity following the intuition that $IE = \beta_M^T \cdot \beta_Y^M$. The results indicate that the causal state capacity effect on economic development is compatible with previous estimates even though the effect size in the case of industrialisation is larger than previous estimates.

Table 6: Causal Mediation Analysis with RDD

	GDP	ILS
DE: $\theta(0)$	154.613***	0.0157***
	(19.431)	(0.0031)
IE: $\delta(1)$	150.548	0.1111***
	(191.486)	(0.0155)
TE: Δ	305.161	0.1268***
	(196.995)	(0.0165)
S=IE/TE	0.493	0.876
β_Y^M (calc.)	123.4	0.091
Bandwidth [km]	100	100
n	229	229

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01.

The aim of this causal mechanism analysis was to test $H2$ that state capacity has a positive effect on economic development and $H3$ that the Habsburg treatment affects economic development via state capacity. All the three causal mechanism exercises yield similar results and provide robust evidence in support of $H2$ and $H3$. The causal effect of one standard deviation increase in state capacity raises GDP per capita by 95-125 1990GK$ and the industrial labour force share by 2.2-3.0 percentage points (8-11% and 21-29% of the national average, respectively). This implies that up to half of the Habsburg treatment effect on GDP per capita and 60-80% in the case industrialisation works through the state capacity channel. Hence, state capacity was the decisive

[8]For more details on this new estimator see Celli (2020).

factor in how the Habsburg empire impacted the economic development of the Yugoslav lands. An effective administration and human capital endowment due to public schooling especially shaped the preconditions for modern economic growth.

6 Concluding Remarks

The presented results show that state capacity promotes economic development. A capable state mobilises resources, provides public goods and shapes the preconditions for sustained economic growth. Comparing micro-regions around the imperial border of the Habsburg empire shortly after its dissolution, I find that former long-standing Habsburg regions appear to have higher levels of state capacity, GDP per capita and industrialisation. 25-38% of these differences in GDP per capita were caused by the Habsburg treatment with higher state capacity. One standard deviation increase in state capacity led to a 8-11% increase in GDP per capita levels and a 21-29% increase in the industrial labour force share. Moreover, I find human capital tied to public schooling and administrative capacity to be important aspects of state capacity.

I establish these results by deploying a spatial regression discontinuity design and a causal mechanism analysis. My empirical strategy exploits the imperial border that divided the Yugoslav lands before WWI and I focus on districts within a 100km bandwidth around the border. Policies and institutions in the Kingdom of Yugoslavia are common for all these districts, but they differ in state capacity determined by exposure to the Habsburg treatment. By controlling for observable variation in religion, language, pre-treatment differences and population loss during WWI, I rule out other possible channels of Habsburg treatment. The Habsburg empire left an efficient bureaucracy that was able to mobilise resources and invest them in public goods whereas the Ottoman empire and its successor states failed to catch up. Consequently, the former Habsburg regions were endowed with better preconditions for economic development. They appear to have a higher human capital endowment and a stronger public administration to collect taxes and enforce law and order. Both aspects of state capacity seem to be crucial for understanding the regional differences in economic development.

However, I cannot explore more possible mechanisms due to the limitations of the dataset. Moreover, my study tells us little about the dynamics of state capacity and economic development. State capacity is crucial for economic development, but we do not know yet after how many decades investments in state capacity pay off and affect economic development. I leave these questions for further research.

References

Acemoglu, Daron. 2005. "Politics and economics in weak and strong states." *Journal of Monetary Economics*, 52(7): 1199–1226.

Acemoglu, Daron, Camilo García-Jimeno, and James A. Robinson. 2015. "State Capacity and Economic Development: A Network Approach." *American Economic Review*, 105(8): 2364–2409.

Acemoglu, Daron, Davide Cantoni, Simon Johnson, and James A Robinson. 2011. "The Consequences of Radical Reform: The French Revolution." *American Economic Review*, 101(7): 3286–3307.

Acemoglu, Daron, Jacob Moscona, and James A. Robinson. 2016. "State Capacity and American Technology: Evidence from the Nineteenth Century." *American Economic Review*, 106(5): 61–67.

Acharya, Avidit, and Alexander Lee. 2019. "Path Dependence in European Development: Medieval Politics, Conflict, and State Building." *Comparative Political Studies*, 52(13-14): 2171–2206.

Aksan, Virginia H. 2007. *Ottoman Wars 1700-1870 - An Empire Besieged.* Harlow: Pearson.

Aldcroft, Derek Howard. 2006. *Europe's Third World: the European periphery in the interwar years.* Aldershot: Ashgate.

Alesina, Alberto, Arnaud Devleeschauwer, William Easterly, Sergio Kurlat, and Romain Wacziarg. 2003. "Fractionalization." *Journal of Economic Growth*, 8(2): 155–194.

Allen, Robert C. 2001. "The Great Divergence in European Wages and Prices from the Middle Ages to the First World War." *Explorations in Economic History*, 38(4): 411–447.

Allen, Robert C. 2003. "Progress and poverty in early modern Europe." *The Economic History Review*, 56(3): 403–443.

Almond, Douglas, and Joseph J. Doyle. 2011. "After Midnight: A Regression Discontinuity Design in Length of Postpartum Hospital Stays." *American Economic Journal: Economic Policy*, 3(3): 1–34.

Amsden, Alice H. 1992. *Asia's Next Giant: South Korea and Late Industrialization.* New York: Oxford University Press.

Angrist, Joshua D., and Jörn-Steffen Pischke. 2009. *Mostly Harmless Econometrics - An Empiricist's Companion.* Princeton: Princeton University Press.

Backhaus, Andreas. 2019. "Fading Legacies: Human Capital in the Aftermath of the Partitions of Poland." *EHES Working Paper*, 150.

Bairoch, Paul. 1988. *Cities and Economic Development.* Chicago: University of Chicago Press.

Barreca, Alan I., Melanie Guldi, Jason M. Lindo, and Glen R. Waddell. 2011. "Saving Babies? Revisiting the effect of very low birth weight classification." *The Quarterly Journal of Economics*, 126(4): 2117–2123.

Bateman, Deborah A, Mieko Nishimizu, and John M Page. 1988. "Regional productivity differentials and development policy in Yugoslavia, 1965–1978." *Journal of Comparative Economics*, 12(1): 24–42.

Becker, Sascha O., Katrin Boeckh, Christa Hainz, and Ludger Woessmann. 2016. "The Empire Is Dead, Long Live the Empire! Long-Run Persistence of Trust and Corruption in the Bureaucracy." *The Economic Journal*, 126(590): 40–74.

Becker, Sascha O., Lukas Mergele, and Ludger Woessmann. 2020. "The Separation and Reunification of Germany: Rethinking a Natural Experiment Interpretation of the Enduring Effects of Communism." *Journal of Economic Perspectives*, 34(2): 143–171.

Besley, Timothy, and Torsten Persson. 2008. "Wars and State Capacity." *Journal of the European Economic Association*, 6(2-3): 522–530.

Besley, Timothy, and Torsten Persson. 2010. "State Capacity, Conflict, and Development." *Econometrica*, 78(1): 1–34.

Bićanić, Ivo, and Marko Škreb. 1994. "The Yugoslav Economy from Amalgamation to Disintegration. Failed efforts at molding a new economic space 1919–91." In *Economic Transformations in East and Central Europe - Legacies from the past and policies for the future.* , ed. David F. Good, 147 – 162. London: Routledge.

Bićanić, Rudolf. 1938. *Ekonomska Podloga Hrvatskog Pitanja.* Zagreb: Hrvatska Narodna Tiskara Stjepan Vidović.

Bogavac, Blagoje, Andrija Šneperger, Stojan Novaković, and Dragoljub Janković, ed. 1951. *Sto godina železnica Jugoslavije 1849-1949.* Beograd.

Bolt, Jutta, Robert Inklaar, Herman de Jong, and Jan Luiten van Zanden. 2018. "Rebasing 'Maddison': New Income Comparisons and the Shape of Long-Run Economic Development." *GGDC Reseach Memorandum*, 174.

Brunnbauer, Ulf. 2012. "Emigration Policies and Nation-building in Interwar Yugoslavia." *European History Quarterly*, 42(4): 602–627.

Buringh, Eltjo. 2021. "The Population of European Cities from 700 to 2000: Social and Economic History." *Research Data Journal for the Humanities and Social Sciences*, 6(1): 1–18.

Celli, Viviana. 2020. "Identification of Causal Mechanisms through an RD Approach."

Celli, Viviana. 2022. "Causal mediation analysis in economics: Objectives, assumptions, models." *Journal of Economic Surveys*, 36(1): 214–234.

Centeno, Miguel Angel. 2002. *Blood and Debt: War and the Nation-State in Latin America.* Penn State Press.

Chambru, Cédric, Emeric Henry, and Benjamin Marx. 2021. "The Dynamic Consequences of State-Building: Evidence from the French Revolution."

Chilosi, David, and Stefan Nikolić. 2021. "Vanishing borders: ethnicity and trade costs at the origin of the Yugoslav market." *EHES Working Paper*, 214.

Clark, Colin. 1960. *The Conditions of Economic Progress.* London: Macmillan.

Crafts, Nicholas, and Nikolaus Wolf. 2014. "The Location of the UK Cotton Textiles Industry in 1838: A Quantitative Analysis." *The Journal of Economic History*, 74(4): 1103–1139.

Cvrček, Tomáš, and Miroslav Zajíček. 2019. "The rise of public schooling in nineteenth-century Imperial Austria: Who gained and who paid?" *Cliometrica*, 13(3): 367–403.

Dell, Melissa. 2010. "The Persistent Effects of Peru's Mining Mita." *Econometrica*, 78(6): 1863–1903.

Dimitrova-Grajzl, Valentina. 2007. "The Great Divide Revisited: Ottoman and Habsburg Legacies on Transition." *Kyklos*, 60(4): 539–558.

Dincecco, Mark. 2017. *State Capacity and Economic Development: Present and Past.* . 1 ed., Cambridge University Press.

Dincecco, Mark, and Gabriel Katz. 2016. "State Capacity and Long-Run Economic Performance." *The Economic Journal*, 126(590): 189–218.

Dincecco, Mark, and Mauricio Prado. 2012. "Warfare, fiscal capacity, and performance." *Journal of Economic Growth*, 17(3): 171–203.

Dincecco, Mark, and Yuhua Wang. 2022. "State Capacity in Historical Political Economy." In *The Oxford Handbook of Historical Political Economy.* . 1 ed., , ed. Jeffery A. Jenkins and Jared Rubin, C13.P1–C13.N8. Oxford University Press.

Dittmar, Jeremiah E. 2011. "Information Technology and Economic Change: The Impact of The Printing Press." *The Quarterly Journal of Economics*, 126(3): 1133–1172.

Dittmar, Jeremiah E, and Ralf R Meisenzahl. 2020. "Public Goods Institutions, Human Capital, and Growth: Evidence from German History." *The Review of Economic Studies*, 87(2): 959–996.

Donia, Robert. 2014. "Bosnia and Herzegovina: The Proximate Colony in the Twilight of Empire." *Godišnjak Centra za balkanološka ispitivanja*, 42: 197–202.

Donia, Robert. 2021. "Bosnia-Herzegovina under Austria-Hungary. From occupation to assassinatin, 1878-1914." In *The Routledge Handbook of Balkan and Southast European History.* , ed. John R. Lampe and Ulf Brunnbauer, 135–143. London: Routledge.

Eggers, Andrew C., Anthony Fowler, Jens Hainmueller, Andrew B. Hall, and James M. Snyder. 2015. "On the Validity of the Regression Discontinuity Design for Estimating Electoral Effects: New Evidence from Over 40,000 Close Races." *American Journal of Political Science*, 59(1): 259–274.

Enflo, Kerstin, and Anna Missiaia. 2020. "Between Malthus and the industrial take-off: regional inequality in Sweden, 1571–1850." *The Economic History Review*, 73(2): 431–454.

Enflo, Kerstin, and Joan Ramón Rosés. 2015. "Coping with regional inequality in Sweden: structural change, migrations, and policy, 1860–2000." *The Economic History Review*, 68(1): 191–217.

Engels, Friedrich. 1962. "Die Entwicklung des Sozialismus von der Utopie zur Wissenschaft." In *Werke.* Vol. 19, , ed. Karl Marx and Friedrich Engels, 186–228. Berlin: Dietz.

Estevadeordal, Antoni, Brian Frantz, and Alan M. Taylor. 2003. "The Rise and Fall of World Trade, 1870–1939*." *The Quarterly Journal of Economics*, 118(2): 359–407.

European Environment Agency. 2016. "European Digital Elevation Model (EU-DEM)."

Evans, Peter, and James E. Rauch. 1999. "Bureaucracy and Growth: A Cross-National Analysis of the Effects of "Weberian" State Structures on Economic Growth." *American Sociological Review*, 64(5): 748–765.

Evans, Peter B. 2012. *Embedded Autonomy: States and Industrial Transformation.* Princeton University Press.

FAO. 2020. "Crop suitability index (class) for high input level rain-fed cereals."

Finkelman, Robert B, William Orem, Vincent Castranova, Calin A Tatu, Harvey E Belkin, Baoshan Zheng, Harry E Lerch, Susan V Maharaj, and Anne L Bates. 2002. "Health impacts of coal and coal use: possible solutions." *International Journal of Coal Geology*, 50(1): 425–443.

Flaherty, Diane. 1988. "Plan, market and unequal regional development in Yugoslavia." *Soviet Studies*, 40(1): 100–124.

Fortin, Jessica. 2010. "A tool to evaluate state capacity in post-communist countries, 1989–2006." *European Journal of Political Research*, 49(5): 654–686.

Geary, Frank, and Tom Stark. 2002. "Examining Ireland's Post-Famine Economic Growth Performance." *The Economic Journal*, 112(482): 919–935.

Gelman, Andrew, and Guido Imbens. 2019. "Why High-Order Polynomials Should Not Be Used in Regression Discontinuity Designs." *Journal of Business & Economic Statistics*, 37(3): 447–456.

Geloso, Vincent J., and Alexander W. Salter. 2020. "State capacity and economic development: Causal mechanism or correlative filter?" *Journal of Economic Behavior & Organization*, 170: 372–385.

Gennaioli, Nicola, and Hans-Joachim Voth. 2015. "State Capacity and Military Conflict." *The Review of Economic Studies*, 82(4): 1409–1448.

Hendrix, Cullen S. 2010. "Measuring state capacity: Theoretical and empirical implications for the study of civil conflict." *Journal of Peace Research*, 47(3): 273–285.

Herbst, Jeffrey. 2014. *States and Power in Africa: Comparative Lessons in Authority and Control - Second Edition.* Princeton University Press.

Hötte, Hans H. A. 2015. *Atlas of Southeast Europe: Geopolitics and History. Volume One: 1521-1699.* Leiden: Brill.

Hötte, Hans H. A. 2016. *Atlas of Southeast Europe: Geopolitics and History. Volume Two: 1699-1815.* Leiden: Brill.

Hötte, Hans H. A. 2018. *Atlas of Southeast Europe: Geopolitics and History. Volume Three: 1815-1926.* Leiden: Brill.

Jakir, Aleksandar. 1999. *Dalmatien zwischen den Weltkriegen: Agrarische und urbane Lebenswelt und das Scheitern der jugoslawischen Integration.* München: Oldenbourg.

Jelčić, Božidar, and Predrag Bejaković. 2012. *Razvoj i perspektive oporezivanja u Hrvatskoj.* Zagreb: Academia Scientiarum et Artium Croatica.

Johnson, Chalmers. 1982. *MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975.* Stanford University Press.

Johnson, Noel D., and Mark Koyama. 2017. "States and economic growth: Capacity and constraints." *Explorations in Economic History*, 64: 1–20.

Karaman, K. Kivanç, and Şevket Pamuk. 2010. "Ottoman State Finances in European Perspective, 1500–1914." *The Journal of Economic History*, 70(3): 593–629.

Karaman, K. Kivanç, and Şevket Pamuk. 2013. "Different Paths to the Modern State in Europe: The Interaction Between Warfare, Economic Structure, and Political Regime." *American Political Science Review*, 107(3): 603–626.

Keeble, David, Peter L. Owens, and Chris Thompson. 1982. "Regional accessibility and economic potential in the European community." *Regional Studies*, 16(6): 419–432.

Kelly, Morgan. 2019. "The Standard Errors of Persistence." *CEPR Discussion Paper*, DP13783.

K. K. Statistischen Zentralkommission. 1912. "Ergebnisse der Volkszählung vom 31. Dezember 1910 in den im Reichsrate vertretenen Königreichen und Ländern. Neue Folge, Bd.1, H. 1: Die summarischen Ergebnisse der Volkszählung." Wien.

Kopsidis, Michael, and Max-Stephan Schulze. 2020. "Economic growth and sectoral developments, 1800-1914." In *The Economic History of Central, East and South-East Europe: 1800 to the Present.* , ed. Matthias Morys, 49–78. London: Routledge.

Kraljevina Jugoslavija. 1934. "Statistički Godišnjak, 1931." Opšta Državna Statistika, Beograd.

Kraljevina Jugoslavija. 1936. "Statistički Godišnjak, 1934-1935." Opšta Državna Statistika, Beograd.

Kraljevina Jugoslavija. 1937. "Definitivni rezultati popisa stanovništva, 1931 (knjiga I)." Opšta Državna Statistika, Beograd.

Kraljevina Jugoslavija. 1938. "Definitivni rezultati popisa stanovništva, 1931 (knjiga II)." Opšta Državna Statistika, Beograd.

Kraljevina Jugoslavija. 1940. "Definitivni rezultati popisa stanovništva, 1931 (knjiga IV)." Opšta Državna Statistika, Beograd.

Kraljevina Srba, Hrvata i Slovenaca. 1932. "Definitivni rezultati popisa stanovništva od 31. januara 1921 god." Opšta Državna Statistika, Sarajevo.

Kraljevina Srbija. 1911. "Prethodni rezultati popisa stanovništva i domađe stoke u Kraljevi Srbiji, 31. dekembra 1910. godine (knjiga V)." Državna Statistika, Beograd.

Kraljevina Srbija. 1914. "Rečnik mesta u ospobođenoj oblasti stare srbije po službenim podacima." Državna Statistika, Beograd.

Krleža, Miroslav. 2016. *Die Fahnen.* Klagenfurth: Wieser Verlag.

Kukić, Leonard. 2020. "Origins of regional divergence: economic growth in socialist Yugoslavia." *The Economic History Review*, 73(4): 1097–1127.

Kukić, Leonard, and Stefan Nikolić. 2020. "Regional industrialization of Yugoslavia in the long-run." In *An Economic History of Regional Industrialisation.* , ed. Erik Buyst, Bas van Leeuwen and Robin Phillips, 79–100. London: Routledge.

Lampe, John R. 1980. "Unifying the Yugoslav Economy, 1918-1921: Misery and Early Misunderstandings." In *The Creation of Yugoslavia, 1914-1918.* , ed. Dimitrije Đorđević, 139–156. Santa Barbara: Clio Press.

Lampe, John R., and Marvin R. Jackson. 1982. *Balkan economic history, 1550-1950 : from imperial borderlands to developing nations.* Bloomington: Indiana University Press.

Lang, Nicholas R. 1975. "The Dialectics of Decentralization: Economic Reform and Regional Inequality in Yugoslavia." *World Politics*, 27(3): 309–335.

Lee, Alexander. 2019. "Land, State Capacity, and Colonialism: Evidence From India." *Comparative Political Studies*, 52(3): 412–444.

Lee, David S., and Thomas Lemieux. 2010. "Regression Discontinuity Designs in Economics." *Journal of Economic Literature*, 48(2): 281–355.

Magocsi, Paul Robert. 1993. *Historical Atlas of East Central Europe.* Seattle: University of Washington Press.

Magyar kir. központi statisztikai hivatal. 1912. "A magyar szent korona országainak; 1910. évi; Népszámlálása; Első rész; A népesség főbb adatai községek és népesebb puszták, telepek szerint." Budapest.

Martínez-Galarraga, Julio. 2012. "The determinants of industrial location in Spain, 1856–1929." *Explorations in Economic History*, 49(2): 255–275.

Martínez-Galarraga, Julio. 2014. "Market potential estimates in history: a survey of methods and an application to Spain, 1867-1930." *EHES Working Paper*, 51.

Mayer, Martin. 1995. *Elementarbildung in Jugoslawien (1918-1941).* München: Oldenbourg.

Mijatović, Boško, and Branko Milanović. 2021. "The real urban wage in an agricultural economy without landless farmers: Serbia, 1862–1910." *The Economic History Review*, 74(2): 424–448.

Mijatović, Boško, and Milan Zavadjil. 2022. "Serbia on the path to modern economic growth." *The Economic History Review*, forthcoming.

Miladinović, Luka. 2020. "Trade and nationalism: market integration in interwar Yugoslavia." *European Review of Economic History*, 24(2): 288–313.

Milanović, Branko. 1987. "Patterns of regional growth in Yugoslavia, 1952–83." *Journal of Development Economics*, 25(1): 1–19.

Mitchell, Brian R. 2003. *International Historical Statistics: Europe 1750-2000.* . 5 ed., Basingstoke: Palgrave Macmillan.

Müller, Dietmar. 2012. "Bodeneigentum und Institutionenwandel in Ostmittel- und Südosteuropa 1918 -1945 - 1989." *Zeitschrift für Ostmitteleuropa-Forschung*, 61(3): 332–355.

Müller, Dietmar. 2020. *Bodeneigentum und Nation - Rumänien, Jugoslawien und Polen im europäischen Vergleich, 1918-1948.* Göttingen: Wallstein.

Nikolić, Stefan. 2016. "New Economic History of Yugoslavia, 1919 - 1939: Industrial Location, Market Integration and Financial Crises." PhD diss. University of York.

Nikolić, Stefan. 2018. "Determinants of industrial location: Kingdom of Yugoslavia in the interwar period." *European Review of Economic History*, 22(1): 101–133.

Nikolić, Stefan, Matthias Blum, and Tamás Vonyó. 2022. "Immigration and Development: German-Speaking Agricultural Settlers in the Kingdom of Hungary."

Palairet, Michael. 1979. "Fiscal Pressure and Peasant Impoverishment in Serbia before World War I." *The Journal of Economic History*, 39(3): 719–740.

Palairet, Michael R. 1997. *The Balkan economies c. 1800 - 1914: evolution without development.* Cambridge: Cambridge University Press.

Pammer, Michael, and Ali Coşkun Tunçer. 2021. "Economic policy during the long 19th century." In *The Economic History of Central, East and South-East Europe - 1800 to the Present.* , ed. Matthias Morys. London: Routledge.

Pleština, Dijana. 1992. *Regional Development in Communist Yugoslavia - Success, Failure, and Consequences.* San Francisco: Westview Press.

Popescu, Bogdan G., and Mircea Popa. 2022. "Imperial Rule and Long-Run Development: Evidence on the Role of Human Capital in Ottoman Europe." *Comparative Political Studies*, 55(11): 1910–1946.

Popović, Miloš. 2021. "Yugoslavia in 1931: The Census Data on the County/Town Level."

Rogowski, Jon C., John Gerring, Matthew Maguire, and Lee Cojocaru. 2021. "Public Infrastructure and Economic Development: Evidence from Postal Systems." *American Journal of Political Science*, n/a(n/a).

Rosés, Joan Ramón, Julio Martínez-Galarraga, and Daniel A. Tirado. 2010. "The upswing of regional income inequality in Spain (1860–1930)." *Explorations in Economic History*, 47(2): 244–257.

Rosés, Joan R., and Nikolaus Wolf, ed. 2019. *The Economic Development of Europe's Regions: A Quantitative History Since 1900.* London: Routledge.

Ruthner, Clemens. 2014. "Bosnia-Herzegovina, 1878–1918: A Colony of a Multinational Empire." In *The Shadow of Colonialism on Europe's Modern Past. Cambridge Imperial and Post-Colonial Studies Series*, , ed. Róisín Healy and Enrico Dal Lago, 156–169. London: Palgrave Macmillan UK.

Savoia, Antonio, and Kunal Sen. 2015. "Measurement, Evolution, Determinants, and Consequences of State Capacity: A Review of Recent Research." *Journal of Economic Surveys*, 29(3): 441–458.

Scharr, Kurt. 2015. "The Habsburg Cadastral Registration System in the Context of Modernization." In *Property in East Central Europe - Notions, Institutions and Practices of Landownership in the Twentieth Century.* , ed. Hannes Siegrist and Dietmar Müller, 100–116. New York: Berghahn.

Schulze, Max-Stephan. 2007*a*. "Origins of catch-up failure: Comparative productivity growth in the Habsburg Empire, 1870–1910." *European Review of Economic History*, 11(2): 189–218.

Schulze, Max-Stephan. 2007*b*. "Regional Income Dispersion and Market Potential in the Late Nineteenth Century Habsburg Empire." 36.

Središni ured za osiguranje radnika. 1932. "Radnička zaštita: službeni list Središnog ureda za osiguranje radnika u Zagrebu." Zagreb.

Stajić, Stevan. 1959. *Nacionalni dohodak Jugoslavije 1923-1939 u stalnim i tekućim cenama.* Beograd: Ekonomski Institut NR Serbije.

Sundhaussen, Holm. 1989. *Historische Statistik Serbiens 1834-1914 - Mit europäischen Vergleichsdaten.* München: Oldenbourg.

Tilly, Charles. 1992. *Coercion, Capital, and European States, AD 990 - 1992.* Cambridge: Blackwell.

Tkalec, Marina. 2020. "History matters: development and institutional persistence of the Habsburg Military Frontier in Croatia." *Public Sector Economics*, 44(1): 117–145.

Tomasevich, Jozo. 1955. *Peasants, politics, and economic change in Yugoslavia.* Stanford: Stanford University Press.

Treadway, John D. 2021. "Montenegro as an Independent State, 1878-1912." In *The Routledge Handbook of Balkan and Southeast European History.* , ed. John R. Lampe and Ulf Brunnbauer, 89–97. London: Routledge.

Trenkler, Carsten, and Nikolaus Wolf. 2005. "Economic integration across borders: The Polish interwar economy 1921–1937." *European Review of Economic History*, 9(2): 199–231.

UNECE. 2018. "Map of European Inland Waterway Network."
uričić et al.

Đuričić, V. M., M. B. Tošić, A. Vegner, P. Rudčenko, and M. R. Đorđević. 1927. *Naša Narodna Privreda i Nacionalni Prihod.* Sarajevo: Državna Štamparija.

Vinski, Ivo. 1961. "National Product and Fixed Assets in the Territory of Yugoslavia 1909–1959." In *Studies in Social and Financial Accounting.* Vol. 9, , ed. Phyllis Deane, 206–233. London: Bowes & Bowes.

Vogler, Jan P. 2019. "Imperial Rule, the Imposition of Bureaucratic Institutions, and their Long-Term Legacies." *World Politics*, 71(4): 806–863.

Vogler, Jan P. 2022. "The Complex Imprint of Foreign Rule: Tracking Differential Legacies along the Administrative Hierarchy." *Studies in Comparative International Development.*

Vrandečić, Josip. 2021. "The Venetian-Ottoman Borderland in Dalmatia." In *The Routledge Handbook of Balkan and Southeast European History.* , ed. John R. Lampe and Ulf Brunnbauer, 26–34. London: Routledge.

Wolf, Nikolaus. 2005. "Path dependent border effects: the case of Poland's reunification (1918–1939)." *Explorations in Economic History*, 42(3): 414–438.

Zorn, Wolfgang, and Sybille Schneider. 1974. *Zur frühen Industrialisierung in Jugoslawien.* München: Geographische Buchhandlung.

A Descriptive Statistics

Table 7: Descriptive Statistics of the Full Sample

	Full sample			Habsburg sample		Non-Habsburg sample	
	n	Mean	SD	Mean	SD	Mean	SD
GDP per capita, 1931	344	1065.895	308.385	1293.531	311.022	905.873	179.127
Industrial labour share, 1931	344	0.084	0.073	0.121	0.087	0.059	0.046
State capacity index, 1931	344	0.000	1.000	0.544	0.759	-0.382	0.973
Distance to imperial border	344	-31.218	107.228	66.736	44.247	-100.076	81.878
Distance to imperial capital	344	680.301	324.971	349.275	103.144	913.003	202.280
Years of Habsburg rule	344	89.919	93.084	196.831	33.423	14.762	15.830
Years of Serbian autonomy	344	18.866	34.176	0.000	0.000	32.129	39.559
Years of Montenegrean autonomy	344	1.599	13.906	0.000	0.000	2.723	18.081
Years of other rule	344	5.569	21.822	13.492	32.416	0.000	0.000
Proto-industrial establishments, 1800	344	0.674	1.907	1.317	2.610	0.223	0.964
Literacy rate, 1931	344	49.858	24.614	73.848	16.787	32.993	11.989
Civil servant density, 1931	344	11.548	12.028	12.896	11.977	10.601	12.003
Railway density, 1931	344	4.170	8.183	6.512	11.742	2.523	3.306
Domestic market potential, 1931	344	90.815	24.102	98.138	16.534	85.668	27.111
Foreign market potential, 1931	344	2346.799	354.703	2658.713	246.956	2127.533	234.234
Population loss, c.1910-1921	344	15.429	9.558	7.254	5.466	21.177	7.385
Orthodox population share, 1931	344	0.520	0.381	0.227	0.270	0.726	0.306
Catholic population share, 1931	344	0.342	0.396	0.734	0.290	0.067	0.155
Muslim population share, 1931	344	0.120	0.216	0.001	0.001	0.204	0.250
Ethnic fractionalization index, 1931	344	0.271	0.246	0.285	0.246	0.261	0.245
Coal deposits	344	0.509	0.501	0.366	0.483	0.609	0.489
Wheat suitability	344	5215.654	1903.488	5645.717	1926.356	4913.332	1832.304
Elevation	344	491.947	349.995	337.565	288.345	600.474	349.338
Ruggedness	344	77.060	45.287	57.170	45.697	91.041	39.484
Distance to sea harbour	344	183.725	94.957	176.342	108.064	188.915	84.436
River access	344	0.195	0.397	0.303	0.461	0.119	0.324
Longitude	344	18.844	2.386	16.984	1.917	20.152	1.723
Latitude	344	44.250	1.361	45.380	0.848	43.456	1.059

B Sources and Methodology

B.1 Fiscal Capacity

The tax revenue data for the Ottoman empire are taken from Karaman and Pamuk (2010). Raw data of Austria-Hungary and the both parts after the 1868 partition are from Mitchell (2003) and converted to silver according to Karaman and Pamuk (2010). Revenue data for Serbia are obtained from Sundhaussen (1989) and converted to silver by the silver content of the 1-Dinar-coin, which was $4.175g$ during the entire period of independence.

In the case of the daily wage data for the second graph, for the Ottoman empire the daily wage in Istanbul (Karaman and Pamuk 2010), for the Habsburg empire the daily wage in Vienna (Allen 2003), and for Serbia the daily urban wage of an ordinary unskilled worker (Mijatović and Milanović 2021) are used.

B.2 Gross Domestic Product

Long-run regional development within countries has caught much attention in recent years (Schulze 2007*a*; Rosés, Martínez-Galarraga and Tirado 2010; Enflo and Rosés 2015; Enflo and Missiaia 2020). Rosés and Wolf (2019) compile a broad range of studies on regional development in European countries and the United States. However, East and Southeastern Europe is often neglected, because of insufficient data and numerous border changes during the 20th century. Only post-war Yugoslavia has been examined (Lang 1975; Milanović 1987; Bateman, Nishimizu and Page 1988; Flaherty 1988; Pleština 1992; Kukić 2020). For inter-war Yugoslavia, such a quantitative exploration of regional inequality has not been done yet, even though some estimations were published. The first estimation of national income for Yugoslavia in 1923 was conducted based on a wide range of regional data (V. M. Đuričić, M. B. Tošić, A. Vegner, P. Rudčenko and M. R. Đorđević 1927), and Stajić (1959) extended this national income estimation to 1939 on an annual frequency. Most recent estimations in the updated Maddison database (Bolt et al. 2018) are based on Clark (1960) and Vinski (1961). None of them provide regional GDP estimates except Jakir (1999, 141-2), who does not explain his methodology. Also Nikolić (2018) calculated regional GDP figures, but neither published nor analysed them. Studies on regional industrialization (Nikolić 2018; Kukić and Nikolić 2020) deliver first insights into the regional disparities of economic activity, yet prevent the full picture.

The decomposition of the national real GDP of Yugoslavia in 1931 follows the method by Geary and Stark (2002), which was recently applied by Rosés and Wolf (2019). The core idea of this decomposition approach is to break down aggregated GDP to a more disaggregated regional level (district level) according to the region's share in national sectoral employment and relative sectoral labour productivity. Technically, all disaggregated GDPs sum up to the total aggregated GDP: $Y = \sum_{i=1}^{n} Y_i$. Each disaggregated GDP itself is constituted by several sectors which contribute to the disaggregated GDP according to their average added value per worker y_{ij} and the labour force in the sector L_{ij}: $Y_i = \sum_{j=1}^{k} y_{ij} L_{ij}$. Since, no data is directly available for y_{ij}, it is assumed that the regional sectoral wage relative to the national sectoral wage $\frac{w_{ij}}{w_j}$ captures regional variation of y_j. Combining these identities yields the formal expression of the decomposition approach:

$$Y_i = \sum_{j=1}^{k} \Big(y_j \beta_j \frac{w_{ij}}{w_j} \Big) L_{ij}, \tag{16}$$

where β_j is a scalar which scales the absolute regional values so that their sum equals the national

total while ensuring relative regional differences.

The application of this decomposition approach is based on the 1931 real GDP estimate by Bolt et al. (2018), which itself relies on a 1929 benchmark estimate by Clark (1960) and interpolation. Referring to the Maddison data base allows us to compare the results over time and across the world. However, Maddison does not provide sectoral data, which are required for the decomposition approach. Hence, Maddison's total GDP estimate is split into three sectors (agriculture, industry, services) by referring to the share each sector contributes to national income. This sectoral national income estimates for 1931 are obtained from Stajić (1959). According to Stajić (1959, Table 1), agriculture (incl. forestry) made up 52.7%, industry (incl. mining, construction, crafts) made up 30.7%, and services (incl. transportation, trade, catering) made up 16.6% of the total real national income. The definition of the three sectors was chosen exactly that way to match with the sectoral employment data. The sectoral employment data is extracted from the 1931 employment census (Kraljevina Jugoslavija 1940), which recorded the sector employment per *srez* (district), excluding domestic services. The 1931 census accounts for male and female employees in five sectors: 1) agriculture, forestry, and fishing, 2) industry and crafts, 3) commerce, banking, and communication 4) public service, liberal professions, and military, and 5) others and without profession. The last three sectors are summed up to a general service sector.

B.2.1 Wage Data

The regional wage data is tricky because there are two different sources. First, the Statistical Yearbooks (Statistički Godišnjak, henceforth SG) record annual nominal wages for four occupations in 10 cities across Yugoslavia and a broad range of prices of food items in the same cities. Second, the Central Office for the Insurance of Workers (Središnji ured za osiguranje radnika, henceforth SUZOR) published annual wages for a variety of occupations, but at a national level only an average wage for 17 SUZOR regional offices. Both sources have their advantages and disadvantages. The SG data has less observations for urban wages only, but given the price data, it allows real wages to be estimated and the limited number of observations can be stretched by spatial interpolation. On the other hand, SUZOR wage data has more observations and covers the whole regions, but neither a real wage can be estimated nor is the number of observations sufficient. Furthermore, even in the SUZOR data, the urban centres are overrepresented and so are the industrial and service sectors. Differences in the composition of the insured across the regional SUZOR offices bias the regional wage differential even more. Since only a total average of all wages for each SUZOR regional office is available, the wage differentials between sectors have to be obtained from the national average sectoral wage, which neglects regional variation in the productivity differentials across regions. For example, the Belgrade SUZOR regional office is definitely dominated by industrial workers from Belgrade and Kragujevac, but also Zemun and Pančevo. Hence, the regional average wage is quite high compared to other more rural regions, but this average wage is assumed to reflect the sectoral productivity across the entire SUZOR region even in the underrepresented rural districts. How overestimated the per capita GDP in these rural districts are can be seen in Figure 16e, where a sharp divide in GDP p.c. is visible along the SUZOR border of Belgrade and Niš, but also in case of the SUZOR regions. Such a divide is implausible and can only be explained by the poor wage data which is used to decompose national GDP. These are the reasons for why the SG real wage is taken for the baseline GDP estimations, but the rest of the wage data is also used for sensitivity analysis. Alternative micro-regional GDP estimates are calculated by using a) nominal SG wages, b) nominal SUZOR wages, and c) a combination of the nominal SG wages for the agricultural sector and nominal SUZOR wages for the industrial and service sector (see Figure 16a-d).

Nominal wages and price data for 10 cities[9] are obtained from Kraljevina Jugoslavija (1936). Daily mean wages are given for a day labourer (nadničar), a digger (kopač), a harvester (kosač), and a bricklayer (zidar). Since just the agricultural wage level is covered by the harvester's wage, the wages are adjusted for the other sectors as follows: The industrial wage level is an average of a digger's and bricklayer's wage, as construction is also included in the industrial sector. For the service sector an average from all non-agricultural wages is used, because this sector includes a huge range of jobs from well-paid civil servants to precarious day labourers. Wage data for harvesters is unavailable for Belgrade, therefore a digger's wage is used as the best predictor to estimate a harvester's wage.

Geary and Stark (2002) rely on nominal wages to gauge regional productivity disparities and assume the same price level across all regions. This does not hold in the case of Yugoslavia, since full economic and institutional integration was not achieved by 1931. The ethnic and infrastructural fractionalisation of the country especially led to uneven price and nominal wage levels. Furthermore, the Great Depression hit some regions earlier than others, which requires some degree of price and nominal wage smoothing over time. Prices and nominal wages fluctuated a lot, because of the Great Depression hitting Yugoslavia as well and market frictions were at play due to incomplete economic integration. Hence, a five year smoothed average of nominal wages and prices around 1931 are used. For constructing four-member-household consumption baskets, the method applied by Mijatović and Milanović (2021, Table 1) is taken, because they follow the standard procedure of estimating real wages by Allen (2001), but account for special regional features of independent Serbia. For further calculations the respectable consumption basket is opted for and adjusted to the available data. Firewood is used instead of lignit and the caloric value of 170kg lignite is transformed to 363kg of firewood.[10] Furthermore, to the respectable consumption basket 15% is added: 5% for rent, following Mijatović and Milanović (2021); another 5% for linen, candles, and tallow; and 5% on top for wine and beer, for which no price data is available. The real urban wages can be seen in Table 8.

Table 8: Real Urban Wages, 1929-33 average

City	Day Lab.	Digger	Harvester	Bricklayer	Agricult.	Industry	Services
Banja Luka	2.41	2.78	3.18	7.95	3.18	5.37	4.38
Beograd	2.98	3.01	3.85	5.18	3.85	4.09	3.72
Cetinje	2.61	2.76	4.81	6.38	4.81	4.57	3.92
Ljubljana	3.34	3.34	3.33	5.66	3.33	4.50	4.11
Niš	2.08	2.22	3.25	3.84	3.25	3.03	2.71
Novi Sad	3.30	4.39	6.15	6.94	6.15	5.67	4.88
Sarajevo	2.55	2.59	3.25	6.35	3.25	4.47	3.83
Skoplje	2.02	2.15	3.22	4.29	3.22	3.22	2.82
Split	2.87	4.36	5.16	7.64	5.16	6.00	4.96
Zagreb	2.72	2.74	4.10	5.71	4.10	4.23	3.73

Since wage data is available for 10 cities only, but employment data is available for 346 micro-regions, sector wages are spatially interpolated according to an inverse distance weighted interpo-

[9] Banja Luka, Beograd, Cetinje, Ljubljana, Niš, Novi Sad, Sarajevo, Skoplje, Split, Zagreb

[10] The caloric value of charcoal is 32 MJ/kg, while firewood has a caloric value of 15 MJ/kg and a density of 0.5kg/m^3.

lation estimator:

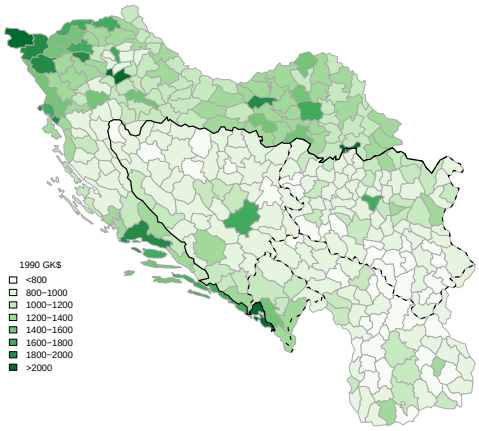
$$\hat{w}_0 = \frac{1}{\sum_{i=1}^{n} \lambda_i(x_0, x_i)} \sum_{i=1}^{n} \lambda_i(x_0, x_i) \cdot w_i, \tag{17}$$

where $\lambda_i(x_0, x_i) = \frac{1}{dist(x_0, x_i)}$ which is the inverse of the distance between the micro-region's centroid x_0 and the city x_i. The intuition is that the probability of a real wage in a certain micro-region (w_0) equals the real wage in one of these 10 cities and decreases with increasing distance to these cities. Put differently, the closer a city is, the higher is the impact that city has on the micro-region's real wage.

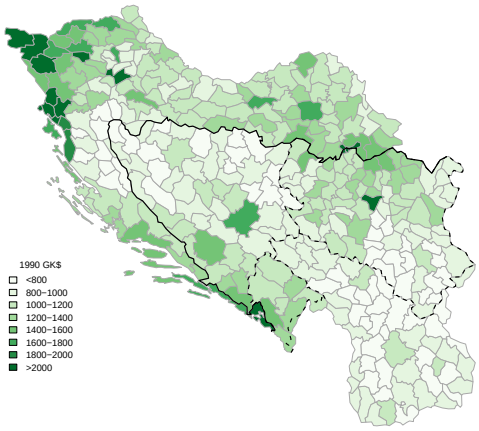
The SUZOR nominal wages for each SUZOR regional office are published in *Radnička zaštita* and assigned to the districts according to the SUZOR borders, which are depicted in Figure 5e.

Source: Bolt et al. (2018); Stajić (1959); Kraljevina Jugoslavija (1940; 1936); Središni ured za osiguranje radnika (1932).

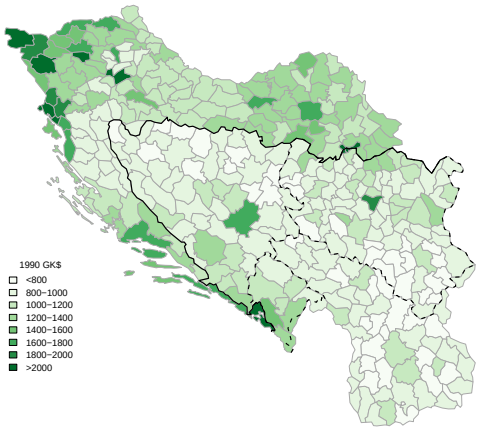
Figure 16: Alternative GDP estimates, Yugoslavia 1931



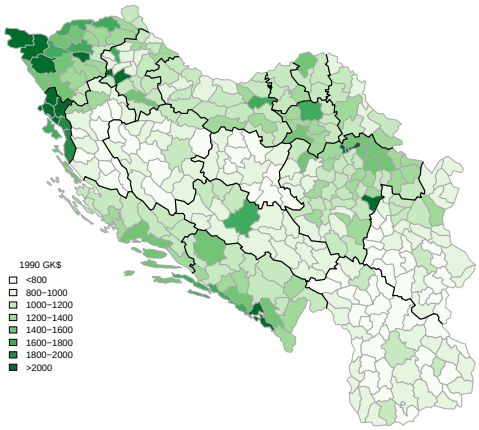
(a) Nominal SG Wages



(b) Nominal SUZOR Wages



(c) Nominal SG and SUZOR Combined



(d) Nominal SUZOR Wages and SUZOR Borders

B.3 Human Capital

Human capital is gauged by the literacy rate among all inhabitants older than 10 years.

Sources: Kraljevina Jugoslavija (1938)

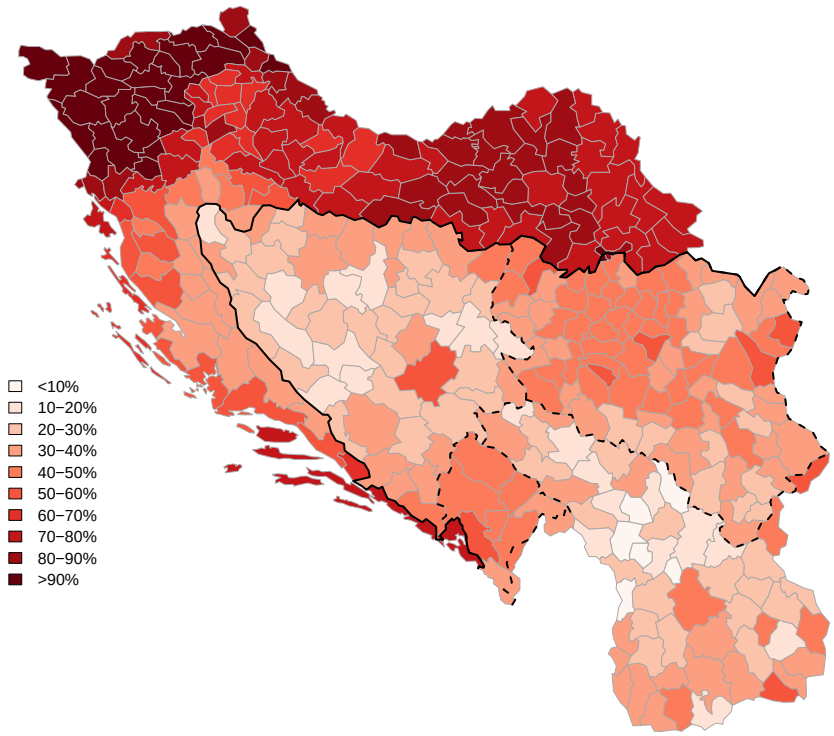


Figure 17: Literacy Rates, 1931

B.4 Administration

Administrative strength is approximated by employees in the 1931 occupational census category *civil service, liberal professions and army* per 1000 inhabitants. In order to exclude the military personnel, the male employment per *srez* is reduced according to the share of military personnel in that category at the banovina level.

Sources: Kraljevina Jugoslavija (1940)

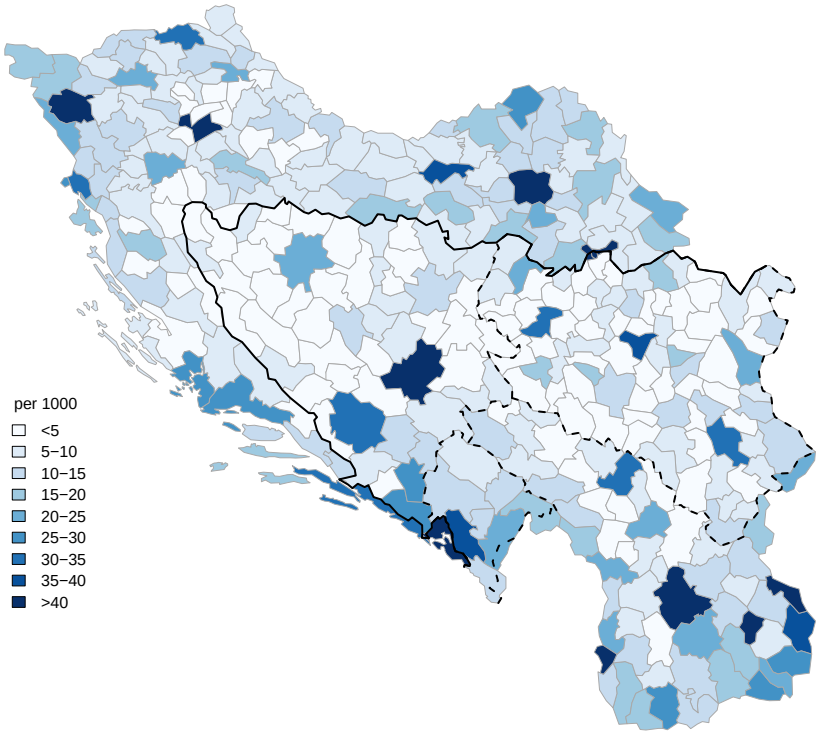


Figure 18: Civil Servant Density, 1931

B.5 Railway Density

To derive railway density for 1931, a detailed map by Bogavac et al. (1951) is geo-referenced and matched with the GIS shapefile of the districts. The blues lines represent railways constructed by 1878, purple lines are built by 1918 and red lines are railways constructed by 1931.

Source: Bogavac et al. (1951)

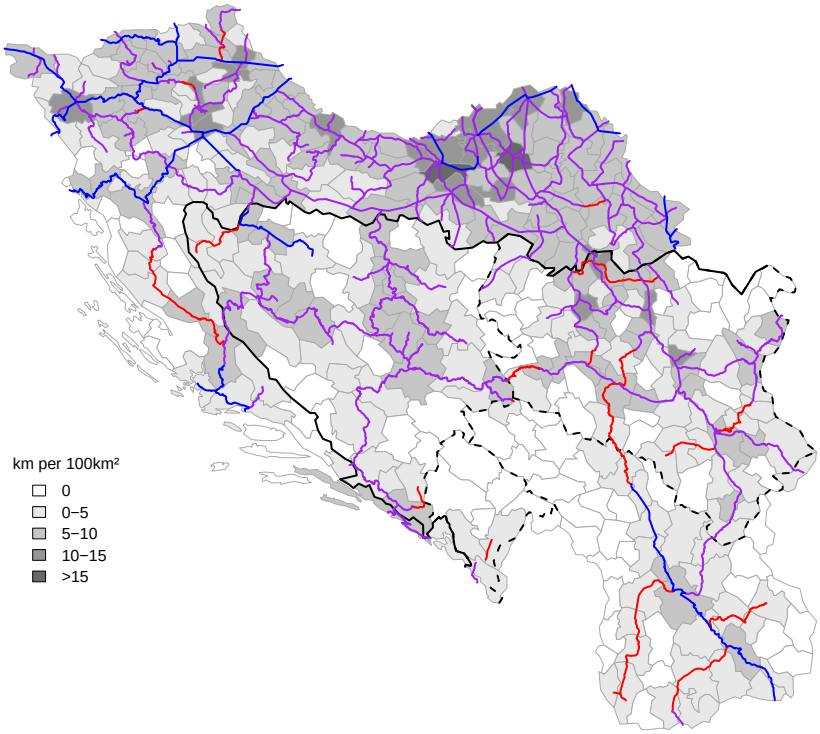


Figure 19: Railway Density, 1931

B.6 Proto-industrialisation

Number of proto-industrial establishments are obtained from Zorn and Schneider (1974), geo-referenced and reaggregated.

Source: Zorn and Schneider (1974)

B.7 Distance to Printing Press

The location of historical printing presses before 1700 in the Yugoslav lands and around are obtained from Magocsi (1993, 55).

Source: Magocsi (1993)

B.8 Population Loss

The population loss numbers are estimated according Tomasevich (1955, 225), who provides population loss data for all regions in their pre-1912 borders and derives these estimates by extrapolating the 1910 population to 1921 given the average annual population growth rate between 1906 and 1911. Next, the difference between extrapolated and actual 1921 population is the total population loss, which is normalised by the extrapolated 1921 population. Technically, this method can be expressed as follows:

$$loss_i = \frac{pop_{i,t}(1+g_i)^n - pop_{i,t+n}}{pop_{i,t}(1+g_i)^n}, \tag{18}$$

where $loss_i$ is the normalised population loss in region i, pop_i is population, g_i is the average population growth rate 1906-1911, t is the pre-war date and $t+n$ the post-war date of the censuses. The pre-war population data for northern Serbia is obtained from the 1910 census (Kraljevina Srbija 1911) and for southern Serbia from the 1914 census (Kraljevina Srbija 1914). For the Habsburg lands, the 1910 census is used (K. K. Statistischen Zentralkommission 1912; Magyar kir. központi statisztikai hivatal 1912). Montenegro conducted also a census in 1909, but the census was not available and there is no population data for new territories gained in the first Balkan War. Hence, the data by Tomasevich (1955, 225) is used for Montenegro and population loss in the new territories of the Sandšak are assumed to be equal to the population loss in the Serbian part of the Sandšak. The population data for 1921 are taken from the first Yugoslav census (Kraljevina Srba, Hrvata i Slovenaca 1932), which used the pre-war administration units (okrug, županija). Only minor adjustments in Slovenia and the Vojvodina are necessary. Some regions in Dalmatia lacked data in the 1921 census, hence, the regional average estimated by Tomasevich (1955, 225) is assigned to these units. Then, population loss estimates per *okrug/županija* have been assigned to the *srezovi* of the 1931 census.

Sources: Tomasevich (1955); Kraljevina Srbija (1911; 1914); K. K. Statistischen Zentralkommission (1912); Magyar kir. központi statisztikai hivatal (1912); Kraljevina Srba, Hrvata i Slovenaca (1932, 225).

B.9 Market Potential

The estimation of the market potential of each district follows Nikolić (2018) and, hence, Martínez-Galarraga (2012; 2014). The baseline identity is:

$$MP_i = \sum_{j=1}^{n} \frac{Y_j}{D_{ij}}, \tag{19}$$

Table 9: Population Losses

Region[a]	Population 1910	Population Loss 1910-1921		Population 1921	Population 1931
Bosnia-Hercegovina	1,898,044	451,380	19.27%	1,890,440	2,323,554
Croatia-Slavonia	2,735,692	253,456	8.47%	2,739,888	2,996,643
Dalmatia[b]	645,646	60,101	7.80%	328,251	709,966
Macedonia	1,481,614[c]	314,489	19.85%	1,270,006	1,828,512
Montenegro	238,423[d]	60,067	23.17%	199,227	223,949
Serbia	2,911,701	856,184	24.79%	2,598,151	3,274,541
Slovenia	1,055,099	34,939	3.21%	1,054,919	1,264,066
Vojvodina	1,276,163	80,700	5.9%	1,346,527	1,419,073
Yugoslavia	12,242,382	2,061,713	14.86%	11,427,409	13,892,973

Note: [a]According to the borders in 1912. [b]Incomplete population figure in 1921. Thus, 1931 population including Zadar used to estimate population loss. [c] Pre-war census conducted in 1914. [d] Pre-war census conducted in 1909.

where Y_j measures the economic power of region j (here real GDP), which is divided by the distance D_{ij} between micro-region i and j. Market potential consists of a domestic and a foreign share and can be split as follows:

$$MP_i = \sum_j \frac{Y_j}{D_{ij}} + \frac{Y_i}{D_{ii}} + \sum_f Y_f (D_{if})^{\beta} (T_f)^{\gamma}, \tag{20}$$

where the first sum represents the domestic share including the micro-region's self-potential and the second share is the market potential of Yugoslavia's main trading partners. For the foreign market potential tariffs T_f also play an important role. Here, $T_f = 1 + t_f$, where t_f is calculated by custom revenue over import volume regarding Yugoslavia's main trading partners. The required data for tariff calculation are obtained from Mitchell (2003) and Kraljevina Jugoslavija (1934). GDP data for Yugoslavia's trade partners are taken from Bolt et al. (2018), while the micro-regional level estimates are own calculations. The elasticities $\beta = -0.8$ for distance and $\gamma = -1$ for tariffs in the inter-war period are obtained from Estevadeordal, Frantz and Taylor (2003). Distance D_{ij} is taken between the centroids of the counties, while D_{if} is the distance between a district's centroid and the capital of the foreign trading partner. The calculation of D_{ii} follows Keeble, Owens and Thompson (1982): $D_{ii} = 0.333(\frac{area_i}{\pi})^{\frac{1}{2}}$.

Table 10: Foreign Trade of Yugoslavia, 1931

Country	Export share	Import share	Tariff t_f
Austria	15.15%	15.21%	0.126
Italy	24.97%	10.29%	0.143
Germany	11.32%	19.28%	0.171
Great Britain	2.01%	6.57%	0.158
Czechoslovakia	15.49%	18.18%	0.113

Sources: Bolt et al. (2018), Mitchell (2003), and Kraljevina Jugoslavija (1936).

B.10 Ethnic Fractionalisation

Note: The 1931 population census provides the share of religious[11] and linguistic groups[12]. Since religion and language are the key determinants for ethnic groups, both data sets are used to estimate the size of the following ethnic groups: Serbs, Croats, Slovenes, Bosniaks, Albanians, Germans, Hungarians, and others. Hungarians, Germans, and Albanians are defined by their language. Serbs are all Orthodox Christians, while Croats and Slovenes are all Catholics reduced by the Hungarians and the German Catholics (= Germans − Protestants − other Christians). Here, an important but strict assumption is made: Croats are living outside Slovenia and Slovenes are only living within, since Slovenia was pretty homogeneous even in 1931. The Bosniaks are Serbo-Croatian speaking Muslims, thus, their size is estimated by reducing the number of Muslims by the number of Albanians. These shares are further processed to construct a religious fractionalisation index according to the method by Alesina et al. (2003):

$$frac_i = 1 - \sum_{k=1}^{K} s_{ki}^2, \tag{21}$$

where $frac$ is the fractionalisation index in district i and s is the share of group k within the total population. The total number of ethnic groups $K = 8$ are constituted as stated above. The index has a 0 to 1 scale with 0 interpreted as no fractionalisation or one group constitutes the entire population and 1 interpreted as full fractionalisation or each inhabitant belongs to a different group.

Source: Kraljevina Jugoslavija (1937).

B.11 Historical Borders

Since the exogeneity of the imperial border is crucial for the causal inference strategy, it has to be discussed in more detail. The northern part of the border, which was settled by the Treaty of Sistova in 1791, can be clearly seen as exogenous, because it was settled along a natural border: the Sava and Danube Rivers. Even though no source confirms that, the most plausible reason for that decision was to establish the final border along two rivers, which were not easy to cross by military. Both, the Ottoman and the Habsburg empire preferred to focus on more important threads. Austria left the battlefield in 1790 and gave up notable acquisitions (most of Serbia) because of war threads from Prussia and Poland. The French revolution also caught Austria's attention, not to speak of the Napoleonic wars to come. The Ottomans were under pressure from an expanding Russian empire (Aksan 2007, 137-8). The western part of the imperial border between Dalmatia and Bosnia-Hercegovina runs along the Dinaric Alps, which to some extent also form a natural border that was hard to pass. The interest of Venice in Dalmatia was clearly economic, since it integrated the ports at the Adriatic into its trade empire. However, Venice did not show much interest in the hinterlands of Dalmatia, which probably only served as buffer against Ottoman attacks on the Adriatic ports (Vrandečić 2021). All told, the main driving force of the imperial border was military considerations and not the economic potential of the regions.

Source: Hötte (2015; 2016; 2018).

B.12 Coal Availability

Geological information about availability of coal deposits in Yugoslavia are obtained from Finkelman et al. (2002, Figure 7).

[11] Orthodox, Catholic, Protestant, and other Christians, Muslims as well as others or without confession.

[12] Serbo-Croatian and Slovenian are one category, Hungarian, German, Albanian, and other languages.

Source: Finkelman et al. (2002).

B.13 Crop Suitability

Crop suitability is measured by the crop suitability index for rain-fed wheat issued by the Food and Agricultural Organization of the United Nations (FAO-UN).

Source: FAO (2020)

B.14 Waterways

Information about shipability of waterways in Yugoslavia are obtained from a map of Europe's inland waterways issued by the United Nations Economic Commission for Europe (UNECE).

Source: UNECE (2018).

B.15 Harbours

The Euclidean distance to the nearest harbour is calculated by GIS. The relevant harbours are Trieste, Koper, Pula, Rijeka, Zadar, Šibenik, Split, Ploče, Dubrovnik, Kotor, Bar, Durrës, Vlorë, and Thessaloniki.

B.16 Elevation

The elevation data with 25x25m resolution is provided by the European Environment Agency (EEA) under the framework of the Copernicus programme.

Source: European Environment Agency (2016)

B.17 Ruggedness

The ruggedness index is calculated based on the elevation data by QGIS.

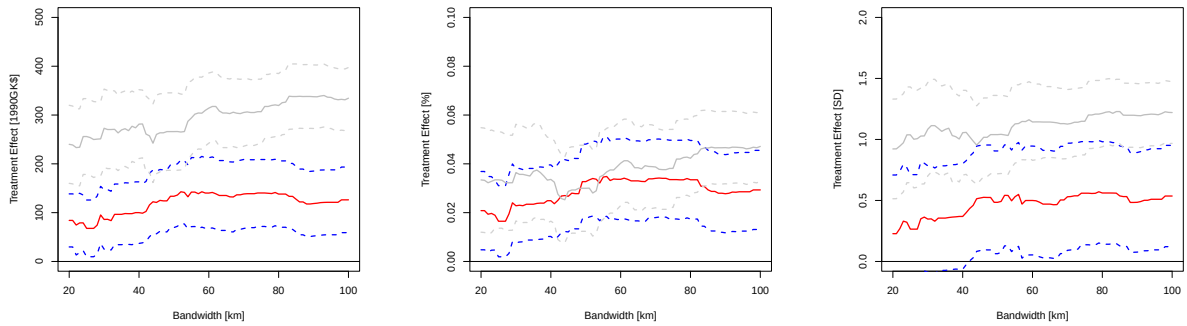
C Robustness

Table 11: Spatial RDD: Baseline Results

Bandwidth [km]:	Full Sample	100	75	50	25
			GDP per capita		
One-Dimensional	213.240***	313.720***	296.974***	241.894***	323.456***
	(42.801)	(43.480)	(52.224)	(62.925)	(100.409)
Two-Dimensional	267.03***	334.50***	306.86***	266.07***	255.96***
	(44.12)	(39.18)	(41.82)	(50.59)	(51.48)
			Industrial Labour Share		
One-Dimensional	0.014	0.047***	0.040***	0.031**	0.058**
	(0.012)	(0.010)	(0.012)	(0.015)	(0.025)
Two-Dimensional	0.027**	0.047***	0.038***	0.029***	0.033**
	(0.011)	(0.008)	(0.010)	(0.011)	(0.013)
			State Capacity Index		
One-Dimensional	1.066***	1.28***	1.129***	1.138***	1.407***
	(0.152)	(0.179)	(0.207)	(0.258)	(0.454)
Two-Dimensional	1.077***	1.220***	1.148***	1.039***	1.037***
	(0.151)	(0.157)	(0.172)	(0.204)	(0.260)
n	343	229	179	123	70

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01.

Figure 20: Spatial RDD with Extended Treatment



(a) GDP per capita (b) Industrial Labour Share (c) State Capacity Index

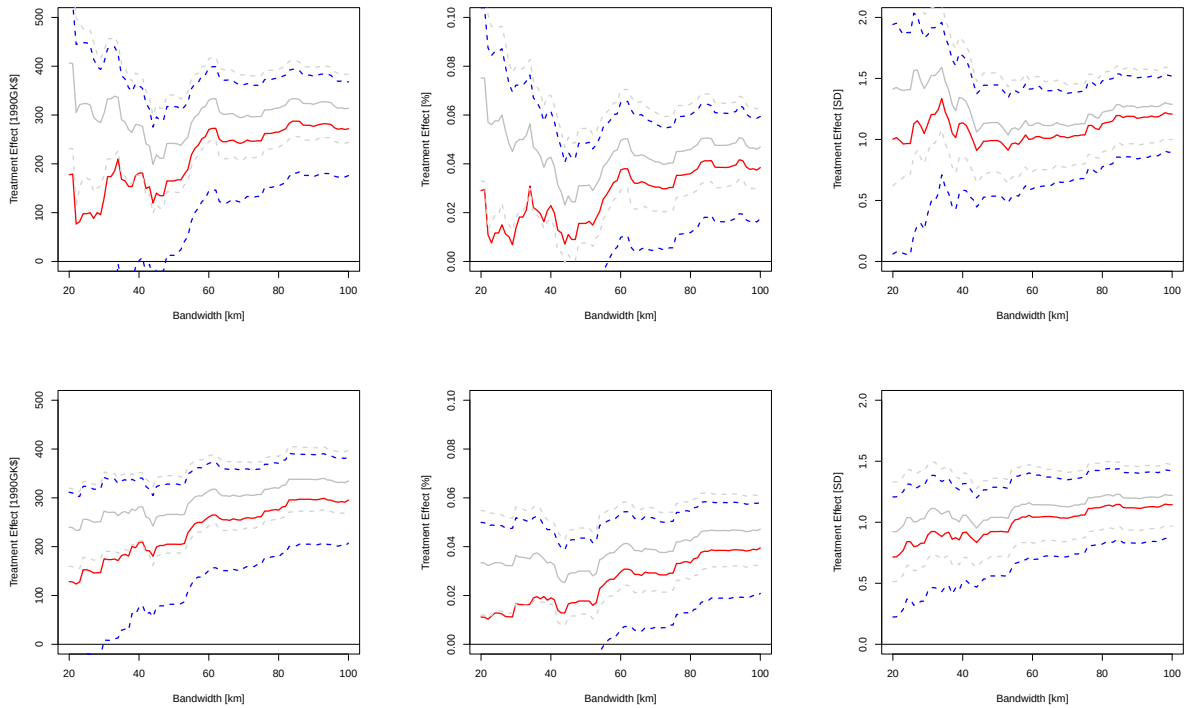
Note: Treatment coefficients (solid line) and 90% confidence intervals (dashed lines). The two-dimensional spatial RDD specification is estimated.

Table 12: Mediation Analysis Results with Extended Treatment Group

	GDP per capita			*Industrial Labour Share*		
Bandwidth [km]	100	50	25	100	50	25
β_Y^M	117.425***	98.283***	74.327**	0.032***	0.030***	0.023***
	(15.030)	(18.916)	(22.407)	(0.004)	(0.006)	(0.005)
DE: β_Y^T	53.418*	71.562**	55.810	0.010	0.012	0.011
	(29.659)	(29.701)	(35.034)	(0.007)	(0.008)	(0.009)
β_M^T (estd. in Table 4)	0.644	0.434	0.379	0.644	0.434	0.379
IE: $\beta_M^T \times \beta_Y^M$	75.62	42.65	28.16	0.020	0.013	0.008
TE (estd. in Table XXX):	130.20	109.304	80.012	0.029	0.022	0.017
S=IE/TE(estd.)	0.580	0.390	0.351	0.689	0.590	0.470
n	153	89	54	153	89	54

Note: Robust standard errors in parentheses. *p<0.1; **p<0.05; ***p<0.01.

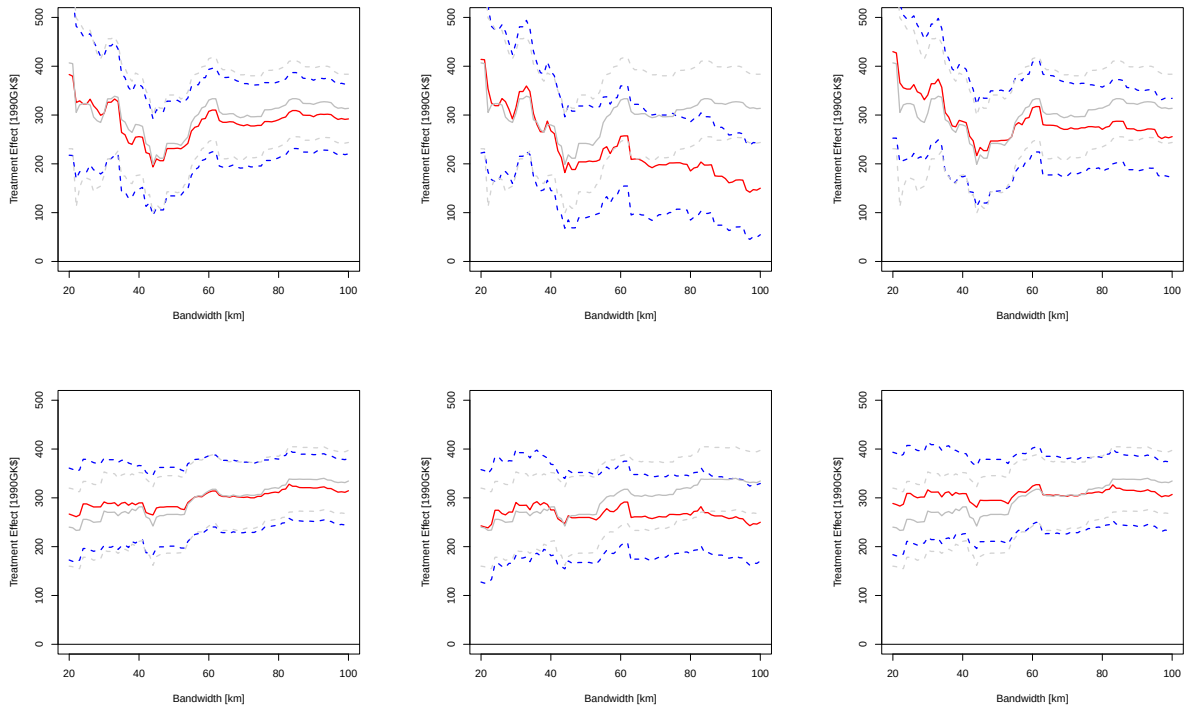
Figure 21: Spatial RDD Baseline Results including Beograd



(a) GDP per capita (b) Industrial Labour Share (c) State Capacity Index

Note: Treatment coefficients (solid line) and 90% confidence intervals (dashed lines). The row number corresponds with the dimensionality of the spatial RDD specification.

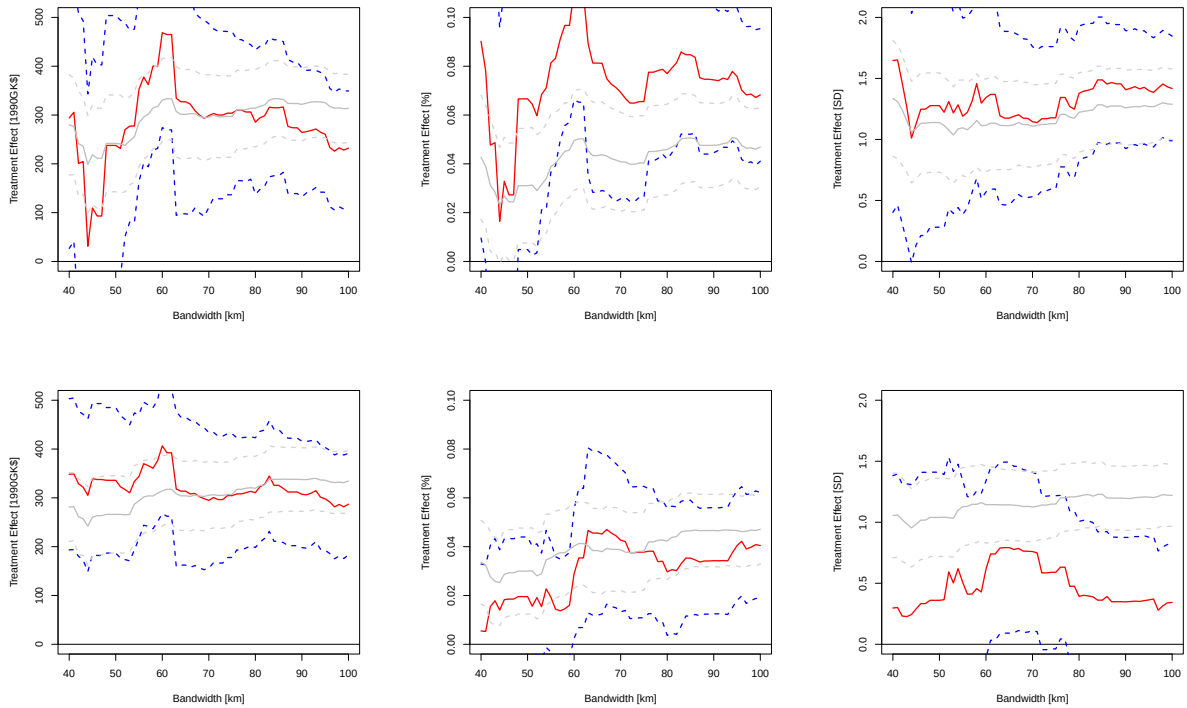
Figure 22: Sensitivity of Spatial RDD Baseline Results



(a) Nominal wages (b) SUZOR wages (c) SG-SUZOR wage combination

Note: Treatment coefficients (solid line) and 90% confidence intervals (dashed lines). The row number corresponds with the dimensionality of the spatial RDD specification.

Figure 23: Spatial Donut RDD Baseline Results



(a) GDP per capita (b) Industrial Labour Share (c) State Capacity Index

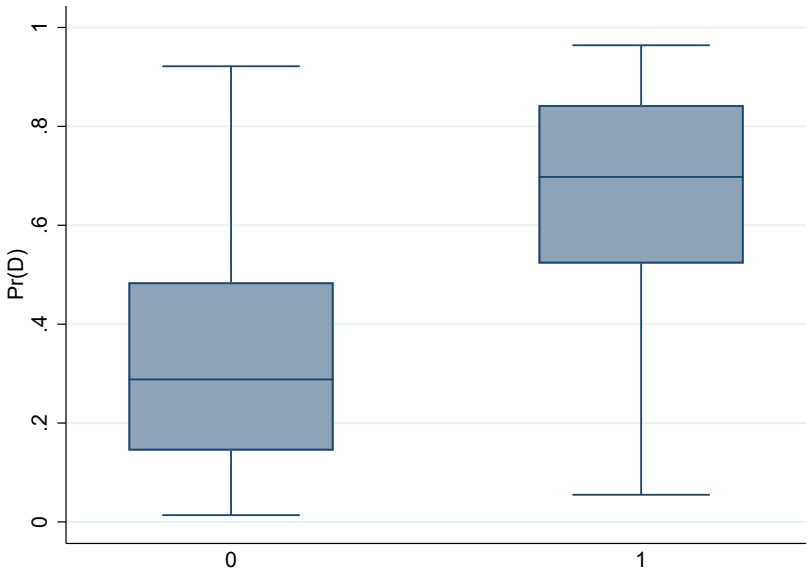
Note: Treatment coefficients (solid line) and 90% confidence intervals (dashed lines). The row number corresponds with the dimensionality of the spatial RDD specification.

Table 13: Potential Mediators

Bandwidth	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Obs.
One-dimensional Spatial RDD													
<100 km	1.288***	29.127***	9.064**	5.188*	0.449	-0.035	0.276***	-0.197**	-0.114***	0.078***	-0.008	-13.741***	229
	(0.179)	(2.742)	(3.304)	(2.134)	(0.349)	(0.173)	(0.056)	(0.064)	(0.030)	(0.018)	(0.007)	(1.211)	
<75 km	1.129***	27.081***	8.294*	3.548	0.317	0.045	0.263***	-0.171*	-0.110**	0.072**	-0.008	-13.330***	179
	(0.207)	(3.241)	(3.646)	(2.380)	(0.329)	(0.188)	(0.065)	(0.073)	(0.033)	(0.023)	(0.008)	(1.372)	
<50 km	1.138***	28.427***	7.631	-0.718	-0.012	0.130	0.286***	-0.184*	-0.108**	0.057*	-0.004	-13.453***	123
	(0.258)	(3.922)	(3.929)	(5.341)	(0.400)	(0.220)	(0.081)	(0.091)	(0.038)	(0.025)	(0.008)	(1.730)	
<25 km	1.407**	34.656***	8.586	9.658	0.725	0.175	0.447**	-0.357*	-0.084	0.062	0.026	-13.592***	70
	(0.454)	(7.592)	(5.838)	(7.178)	(0.515)	(0.416)	(0.150)	(0.172)	(0.054)	(0.050)	(0.024)	(3.085)	
Two-dimentional Spatial RDD													
<100 km	1.220***	33.382***	8.796**	3.673	0.403	-0.134	0.339***	-0.180**	-0.186***	0.057***	-0.011	-11.148***	229
	(0.157)	(2.298)	(3.153)	(1.901)	(0.305)	(0.140)	(0.056)	(0.058)	(0.033)	(0.017)	(0.008)	(1.099)	
<75 km	1.149***	32.432***	8.519*	2.548	0.176	-0.165	0.336***	-0.144*	-0.200***	0.037	-0.011	-9.921***	179
	(0.173)	(2.492)	(3.416)	(2.216)	(0.313)	(0.132)	(0.059)	(0.060)	(0.035)	(0.020)	(0.009)	(1.173)	
<50 km	1.040***	30.797***	7.504	2.160	-0.172	-0.140	0.331***	-0.119	-0.212***	0.030	-0.014	-9.720***	123
	(0.205)	(2.721)	(3.802)	(2.872)	(0.377)	(0.137)	(0.059)	(0.067)	(0.041)	(0.019)	(0.010)	(1.380)	
<25 km	1.038***	27.032***	10.323*	3.534	0.359	-0.241	0.277***	-0.049	-0.232***	0.025	-0.016	-10.070***	70
	(0.260)	(3.316)	(4.708)	(2.490)	(0.323)	(0.175)	(0.060)	(0.085)	(0.055)	(0.018)	(0.013)	(1.724)	

Note: (1) State capacity index, (2) literacy rates, (3) civil servant density, (4) railway density, (5) proto-industrial establishments around 1800, (6) log distance to printing press, (7) Catholic population share, (8) Orthodox population share, (9) Muslim population share, (10) German population share, (11) Albanian population share, (12) population loss c.1910-1921. Note: Robust standard errors in parentheses. *p<0.05; **p<0.01; ***p<0.001.

Figure 24: Common Support Assumption



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