Self-Governance under Empire and Contemporary Development in Ukraine

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Abstract

Does historical local self-governance under empire affect contemporary development? Using novel, manually transcribed data from the 1897 Russian imperial census, I construct the first continuous measure of local self-governance: the share of ethnic Ukrainian officials in district administration, courts, and police. Matching these records to 1,150 contemporary Ukrainian communities, I find that a 10 percentage-point increase in the share of local officials is associated with 8.2 percent higher local tax revenue per capita, consistently higher nighttime light intensity, and greater fiscal autonomy. Instrumental-variable estimates, based on distance to a historical administrative center, are approximately twice as large. Consistent with a governance channel, communities with historically higher shares of local officials had lower land inequality and a more egalitarian social structure in the imperial period, higher urbanization by 1926, and today deliver more public goods and better courts. These regions suffered higher famine mortality (Holodomor), yet still outperform today. The effects persist after decades of Soviet institutional homogenization.

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1 Introduction

Regions with deeper state traditions tend to achieve higher income and institutional quality, as early state capacity helps build human capital, administrative skills, and civic norms that persist over time (Bockstette et al., 2002; Borcan et al., 2018; Putterman & Weil, 2010). Yet many territories lacked independence for long periods, incorporated into empires and governed by external authorities (Acemoglu et al., 2001; Buggle & Nafziger, 2021; Dell, 2010; Herbst, 2014; Nunn, 2009). The long-run developmental legacy of imperial incorporation remains debated. Crucially, imperial rule did not erase earlier statehood traditions but did remove independent decision-making, leaving regions with only partial or informal local authority. This raises a key question: can self-governance within an empire substitute for independent statehood, and how does it shape the long-run effects of imperial rule?

Iyer (2010) shows that indirect rule through princely states in India improved long-run outcomes relative to areas under direct British administration, and Michalopoulos and Papaioannou (2013, 2014) document persistent effects of precolonial ethnic institutions in Africa. These findings imply benefits of self-governance experience, yet they concern either official autonomy or precolonial institutions, not continuous, unofficial variation in local administrative control within a unified imperial state. Whether within-empire variation in self-governance matters for long-run development remains an open question. The evidence is focused on India and Africa, and no comparable within-empire studies exist for Europe or for the Russian Empire, largely because high-quality continuous data on local self-governance have not been available.

This paper examines how the degree of local self-governance under Russian imperial rule shapes long-term differences in governance quality and economic performance in modern Ukraine. I compile novel data from the nineteenth-century Russian censuses and archival materials covering 93 historical districts and link them to community-level data from 2021, using population-weighted spatial correspondence. The resulting dataset provides the first disaggregated evidence on the ethnic composition of local officials in the Russian Empire. I use the share of local officials in district administration as a continuous measure of historical self-governance, capturing unofficial variation in local administrative control rather than ethnic composition alone. This variation reflects political and military events that unfolded nearly two centuries earlier, long before the modern outcomes under study. To address remaining endogeneity concerns, I complement the baseline analysis with an instrumental variable approach.

The results show that regions with higher historical self-governance exhibit stronger contemporary economic performance. A 10-percentage-point increase in the share of local offi-

cials is associated with approximately 8.2 percent higher local tax revenue per capita in 2021, and with greater nighttime luminosity in the pre-reform period. I argue that self-governance differences created uneven opportunities to accumulate governance experience across regions. Where local populations retained greater self-governance, they preserved institutional continuity, developed bureaucratic capability, and learned to manage public resources effectively. Ukraine's 2014 decentralization reform created the institutional setting in which this latent capacity became fiscally measurable, transferring genuine taxing authority to local communities. Consistent with the governance channel, historically self-governing regions today display stronger public goods provision and suggestive evidence of lower corruption risk and more efficient courts. These patterns remain stable across instrumental-variable estimates, sensitivity analyses, placebo tests, and subsample checks.

Overall, the evidence suggests that even modest opportunities for local self-governance within an empire generated lasting gains in governance capacity. The implication is that local self-governance, even within an imperial framework, produced lasting institutional advantages that direct imperial administration did not.

This paper makes several contributions. First, it extends the literature on institutional persistence and the historical origins of development (Acemoglu & Dell, 2010; Acemoglu et al., 2001; Borcan et al., 2018; Hariri, 2012; North & Thomas, 2009; Nunn, 2009) by identifying the long-term economic effects of local self-governance institutions (Iyer, 2010; Michalopoulos & Papaioannou, 2013, 2014). The study builds on the within-country institutional research framework of Iyer (2010) by tracing the legacies of direct vs. indirect imperial rule[1]. Second, it adds to the economic history of Europe by presenting new empirical evidence on the long-term economic legacies of historical governance structures and by introducing novel data on local administration in the nineteenth-century Russian Empire (Becker et al., 2016; Grosfeld & Zhuravskaya, 2023; L. V. Peisakhin, 2010; Vogler, 2019; Zhuravskaya et al., 2024). The dataset records the ethnic composition of officials in administration, courts, and policing, providing the first systematic measure of self-governance under imperial rule. Third, the analysis contributes to public economics by speaking to debates on decentralization, fiscal federalism, and local state capacity. The evidence shows that empowering local governance can improve accountability, expand public goods provision, and strengthen long-term economic development (Bardhan & Mookherjee, 2006; Enikolopov & Zhuravskaya, 2007; Gadenne & Singhal, 2014; Nafziger, 2016; Swianiewicz, 2018; Tavares, 2018).

[1] A similar logic underlies the distinction between "enclave" and "non-enclave" economies in Conning and Robinson (2009), capturing the same contrast between external and local control that distinguishes imperially administered from self-governing regions.

The rest of the paper is organized as follows. Section 2 provides the historical background. Section 3 describes the data and outlines the empirical approach, including the instrumental-variable approach used to address endogeneity. Section 4 presents the estimation results, robustness checks, and mechanisms by which historical self-governance affects contemporary outcomes. Section 5 concludes.

2 Background

Historical experience of governance plays a central role in explaining contemporary economic development. Earlier research shows that the historical depth of statehood is associated with income levels and institutional quality (Bockstette et al., 2002; Borcan et al., 2018; Lagerlöf, 2016; Putterman & Weil, 2010). State antiquity influences contemporary outcomes through the persistence of administrative capacity, human capital, and norms of collective organization transmitted across generations. Classic theories of institutional development emphasize that the way societies organize governance and authority shapes the quality of institutions and their long-term economic performance (Acemoglu et al., 2002; Acemoglu & Robinson, 2019; North & Thomas, 2009). Strong yet accountable state institutions promote development, whereas extractive or overly centralized systems tend to suppress local initiative and weaken governance quality.

Recent studies show that imperial legacies have lasting effects on trust, governance, and political behavior. Grosfeld and Zhuravskaya (2023) find that former Prussian and Austrian regions of Poland remain more civic and democratic than areas formerly under Russian rule. Similarly, Becker et al. (2016) demonstrate that former Habsburg territories exhibit higher trust in courts and police and lower perceived corruption. L. Peisakhin (2013) further shows that people living in former Austrian settlements today hold more pro-European political attitudes than those on the former Russian side. These attitudinal differences complement the institutional evidence, suggesting that imperial legacies operate through multiple channels. More broadly, Pop-Eleches (2015) demonstrate that decades of communist developmental efforts could not erase pre-communist intraregional differences, confirming that historical institutional legacies can persist through radical regime change. Collectively, these findings indicate that contrasting imperial institutions created enduring differences in governance quality, bureaucratic norms, and civic trust, even within present-day nation-states.

Ukraine provides an especially informative setting for examining how local self-governance persisted within the Russian Empire. Its regions entered imperial rule with starkly different

historical experiences of autonomy and administration. The Left Bank[2] inherited institutions of the Cossack Hetmanate, where elective offices and local self-governance had deep roots. The Right Bank, by contrast, had been under Polish-Lithuanian Commonwealth rule and lacked sustained autonomy, while the South was settled and administered directly by the Russian imperial authorities after conquest. These contrasting trajectories created enduring variation in local administrative traditions that persisted even after the introduction of uniform imperial institutions.

In 1648, Bohdan Khmelnytskyi led a Cossack uprising against the Polish-Lithuanian Commonwealth, covering much of present-day central, northern, and eastern Ukraine. The revolt established the Cossack Hetmanate, a semi-autonomous polity with its own military and administrative system. However, it faced constant threats from Polish counteroffensives and limited external recognition. Seeking security, Khmelnytskyi sought military protection from Muscovy and the Crimean Khanate. The Pereyaslav Agreement of 1654 aligned the Hetmanate with Muscovy in exchange for military protection, while preserving broad autonomy, including the right to elect its leaders. Over time, however, this relationship gradually shifted the balance of power toward Muscovy, eroding the Hetmanate's autonomy and deepening imperial control (Hajda et al., 2025).

Continued conflict between Muscovy and the Commonwealth culminated in the Truce of Andrusovo (1667), which divided Ukraine along the Dnipro River: Muscovy gained the Left Bank, while the Right Bank remained under Polish control. Although the Hetmanate initially spanned both banks of the Dnipro, the 1667 partition returned the Right Bank to Polish control, interrupting the development of autonomous institutions there. The Hetmanate retained diminished autonomy under Muscovy, but successive centralizing reforms gradually curtailed its independence. Rebellions periodically arose to restore wider autonomy, the most prominent being Hetman Ivan Mazepa's alliance with Swedish King Charles XII during the Great Northern War. After Mazepa's defeat at Poltava in 1709, Russian forces destroyed his capital, Baturyn, as punishment for his defection. Under Kyrylo Rozumovskyi, the last hetman, Baturyn was revived as the administrative capital but never regained its former political or economic significance.

In 1721, the Tsardom of Muscovy was formally proclaimed the Russian Empire. The Hetmanate continued to exist in diminished form for another half-century within this new imperial framework, but its administrative independence was steadily eroded. Finally, in

[2]For clarity, I group the provinces into three macro-regions—Left Bank, Right Bank, and South—adapting traditional historiographic divisions. Sloboda Ukraine (Kharkiv province) is treated as part of the Left Bank: it was a frontier region settled by Cossacks who received limited self-governance privileges from Moscow in exchange for border defense. Volhynia belongs to the Right Bank. Western Ukraine, outside the Russian Empire, is excluded. "Other" denotes a small number of districts within present-day Russia or Belarus.

1764, Empress Catherine II abolished the office of hetman and replaced the Hetmanate's structures with a new imperial administration, formally ending Cossack autonomy. A year later, a similar process unfolded in Sloboda Ukraine, where Catherine revoked local privileges and integrated the region under direct imperial governance.

Further imperial expansion came in 1793 with the Second Partition of Poland, which brought Right-bank Ukraine under Russian rule. In contrast to the Left Bank, these territories lacked sustained autonomous institutions—governance traditions that existed during the Hetmanate era were interrupted by the 1667 partition and subsequent Polish and then Russian direct rule. By the late eighteenth century, the empire had also consolidated control over the South: Crimea was annexed in 1783, territories between the Southern Buh and Dnister Rivers in 1792, and Bessarabia (southern Odesa oblast) in 1812 following Russia's victory over the Ottoman Empire.

By the end of the eighteenth century, all the regions examined in this study were under direct imperial rule. For more than a century before the 1897 census, no Ukrainian territory retained formal self-governance. Yet despite uniform imperial institutions, the composition of local bureaucracies varied considerably across regions.

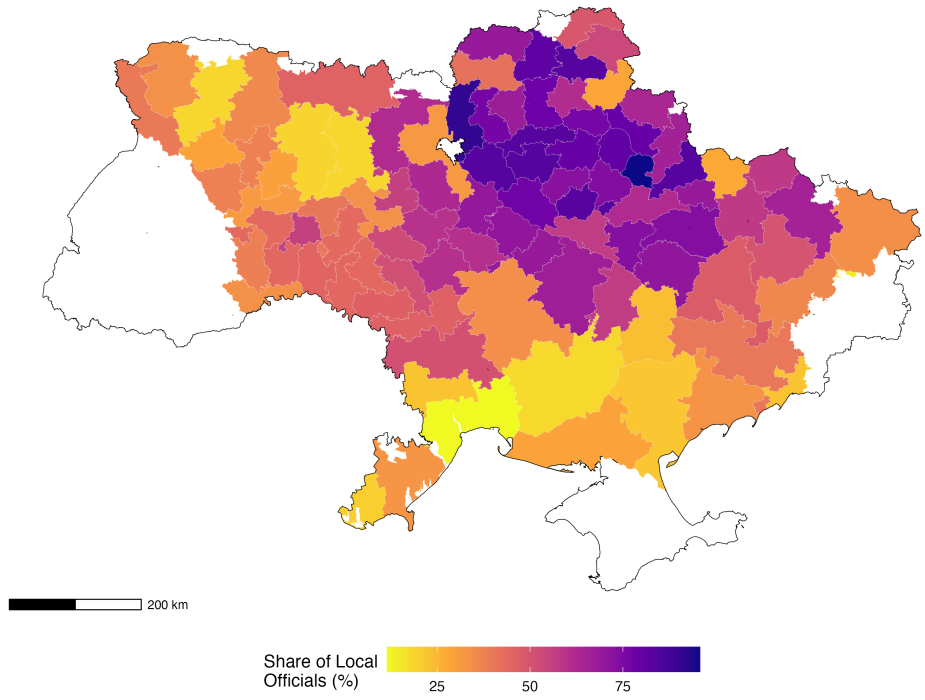


Figure 1: Share of local (Ukrainian) officials across historical districts, 1897

Figure 1 maps the continuous distribution of the share of local officials across districts. The pattern is stark: the vast majority of Left Bank districts had a majority of Ukrainian

officials, compared with a minority of Right Bank and Southern districts. This variation reflects inherited governance experience rather than contemporary economic or geographic differences. The boundaries of the Hetmanate and subsequent imperial reforms were imposed from above, not driven by local conditions. Thus, despite uniform imperial institutions by the late eighteenth century, local administrative composition continued to mirror historical traditions of self-governance.

2.1 Ethnicity and Self-Governance

A central feature of this paper's identification is the use of ethnic composition in local administration as a measure of self-governance. In the Russian Empire, ethnicity was not incidental to governance—it determined access to administrative positions. Imperial policies, including the Ems Decree (1876) and Valuev Circular (1863), restricted Ukrainian language use in public life and signaled a broader preference for Russian administrators in imperial governance. Although no systematic records document a formal replacement policy, the pattern of declining Ukrainian representation outside former Hetmanate territories is consistent with sustained centralization pressures. Where Ukrainians nevertheless retained positions in local administration, courts, and police by 1897, this likely reflects the depth of local institutional networks: where self-governance traditions had created generations of administrative experience, the imperial center found it more practical to work through existing local elites than to import Russian replacements for every district-level position. The ethnic composition of the bureaucracy was thus an institutional outcome, shaped by the historical geography of Cossack autonomy and the pace at which imperial centralization displaced local governance structures.

Three features support interpreting the share of local officials as a measure of self-governance rather than mere ethnic composition. First, the imperial ethnic hierarchy meant that Ukrainian representation in administration required active institutional channels—the same Cossack traditions that had sustained self-governance for over a century. In the absence of such traditions, Ukrainian-majority districts on the Right Bank—where governance traditions were interrupted by the 1667 partition and subsequent Polish and then Russian direct rule—had far lower shares of Ukrainian officials, precisely because they lacked the institutional infrastructure to maintain representation in the bureaucracy. Second, the persistence of administrative ethnic composition long after formal abolition is consistent with theories of institutional transmission (Giuliano & Nunn, 2017): governance norms and administrative know-how, once embedded in local communities, can reproduce themselves through intergenerational transmission even without formal institutional support. Third, the empir-

ical models control for the overall Ukrainian population share, so the explanatory variable captures governance involvement beyond what demographics alone would predict.

Section 3 presents an instrumental variable approach that reinforces this interpretation.

3 Data and Empirical Strategy

3.1 Data

To study the effect of historical self-governance on economic performance across the Ukrainian part of the Russian Empire, I construct a cross-sectional dataset at the community level (Amalgamated Territorial Communities, or hromadas) in 2021 (U-LEAD, 2025). The main dataset contains 1,150 observations with rich, granular information about Ukraine.

3.1.1 Outcome Variables

Local tax per capita, the primary dependent variable, captures the aggregate revenues from local taxes and fees collected by communities.[3] Since the decentralization reform started in 2014, these taxes have become a cornerstone of local fiscal autonomy. The reform increased the share of revenues retained at the local level and incentivized municipalities to mobilize their own resources effectively. Stronger fiscal incentives encouraged communities to improve tax administration, identify new taxpayers, and rationalize spending structures (Arends et al., 2023; Harus & Nivyevskyi, 2020; Myshlovska, 2020; Romanova & Umland, 2019). Generally, local tax revenues reflect a community's economic vitality (the presence of active businesses, employment, and property values) and its governance performance (the ability of local authorities to design and enforce taxation).[4] Thus, local tax revenues are widely viewed as indicators of both governance quality and the economic performance of communities (Raźniak & Winiarczyk-Raźniak, 2013; Vogler, 2019). This institutional shift means that historical variation in governance experience—previously latent under centralized administration—now manifests directly in measurable fiscal outcomes.

I also employ alternative outcome variables to test potential mechanisms and provide robustness checks. Average nighttime light intensity from 2005 to 2013 serves as a pre-reform measure of local economic activity, allowing me to assess the persistence of self-governance effects prior to the 2014 decentralization reform.

[3]These include the land tax, real estate tax, transport tax, the unified tax (applied to small and medium businesses under a simplified taxation regime), the parking fee, and the tourist fee. Further institutional and legal details on the local fiscal structure are provided in Appendix A.

[4]For more details on the ongoing decentralization debates, see Enikolopov and Zhuravskaya (2007), Swianiewicz (2018), and Tavares (2018).

To capture the mechanism linking historical self-governance to contemporary outcomes, I follow the logic of Iyer (2010), who shows that indirectly governed regions in India invested more in education, health, and infrastructure. If districts in the Russian Empire with greater local representation developed more accountable administrations, this legacy should persist in the form of stronger public goods provision and more efficient judicial institutions today. Accordingly, I include indicators of local public goods, such as the number of preschools, schools, health centers, libraries, and museums. The measures of judicial quality include the average time to resolve a court case and whether a court had a corruption-related case in 2021. Together, these variables provide a richer view of how historical self-governance may have translated into both administrative capacity and developmental performance.

Fiscal autonomy measures. To examine whether the main result reflects broader fiscal autonomy rather than a single outcome, I draw on fiscal capacity data covering 1,438 Ukrainian communities from the KSE Local Data Hub (Hatsko et al., 2025), a comprehensive repository of hromada-level indicators compiled from official budget reporting by researchers at the Kyiv School of Economics (see also Rabinovych et al., 2024). Under the post-2014 fiscal framework, communities' operating budgets (the "general fund") are financed from three main sources: locally set taxes and fees, a retained share of the personal income tax (PIT)—increased from 25% to 60% of PIT collected within the community's boundaries (Arends et al., 2023)—and intergovernmental transfers, which include both equalization grants and earmarked subventions (targeted transfers for specific purposes such as education or healthcare). Under the equalization system, the central government provides grants to communities whose per capita tax capacity falls below a norm and collects reverse transfers from those above it.

I use four measures that capture distinct dimensions of fiscal autonomy—transfer dependence (measures 1–2), the composition of own-source revenue (measure 3), and discretionary spending power (measure 4):

1. The *subsidy dependence rate*: equalization grants as a share of general fund revenue. Negative values indicate net contributors to the equalization system—communities whose tax base exceeds the norm.

2. The *transfer share*: all intergovernmental transfers as a proportion of total budget revenue.

3. The *local tax share excluding transfers*: local taxes and fees divided by own-source revenue (general fund revenue minus all transfers). The denominator thus comprises locally set taxes, the retained 60% PIT share, and excise taxes. A higher ratio indicates

greater reliance on taxes that the community actively administers—such as property and business taxes—relative to the PIT share, which is allocated mechanically based on where employers are registered rather than on community governance effort.

4. *Per capita spending on culture, physical education, and sport*: unlike education and health expenditures, which are subject to central norms and partially funded by earmarked transfers, spending on culture and sport is financed entirely from communities' own revenues and reflects local prioritization.

3.1.2 Explanatory Variables

The historical data are available at the district level, covering 93 uezds (districts) in the estimation sample, the third administrative tier within a gubernia (province). The novelty of my dataset is that it distinguishes observations by linguistic group. Other public sources and previous research aggregate Russians, Ukrainians, and Belarusians into a single linguistic category, "Russian," thereby erasing crucial ethnic differences. I manually transcribed the 1897 Russian Empire census books and preserved this distinction. It made it possible for the first time to analyze how self-governance within an empire shapes contemporary institutions and economic outcomes. The key explanatory variable measures historical governance experience as the share of local officials (i.e., Ukrainians) employed in administrative, judicial, and police institutions in the 1890s (Trojnitskij, 1903–1905).

The main specification uses a continuous measure: the share of local officials among district administrators, court personnel, and police. This is the first study to construct a continuous measure of self-governance under imperial rule, rather than a binary classification of direct vs. indirect rule. It is also the first study to analyze self-governance within the context of the Russian Empire.

3.1.3 Control Variables

The models include a rich set of contemporary, historical, and geographic controls. Contemporary community-level controls include the log of population and population density, which account for variation in community scale and urbanization.

Historical controls include urbanization rates from the 1897 census, the share of merchants in the district population, and literacy rates. These variables capture pre-existing differences in economic structure and human capital that might independently predict contemporary outcomes.

Geographic controls include the log of distance to Kyiv, distance to the Black Sea coast, slope, river density, forest cover, chernozem soil share, and community centroid coordinates

(latitude and longitude). These variables address the concern that geographic endowments, rather than governance experience, drive the observed patterns. All models include macro-region fixed effects to absorb unobserved differences across historical regions. The share of the Ukrainian population in each district is included to ensure that the governance variable captures administrative participation beyond what ethnic composition alone would predict. Standard errors are clustered at the district level, the level at which the historical treatment varies. Table B.1 in Appendix B shows that communities above and below the median share of local officials differ significantly on several covariates, motivating the rich control set.

3.2 Matching and Descriptive Statistics

Table 1: Descriptive Statistics

Variable	N	Mean	SD	Min	Max
Outcome variables					
Local tax revenue p.c. (UAH, 2021)	1,150	2,116	1,565	235	20,733
NTL intensity (2005–2013 avg)	1,150	6.5	9.3	0.0	57.6
Treatment variable					
Share of local officials (%)	1,150	44.4	20.0	11.6	95.7
Modern controls					
Population (2020)	1,150	25,529	77,984	1,814	1,511,554
Population density (persons/ha)	1,150	0.14	0.57	0.01	10.44
Historical controls (1897 census)					
Ukrainian population share (%)	1,150	72.0	18.8	19.6	98.1
Literacy rate	1,150	0.20	0.07	0.07	0.44
Urbanization rate	1,150	0.14	0.07	0.06	0.29
Merchant share (%)	1,150	2.8	2.3	0.1	10.5
Instrument					
Log distance to Baturyn	1,150	12.7	0.6	8.2	13.5

Notes: The sample includes 1,150 communities (ATCs) matched to 93 historical districts. All communities within the same district share identical historical variable values. Local tax revenue includes the land tax, real estate tax, transport tax, unified tax, parking fee, and tourist fee. NTL intensity is the community-level average of DMSP-OLS nighttime light radiance. Distance to Baturyn is measured from community centroids in meters (log).

Because contemporary and historical borders differ, I match each local community to the district that contains more than 50% of the community's 2020 population, based on 2020 population density data (WorldPop & Bondarenko, 2020). Five communities with inconclusive spatial matches are dropped, yielding an estimation sample of 1,150 observations. Figure A.7 in Appendix A shows the full extent of historical districts, including border

districts dropped due to ambiguous overlap with modern Ukraine and territories without modern ATC data. On average, each of the 93 districts in the estimation sample contains 12 communities; all communities within the same district share identical historic data values.[5] Appendix A provides more details on matching and data construction.

Figure 2 plots the relationship between the historical share of local officials and the log of local tax revenues per capita in 2021. Each point represents a community (ATC), and the fitted line shows the positive association between the two variables. Communities with a greater historical presence of local officials tend to exhibit higher contemporary local tax revenues, consistent with the hypothesis that historical governance experience has persistent effects on contemporary economic development.

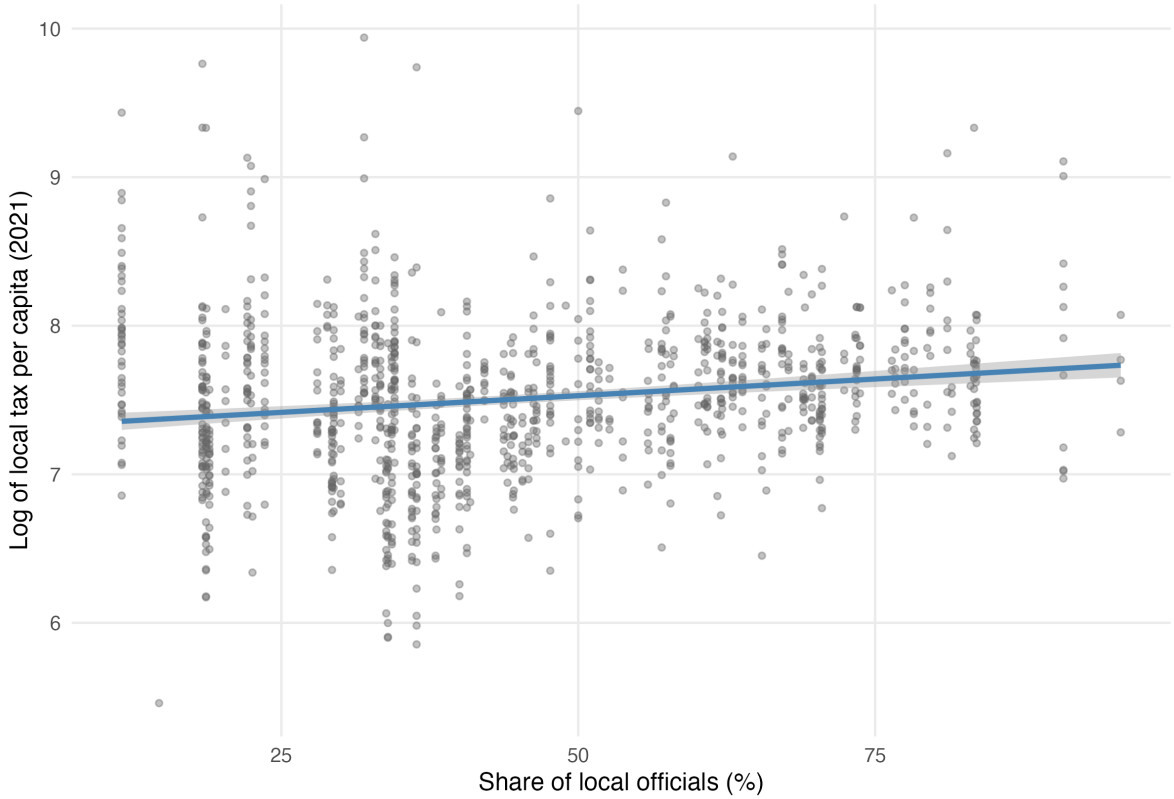


Figure 2: Historical share of local officials and contemporary local tax revenues per capita (log, 2021)

3.3 Empirical Strategy

The main specification uses the share of local officials in administration, courts, and police as a continuous measure of historical self-governance. As Section 2 discusses, the presence of

[5]Of the 102 districts within modern Ukraine's borders, nine lack modern community data: seven in Crimea, plus Slavianoserbsk and Taganrog in Donetsk oblast. The estimation sample comprises 93 districts.

Ukrainians in governance structures was determined largely by political and military events rather than by regional economic factors, providing a plausibly exogenous source of variation.

The empirical analysis begins with the following baseline specification:

$$\log(Y_i) = \alpha_0 + \alpha_1(\textit{Local Officials})_i + \alpha_2 X_i + \varepsilon_i \tag{1}$$

where Y_i denotes the per capita value of local tax revenues in community i or alternative outcome variables. The key independent variable, *Local Officials*, is the continuous share of local officials in district administration, courts, and police. The vector X_i includes contemporary, historical, and geographical covariates relevant to local economic performance, and ε_i is the error term.

3.3.1 Instrumental Variable Strategy

A potential concern is that the share of local officials captures pre-existing advantages correlated with both self-governance and development, rather than the causal effect of governance experience. The areas that became centers of self-governance (like the Cossack Hetmanate) may have been systematically different before autonomy in geography, defense potential, or settlement patterns. If early Cossack communities formed in areas with more open land and better natural resources, those characteristics could influence both the emergence of self-rule and long-run economic outcomes. The primary way to mitigate the concerns is to control for geographic factors.

However, a key concern is that areas with stronger self-governance traditions may also have exhibited greater resistance or rebellion during the Soviet era, thereby prompting targeted repression or unfavorable policy interventions that could have lasting adverse effects on local socioeconomic outcomes. Markevich et al. (2025) show that anti-Ukrainian bias in Soviet policies contributed to disproportionately high famine mortality among ethnic Ukrainians and that this bias was systematically applied across the Soviet Union.

Thus, to mitigate potential endogeneity, I employ an instrumental variable (IV) approach. I use the distance to Baturyn town as an instrument for the share of local officials. Baturyn, historically the capital of the Cossack Hetmanate under Hetman Ivan Mazepa, functioned as a major center of Cossack self-governance until its destruction in 1709 and brief restoration before the final abolition of autonomy in 1764. Proximity to Baturyn thus captures historical exposure to institutions of local autonomy, under the assumption that areas closer to the Hetmanate's capital retained stronger traditions of local participation in governance. Today, Baturyn is a small town with a population slightly above 2,000, without economic significance. Therefore, this proximity is plausibly unrelated to contemporary economic out-

comes except through its historical influence on local administrative autonomy. Figure A.6 in Appendix A shows the location of Baturyn relative to the historical provinces. The instrument follows the logic of Becker and Woessmann (2009), who use distance to Wittenberg as an instrument for the spread of Protestantism. As Zhao (2023) notes, distance-to-a-point instruments can capture spatial gradients that are unrelated to the specific historical channel. Two features distinguish the present instrument from this concern. First, Baturyn was destroyed in 1709 and is today a town of 2,000 with no economic significance; unlike Wittenberg, it is not a cultural or economic center that could affect contemporary outcomes through non-governance channels. Second, the plausibly-exogenous bounds of T. G. Conley et al. (2012), reported in Section 4, confirm that the IV estimate remains positive even when the instrument is allowed a substantial direct effect on the outcome.

Estimation equations:

$$\textit{Local Officials}_i = \alpha_0 + \alpha_1 \, \textit{Distance}_i + \alpha_2 X_i + w_i \tag{2}$$

$$\log(Y_i) = \gamma_0 + \gamma_1 \, \widehat{\textit{Local Officials}}_i + \gamma_2 X_i + \eta_i \tag{3}$$

where *Distance* to Baturyn serves as the instrument in the first stage, and *Local Officials* is used as the explanatory variable in the second stage. X represents the control variables included in both stages.

The first-stage regression with the full set of controls yields an F-statistic of 12.6 ($p < 0.001$) for the instrument and 43.5 ($p < 0.001$) for the specification without controls. Both values exceed the conventional threshold suggested by Staiger and Stock (1997), indicating that the instrument passes the relevance test. When macro-region fixed effects are added, the first-stage F drops to 4.5, reflecting the limited cross-region variation exploited by the instrument; the preferred IV specification therefore excludes fixed effects. Figure B.1 in Appendix B visualizes the first-stage relationship.

4 Results

4.1 OLS and IV

This section presents the estimation results, with standard errors clustered at the district level. Table 2 presents the main estimates linking historical governance experience to contemporary local economic outcomes. The key explanatory variable, Local Officials, is the continuous share of local officials in district administration, courts, and police. Columns (1)–(3) present OLS estimates with full controls and progressively finer fixed effects; columns (4)–(5)

present IV estimates using distance to Baturyn as an instrument.

Column (1) includes the full set of geographic and historical controls without fixed effects. The coefficient on Local Officials is 0.0080, significant at the 1% level. Column (2) adds macro-region fixed effects (Left Bank, Right Bank, South); the estimate remains significant at 0.0063. Column (3), the preferred OLS specification, replaces region fixed effects with province (gubernia) fixed effects, absorbing all time-invariant differences across the 11 historical provinces. The coefficient *increases* to 0.0082, confirming that the result is driven by within-province variation across districts, not by broad regional differences between the Left Bank and Right Bank. A **10** percentage-point increase in the historical share of local officials is associated with approximately an **8.2%** increase in contemporary local tax revenues per capita.

The OLS estimate with province fixed effects is the primary specification. Columns (4)–(5) present supplementary IV estimates using log distance to Baturyn as an instrument. The IV coefficients are consistently larger than OLS, consistent with classical measurement error in the manually transcribed census data and with omitted negative shocks from Soviet repression that would bias OLS toward zero. Because the instrument operates primarily through cross-regional variation (first-stage F falls from 12.6 without fixed effects to 4.5 with region fixed effects), the IV results should be interpreted as corroborative rather than definitive. The IV estimates identify a local average treatment effect (LATE) for communities whose governance composition was most influenced by proximity to the Hetmanate's historical center; genuine treatment effect heterogeneity may also contribute to the larger IV magnitudes.

4.2 Robustness Checks

Table B.4 presents leave-one-province-out regressions, where the baseline model is re-estimated after sequentially excluding each historical province. This exercise tests whether the observed relationship between the historical share of local officials and contemporary local tax revenues is driven by any single province. The coefficients on Local Officials remain positive and statistically significant across all specifications, and their magnitudes are close to the baseline estimates. This consistency indicates that the main result is not dependent on any particular province and that the positive association between historical local governance experience and contemporary fiscal outcomes holds broadly across all territories.

Table B.5 presents OLS and IV estimates with T. Conley (1999) spatial standard errors (100 km cutoff). The coefficients remain strongly significant across all specifications.

Table 2: OLS and IV Estimates

	OLS			IV	
Model:	(1)	(2)	(3)	(4)	(5)
Local Officials (%)	0.0080***	0.0063**	0.0082**	0.0163***	0.0206*
	(0.0017)	(0.0019)	(0.0025)	(0.0046)	(0.0084)
Geographic Controls	Yes	Yes	Yes	Yes	Yes
Other Controls	Yes	Yes	Yes	Yes	Yes
FE	—	Region	Province	—	Region
Observations	1,150	1,150	1,150	1,150	1,150
1st Stage F				12.6	4.5

Clustered (district) standard-errors in parentheses
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Notes: Geographic controls include slope, river density, forest cover, distance to coast, distance to Kyiv, chernozem soil share, and community centroid coordinates. Other controls include log population, log population density, Ukrainian population share, urbanization (1897), merchant share, literacy, and industrialization. Region FE: Left Bank, Right Bank, South. Province FE: 11 historical gubernias (urbanization 1897 dropped due to collinearity).

Sensitivity to Unobservable Confounding

I assess the sensitivity of the OLS estimates to omitted variable bias using the framework of Cinelli and Hazlett (2020). The robustness value (RV) for the main OLS specification is 12.6%, meaning that an unobserved confounder would need to explain at least 12.6% of the residual variation in *both* the treatment and the outcome to fully explain away the estimated effect. The RV for statistical significance at the 5% level is 7.3%. Benchmarking against observed covariates, the effect survives confounders up to 13 times as strong as literacy in terms of partial R^2 with the treatment and outcome. Even a confounder as powerful as the Ukrainian population share—the most influential covariate in the model—would reduce the estimate but not eliminate it. Figure 3 displays the sensitivity contour plot. These results indicate that the OLS estimates are reasonably resilient to omitted variable concerns.

To assess the sensitivity of the IV estimates to violations of the exclusion restriction, I implement the plausibly-exogenous bounds of T. G. Conley et al. (2012). This approach asks: how large could the instrument's direct effect on the outcome be before the IV estimate loses significance? Calibrating the maximum direct effect at 50% of the reduced-form coefficient, I compute the union of 95% confidence intervals over a grid of direct-effect values. For the Baturyn distance instrument, the union CI is $[0.002, 0.030]$, which excludes zero—indicating robustness to substantial exclusion restriction violations.

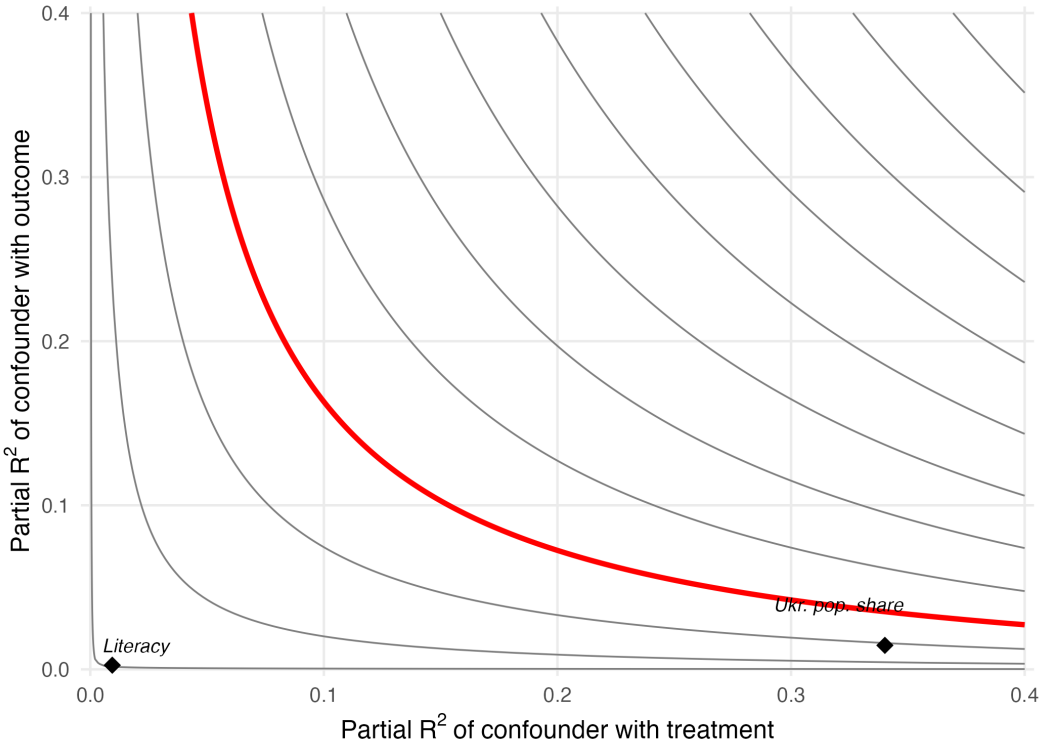


Figure 3: Sensitivity of the OLS estimate to unobserved confounding

Notes: Contour lines show how the estimated effect changes as a hypothetical confounder's partial R^2 with the treatment (x-axis) and outcome (y-axis) increases (Cinelli & Hazlett, 2020). The red contour marks zero effect. Diamond markers show the partial R^2 values of observed covariates. The Ukrainian population share is the most influential covariate; even at its observed strength, the estimate remains positive.

4.3 Mechanisms and Persistence

The main results establish that historical self-governance predicts higher local tax revenue in 2021. But what explains this persistence across 124 years that included two world wars, Soviet collectivization, the Holodomor, and seven decades of centralized rule? Three broad channels could account for the long-run effect. First, governance capacity: self-governance may have built administrative skills, egalitarian institutions, and expectations of local accountability that proved resilient to regime change. Second, human capital: governance experience may have promoted literacy or schooling. Third, physical capital accumulation: self-governing regions may have attracted more investment that compounded over time. The persistence of institutional effects through multiple channels—including community bonds that transmit political values across generations (Charnysh & Peisakhin, 2022)—makes this last channel particularly plausible. I examine each channel in turn, first through contemporary governance outcomes and then through a chronological sequence of intermediate outcomes spanning the imperial, Soviet, and post-Soviet periods.

4.3.1 Contemporary Governance Outcomes

If historical self-governance transmitted governance capacity, its effects should be visible in contemporary measures of local institutional quality. Table B.3 reports the estimated effects on local public goods provision. OLS estimates are positive but imprecise for most outcomes. Supplementary IV estimates, which should be interpreted with caution given the weak first stage under fixed effects, indicate significant effects for libraries, community centers, and museums: precisely the public goods that depend most on community initiative and discretionary local funding. By contrast, centrally standardized services such as schools and primary medical care show no significant relationship, consistent with the expectation that governance experience matters most where local discretion is highest.

Table B.2 reports complementary evidence from local courts. OLS estimates indicate that areas with historically higher shares of local officials exhibit shorter average case-processing times and a lower probability of corruption-related cases, though most coefficients are imprecise. Supplementary IV estimates are larger and statistically significant, consistent with attenuation bias from measurement error in the historical governance measure. These results should be interpreted with caution, however, as only about one-third of communities have an active court, and selection into court presence may not be fully random. Together, these patterns are consistent with the governance channel: historically self-governing regions are associated with stronger public goods provision and higher-quality judicial institutions.

Table B.6 provides the most direct evidence that historical self-governance shaped fiscal

institutions. Using fiscal capacity data from the KSE Local Data Hub (Hatsko et al., 2025), I examine four measures of fiscal autonomy: the subsidy dependence rate, the transfer share, the local tax share excluding transfers, and per capita spending on culture, physical education, and sport (see Section 3.1 for definitions). Communities with historically higher shares of local officials exhibit significantly lower subsidy dependence, lower transfer dependence, a higher share of locally administered taxes in own-source revenue, and higher per capita spending on culture and sport. All eight estimates, four outcomes across OLS and IV specifications, are statistically significant and point in the expected direction. The IV coefficients are larger than the OLS magnitudes, consistent with attenuation bias from measurement error in the historical governance variable. These results indicate that the main finding—higher local tax revenue per capita—is part of a broader pattern of fiscal autonomy rather than a single anomalous outcome.

4.3.2 Historical Channels: Social Structure and Land Inequality

To identify which imperial-era conditions mediated the long-run effect, Table B.7 reports the relationship between the share of local officials and intermediate outcomes measured in the late imperial and early Soviet periods. All specifications include geographic, soil, and historical controls; columns (1) and (2) include macro-region fixed effects.[6]

The strongest result concerns land inequality. Higher local official shares are associated with significantly lower land concentration (Gini coefficient in 1905, $\beta = -0.003$, $p < 0.01$). Self-governing regions also had significantly fewer elite domestic servants—households employing six or more servants per thousand population ($\beta = -0.003$, $p < 0.05$)—indicating a less hierarchical social structure. These findings are consistent with the interpretation that local participation in governance was associated with more equitable land institutions and a broader distribution of economic opportunity—a pattern reminiscent of the argument of Sokoloff and Engerman (2000), who show that initial factor endowments—particularly land inequality—shaped institutional development in the Americas, with more equal distributions promoting inclusive governance. Here, the mechanism operates through governance institutions within a single empire.

Analysis of human capital variables shows no significant relationship between historical self-governance and 1897 literacy rates or schooling infrastructure (results reported in Appendix B). Self-governing regions were not simply "more developed" across the board. The human capital channel finds no support in the data.

[6]The serf share is included as a control in the land Gini and elite servants regressions to isolate the governance channel from the serfdom channel identified by Buggle and Nafziger (2021). Full results are available upon request.

4.3.3 Persistence Through the Twentieth Century

A central challenge for any persistence argument spanning the Soviet period is explaining how institutions survived deliberate disruption. I trace the self-governance coefficient through a sequence of outcomes at successive historical junctures, documenting that the effect was continuously present—not dormant and later reactivated.

Early Soviet period: urbanization. Column (3) of Table B.7 shows that by 1926, self-governing districts had marginally higher urbanization rates ($\beta = 0.003$, $p < 0.10$, $N = 81$), suggesting that governance experience facilitated adaptation to early Soviet modernization.[7]

The Holodomor as a negative shock. Table B.8 examines whether historically self-governing districts experienced differential famine mortality in 1933. The coefficient is positive and statistically significant ($\beta = 0.0006$, $p < 0.05$): areas with stronger governance traditions suffered *higher* excess mortality. When conditioning on the 1926 Ukrainian population share, the coefficient remains unchanged in magnitude ($\beta = 0.0006$, $p < 0.05$), though with a slightly wider confidence interval, suggesting that ethnic composition does not fully mediate the relationship. This pattern is consistent with Markevich et al. (2025), who show that Holodomor mortality was driven by ethnic targeting rather than agricultural productivity. One interpretation is that communities with stronger self-governance traditions were also more resistant to collectivization and grain requisition, making them targets for punitive policies. The finding is important for the persistence argument: historically self-governing regions were actively harmed by the Soviet state, yet they still outperform today. The effect persists *despite* catastrophic destruction, not because these regions were spared.

Soviet electrification: no positive differential investment. If the persistence of self-governance effects operated through physical capital accumulation—with self-governing regions receiving more infrastructure investment that compounded over time—we would expect a positive relationship between historical governance and Soviet electrification. Table B.10 tests this hypothesis using installed electrical capacity across five decades of Soviet rule (1928, 1932, 1946, 1959, 1969), drawn from Naumenko (2026). All five installed-power coefficients are statistically insignificant, with point estimates close to zero. Electricity production regressions yield similar results.[8] Soviet industrial investment was driven by central planning priorities, not by inherited local governance traditions. This result provides no support for

[7] This specification excludes region fixed effects; adding them drives the p-value to approximately 0.11, with the coefficient remaining stable.

[8] Electricity production regressions use the same specification and are reported in Appendix B.

the physical capital channel: self-governing regions did not accumulate an infrastructure advantage during the Soviet period.

Post-Soviet baseline: night lights 1992–2020. The most direct test of continuous persistence is whether the self-governance effect was already visible at the onset of the post-Soviet period, before any market reforms or institutional changes could have taken hold. Figure 4 plots the coefficient on the share of local officials from year-by-year regressions of log district-level nighttime light intensity (LACC series) on the governance measure with full controls and region fixed effects ($N = 93$). The coefficient is positive in every year and marginally significant ($p < 0.10$) from 1996 through 2020, stabilizing at approximately $\beta \approx 0.009$ after initial post-Soviet noise dissipates. The 90% confidence interval excludes zero for nearly this entire twenty-five-year stretch, and one year (2016) reaches conventional significance at the 5% level. The remarkable stability of the point estimate across nearly three decades of independent data rules out the possibility that the NTL result is an artifact of any particular time window.[9] This pattern indicates that the governance effect predates Ukraine's independence-era reforms, was not created by post-Soviet institutional sorting, and was continuously present throughout the post-Soviet period.

Political attitudes. Voter turnout in the 1991 independence referendum shows no significant association with historical self-governance at the district level ($N = 93$; Table B.11 in Appendix B). With the full set of controls and region fixed effects, the coefficient is small and statistically insignificant ($\beta = 0.022$, $p = 0.61$). This null is consistent with the governance effect operating through fiscal and administrative channels rather than through political mobilization.

Modern economic activity. At finer spatial resolution, the ATC-level analysis confirms the district-level pattern. Figure 5 plots year-by-year coefficients from ATC-level regressions of log nighttime light intensity on the governance measure for 2014–2020 ($N = 1{,}150$ ATCs, standard errors clustered by district). Every coefficient is positive and statistically significant at the 1% level ($p < 0.01$ in all seven years), with point estimates ranging from $\beta \approx 0.011$ in 2014–2016 to $\beta \approx 0.008$ in 2020. The 95% confidence interval excludes zero throughout. The consistency across years and spatial resolution—district-level with 93 observations and

[9] District-level specification with full geographic, soil, and historical controls plus region fixed effects; HC1 standard errors. The early 1990s estimates are attenuated by measurement noise from the Soviet economic collapse. The LACC 2021 raster exhibits a distributional discontinuity inconsistent with the preceding series—the share of zero-valued pixels increases from 52% to 67% and mean luminosity drops by 31%—and is therefore excluded.

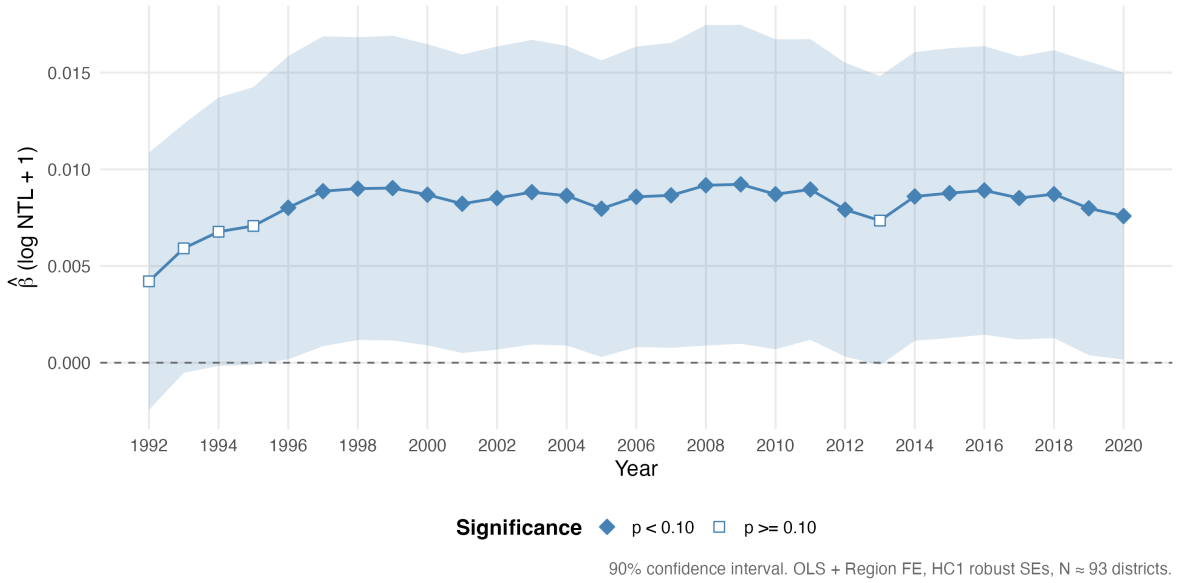


Figure 4: Effect of historical self-governance on nighttime light intensity by year, 1992–2020

Notes: Each point represents the OLS coefficient on the share of local officials (%) from a separate regression of log(NTL + 1) on the governance measure with geographic, soil, and historical controls plus region fixed effects ($N = 93$ districts, HC1 SEs). Filled markers indicate $p < 0.10$; open circles indicate $p < 0.05$. Shaded area shows the 90% confidence interval.

ATC-level with 1,150—reinforces the conclusion that the governance effect is not an artifact of temporal aggregation or spatial scale.

4.3.4 Interpreting the Evidence

The accumulated evidence points to governance capacity—rather than physical or human capital—as the primary transmission channel. Table 3 summarizes the logic.

Self-governing regions did not receive more Soviet investment and were not spared wartime and famine destruction. They had no literacy advantage and no advantage in schooling. What they possessed was a more egalitarian social structure—visible in lower land inequality and fewer elite servants—and governance experience that persisted through Soviet rule and expressed itself in higher urbanization by 1926, well before decentralization made local governance directly measurable. Today, this advantage manifests not only in higher local tax revenue but in a broader pattern of fiscal autonomy: lower subsidy dependence, lower transfer reliance, a higher share of locally generated revenue, and greater discretionary spending on culture and sport.

Ukraine's 2014 decentralization reform created the institutional setting in which this latent capacity became fiscally measurable. The reform transferred genuine taxing authority to local communities, making effective governance directly legible in local tax revenue (Harus & Nivyevskyi, 2020; Romanova & Umland, 2019). Communities with historical governance

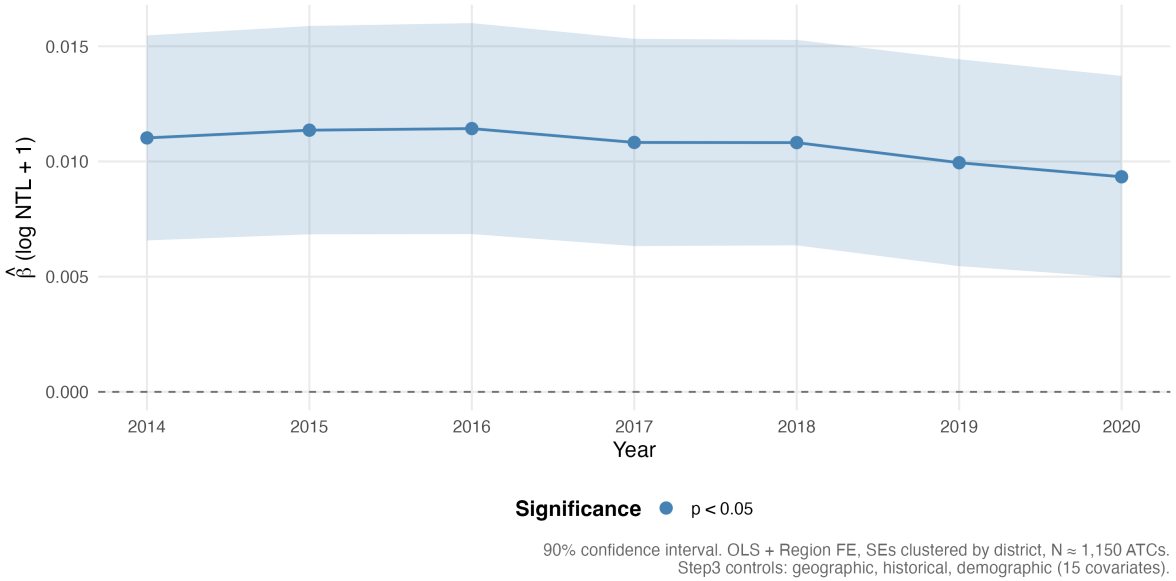


Figure 5: Effect of historical self-governance on nighttime light intensity by year, ATC level, 2014–2020

Notes: Each point represents the OLS coefficient on the share of local officials (%) from a separate regression of log(NTL + 1) on the governance measure with demographic, geographic, and historical controls plus region fixed effects ($N = 1{,}150$ ATCs, SEs clustered by district). All coefficients are significant at $p < 0.01$. Shaded area shows the 90% confidence interval.

Table 3: Summary of Mechanism Evidence

Finding	**Sign / Sig.**	**What it rules out**
Fiscal capacity (4 measures)	All sig. (***)	Single-outcome artifact
Land Gini 1905	Negative (***)	Elite capture
Elite servants 1897	Negative (**)	Elite capture
Literacy, merchants, schools	Null	Human capital channel
Electrification 1928–1969	Null	Physical capital channel
Holodomor excess mortality	Positive (**)	Compounding advantage
NTL 1992–2020 (district, yearly)	Positive (*/**)	Post-Soviet sorting
NTL 2014–2020 (ATC, yearly)	Positive (***)	Aggregation artifact
Public goods (IV)	Positive (**/*)	—
Court efficiency (IV)	Positive (**/*)	—

experience—accumulated under Cossack self-governance and preserved through egalitarian land institutions—proved better equipped to exercise this new authority. The main result, linking 1897 self-governance to 2021 local tax revenue, thus captures the fiscal expression of a governance advantage that the chronological evidence shows was continuously present throughout the twentieth century.

5 Conclusion

This paper provides new evidence that historical self-governance experience within an empire has persistent effects on economic and institutional development. Using novel data from the 1897 Russian Empire census, I construct the first continuous measure of local self-governance, the share of local officials in district administration, courts, and police, and link it to contemporary community-level outcomes for over 1,100 Ukrainian communities in 2021. The results show that a 10-percentage-point increase in the historical share of local officials is associated with approximately 8.2 percent higher local tax revenue per capita, with instrumental-variable estimates suggesting even larger effects.

The findings are stable across a battery of checks. Sensitivity analysis indicates that an unobserved confounder would need to explain at least 12.6 percent of the residual variation in both the treatment and the outcome to fully account for the estimated effect. Plausibly-exogenous bounds confirm that the IV estimates survive substantial violations of the exclusion restriction. Leave-one-province-out regressions and Conley standard errors all support the baseline results.

The analysis of mechanisms suggests that historical governance experience operates primarily through institutional channels rather than through human capital or industrialization. Historically self-governing regions today exhibit stronger public goods provision (libraries, community centers, museums), shorter court case-processing times, and lower incidence of corruption-related cases. At the district level, higher shares of local officials are associated with lower historical land inequality, consistent with self-governance reducing elite land concentration. By contrast, Soviet-era electrification shows no association with historical governance: all five coefficients are statistically insignificant, indicating that self-governing regions did not receive more Soviet industrial investment. The persistence of governance effects thus cannot be attributed to differential resource allocation under central planning.

These results contribute to the understanding of how empires shape long-run development. While much of the literature focuses on the contrast between colonial and post-colonial statehood, this paper shows that variation *within* an empire, in the degree to which local populations participated in governance, generated lasting differences in institutional quality.

Even after more than a century of uniform imperial administration, the geography of Cossack self-governance continued to shape who governed at the local level, with consequences that persist into the twenty-first century.

The cross-sectional design limits dynamic analysis, and the instrumental variable identifies a local effect around the Hetmanate's historical geography. Extending this approach to panel settings or other empires with comparable administrative data is a natural next step.

Appendix A. Data

Table A.1: Summary Statistics

Variable	N	Mean	SD	Min	Max	Mean by Gov. Share <50%	Mean by Gov. Share ≥50%
Panel A: Outcome and key explanatory variable							
Local tax revenue p.c. (UAH)	1,150	2,116	1,565	235.0	20,733	1,985	2,345
Share of local officials (%)	1,150	44.4	20.0	11.6	95.7	31.4	67.1
Panel B: Geographic controls							
Population density (per km^2)	1,150	0.140	0.569	0.0054	10.4	0.173	0.082
Population	1,150	25,529	77,984	1,814	1,511,554	28,538	20,278
Elevation (m)	1,150	151.1	71.0	-0.058	352.7	154.4	145.2
Terrain ruggedness	1,150	37.3	20.6	7.13	153.2	38.3	35.5
Longitude	1,150	31.5	3.65	23.8	40.0	30.8	32.8
Latitude	1,150	49.1	1.50	45.4	52.2	48.8	49.7
Panel C: Historical controls							
Ukrainian pop. share (%)	1,150	72.0	18.8	19.6	98.1	63.2	87.2
Urbanization rate (1897)	1,150	0.139	0.072	0.060	0.289	0.143	0.132
Merchant share (1897, %)	1,150	2.80	2.29	0.106	10.5	3.22	2.07
Literacy rate (1897)	1,150	0.197	0.071	0.071	0.439	0.218	0.159

Notes: The sample consists of 1,150 communities (ATCs) matched to 93 historical districts of the Russian Empire. The last two columns report means for communities in districts where the share of local officials in 1897 was below or above 50%. Communities with ≥50%: $N = 419$; communities with <50%: $N = 731$. Variables entering regressions in logs are shown in levels.

Contemporary Data

Contemporary data come from Ukraine's 1,469 Amalgamated Territorial Communities (ATCs), established under the decentralization reform initiated in 2014. The reform transferred fiscal and administrative powers from higher authorities to local communities, boosting tax revenues, spending efficiency, and satisfaction with public services (Harus & Nivyevskyi, 2020; Reznik et al., 2020) and strengthening local trust (Arends et al., 2023). This created a setting in which local governance quality and administrative competence directly influence economic outcomes.

Complete data are available only from 2021 onward, as community formation was finalized in 2020; communities that had not amalgamated voluntarily by that date were consolidated through top-down directives. Post-2021 data are distorted by the effects of the ongoing war.

The full sample excludes the territories that were not part of the Russian Empire. Additionally, community data are not available for the annexed Crimea peninsula. There are also 31 communities in the Donbas region (Donetsk and Luhansk oblasts) that are temporarily occupied, and so community data do not exist for them either.

Table A.2: Distribution of ATCs by size type

	Size type	Count
1	oblast center	13
2	more than 30,000	168
3	15,000 to 30,000	250
4	10,000 to 15,000	192
5	5,000 to 10,000	355
6	less than 5,000	169

Local Tax Revenues as the Main Outcome Variable

Local taxes and fees form the foundation of municipalities' own-source revenues in Ukraine and are central to evaluating local governance performance and economic performance. Thus, the main outcome variable is per-capita local tax revenues. According to Article 10 of the Tax Code of Ukraine, local taxes and fees constitute the principal source of municipalities' own revenues and are established directly by village, settlement, or city councils within the limits defined by the Code. These include two broad categories:

1. Local taxes: (i) the property tax, which itself comprises the land tax, real estate tax (on property other than land), and transport tax; and (ii) the single tax applied to small businesses under a simplified taxation regime.

2. Local fees: the parking fee and the tourist fee.

The establishment of any other taxes or levies not specified in the Tax Code is prohibited, ensuring a uniform nationwide framework while leaving meaningful fiscal discretion at the local level through rate-setting, exemptions, and administration.

The *unified tax* is an alternative to the general taxation system designed to reduce administrative burden and incentivize small-scale entrepreneurship. It applies to four groups of taxpayers, classified by activity type, income limits, and employment scale:

- Group I – self-employed individuals engaged in minor retail or service activities without hired workers with annual revenue $\leq$300,000 UAH. Their tax rate is set as a percentage (up to 10%) of the national subsistence minimum.

- Group II – small entrepreneurs with a few employees (≤ 10) with annual revenue ≤ 1.5 M UAH. They pay up to 20% of the minimum wage, with rates determined by local councils.
- Group III – both individuals and legal entities with annual revenue ≤ 5 M UAH; they pay a share of quarterly revenue (3% if registered for VAT, 5% if not).
- Group IV – agricultural producers taxed based on the area and category of agricultural land used.

Local governments have the authority to set specific rates (within national limits) and thus directly influence the level of revenue from this tax. Importantly, payers of the unified tax are exempt from several national taxes, including the corporate profit tax, personal income tax (on business income), and the land tax (for land used in business). This makes the unified tax an especially critical component of local budgets, as it concentrates a large share of entrepreneurial activity within local authorities' jurisdictions.

As discussed in Section 3.1, the 2014 decentralization reform made local tax revenues a key indicator of both governance quality and economic performance, by increasing the share of revenues retained locally and incentivizing effective tax administration. Local tax revenues reflect a community's economic vitality (active businesses, employment, property values) and its governance capacity (tax design and enforcement).

In this study, local taxes are measured as per-capita revenues from own sources (aggregated across all local taxes and fees). This indicator captures both the governance quality and the communities' economic performance.

Only one community has errors in the reported data, and so I dropped it from the sample (Pidhaitsi community in Volyn oblast).

Historical Data

The study focuses on districts, historically known as uezd, a level-3 subnational administrative unit in the Russian Empire (also known as povit), with 102 of them falling within modern Ukraine's borders.

New historical datasets were collected from the censuses and historical statistical yearbooks from the late nineteenth century and merged with contemporary data. The share of local officials in district administration, police, and courts is a continuous measure of historical governance experience in 1897. However, the main source (Trojnitskij, 1903–1905) lacks information for Hlukhiv, the capital town of Hlukhiv district, because several pages are missing from the scanned volumes. To fill the gap, I use average values from eleven

other district capitals in Chernihiv province. However, I do not include towns from the Mhlyn, Novozbykiv, Starodub, and Surazh districts, as they all had less than 1% of the Ukrainian population and are quite different from Hlukhiv. The remaining seven district capitals each have a Ukrainian population share exceeding 86 percent, making them comparable to Hlukhiv. I also exclude the provincial capital Chernihiv due to its disproportionate economic and political weight. Consequently, seven communities located within the Hlukhiv district are affected.

Yasnopolskij (1913) includes information on the number of factories, factory workers, production, and population for 1907-1909 at the district-level. I use it to define industrialization as the number of factories per 10,000 people. Southern provinces had considerably more factories per 10,000 people than other regions, with the Right-bank provinces being the least industrialized (Figure A.3). However, the book lacks povit-level data for Bessarabia gubernia. Unlike other gubernias, where data are available by povit, the author noted that manufacturing in Bessarabia was underdeveloped, which may have contributed to the decision to provide only gubernia-level data, or the lack of detailed information prevented the author from reporting data at the povit level. Additionally, the administrative complexities in Bessarabia, particularly in the Izmail and Akkerman povits, which were transferred between the Moldavian Principality and the Russian Empire under the Treaty of Paris (1856) and the Berlin Treaty (1878), further complicated data collection. The distinct internal structure of the Izmail district, which remained in place until it was fully integrated into the Russian Empire in 1904, might have made consistent reporting across povits challenging even after this period.

To address this, I redistributed the 227 factories across the eight povits using a weighted distribution method, first calculating the total population of each povit and then assigning factories based on their share of the gubernia's population. The production data was distributed similarly, though data on the number of workers is missing even at the gubernia level. This adjustment affects only three povits, as only parts of Bessarabia fall within Ukraine's modern borders. In a subsample analysis discussed later, data from this gubernia are entirely excluded, providing an additional robustness check.

Figures

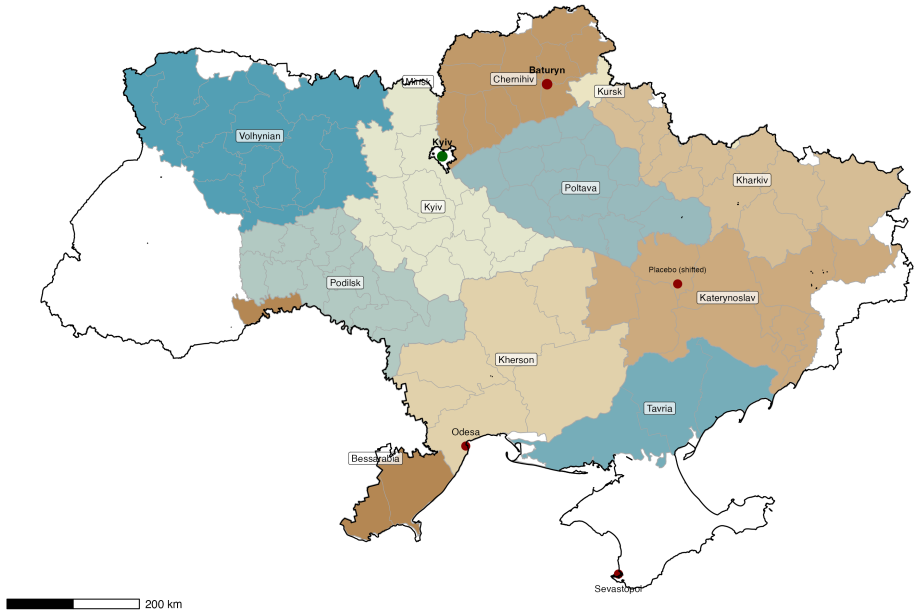


Figure A.1: Historical provinces (gubernii) of the Russian Empire in modern Ukraine

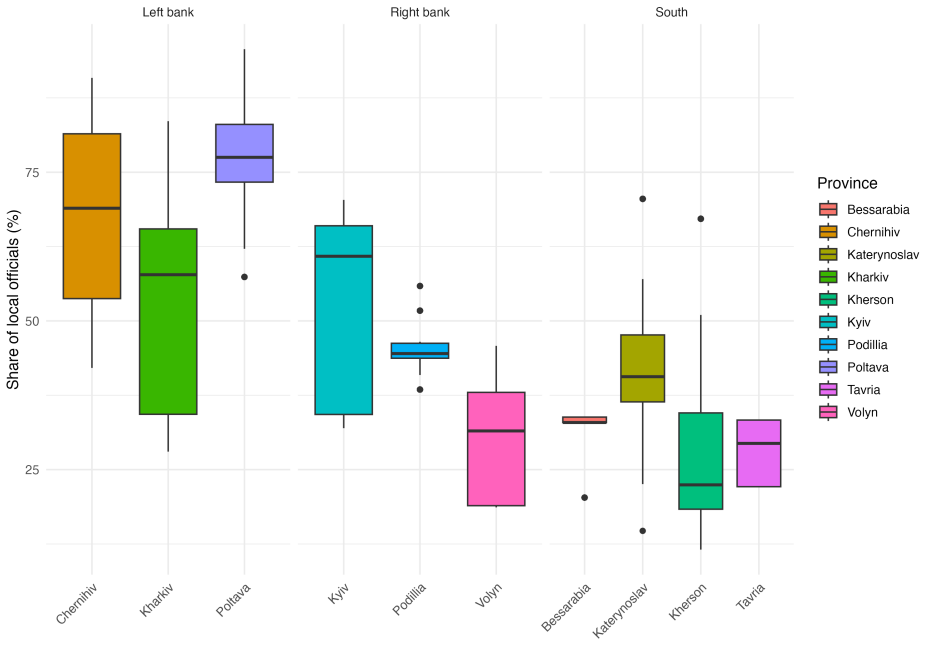


Figure A.2: Distribution of local officials' share by province and macro-region

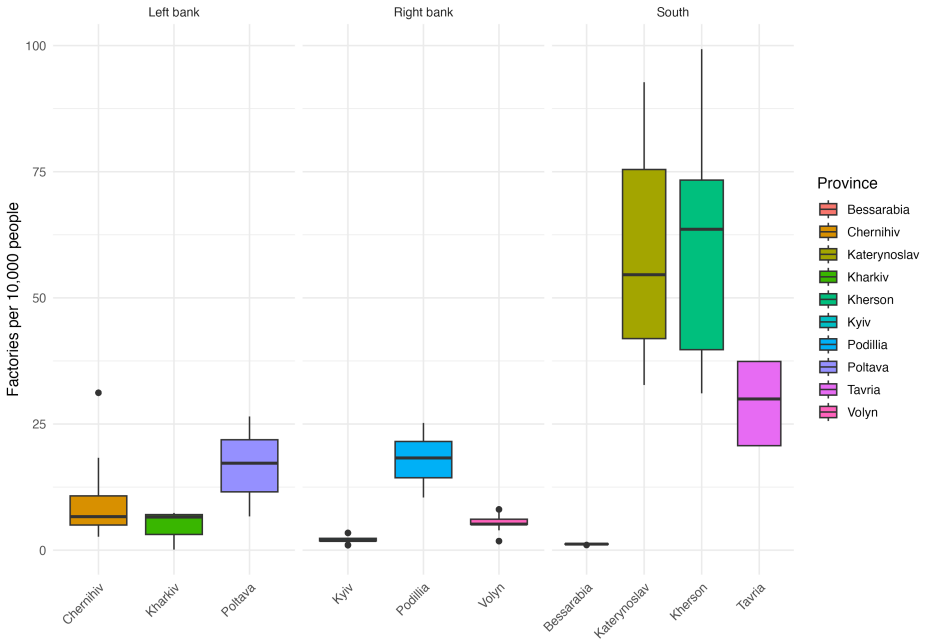


Figure A.3: Factories per 10,000 People by Province, 1907–1909

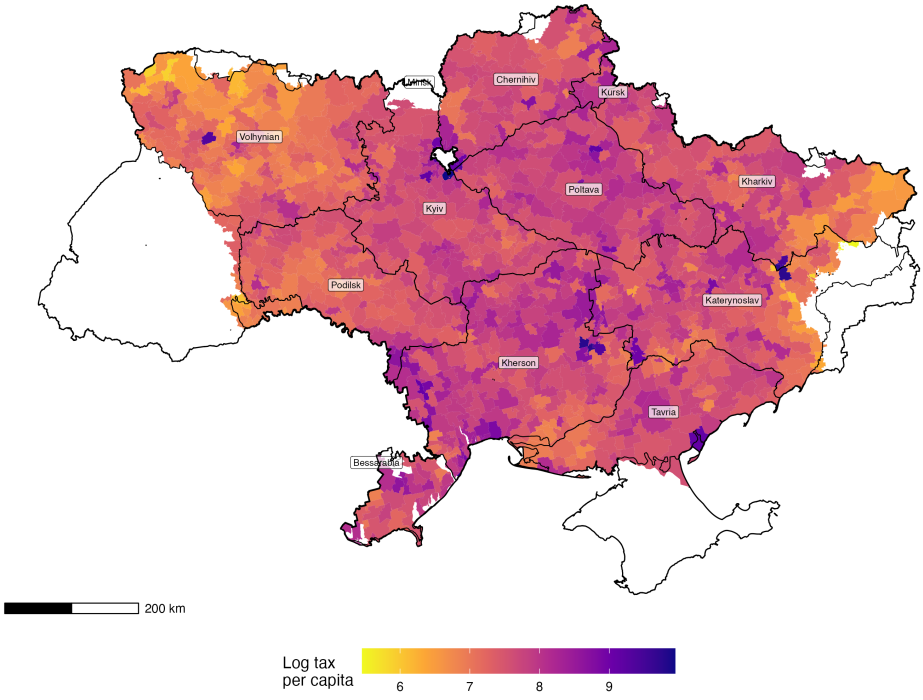


Figure A.4: Local tax revenues per capita (log, 2021) with historical province boundaries

Note: Darker colors indicate higher per-capita local tax revenues in 2021. The black outlines mark the provinces of the Russian Empire.

Matching Modern and Historical Boundaries

Ukraine comprises 1,469 territorial communities (*hromady*) established by the 2020 administrative reform; Crimea was not divided into hromady due to Russian occupation. The estimation sample is restricted to communities whose population-weighted territory falls predominantly within Russian Empire districts. Communities in three western oblasts that were historically part of the Austro-Hungarian Empire—Lviv, Ivano-Frankivsk, and Zakarpattia (199 total)—and parts of the temporarily occupied Donetsk and Luhansk oblasts (35) are excluded because they have no overlap with the Russian Empire district boundaries. Communities in Chernivtsi (Bukovyna) and Ternopil oblasts whose territory primarily belonged to the Austro-Hungarian Empire are also excluded (77 total).

As summarized in Table A.3, the Semenivska community overlapped with one historical district by 48.6%. I manually override this and assign the community to the most overlapped district. This is the only case of such a close overlap; the same community also intersects three additional districts by 42.1%, 9.3%, and less than 0.01%. All four districts belong to the same province, which limits the potential bias from reassignment.

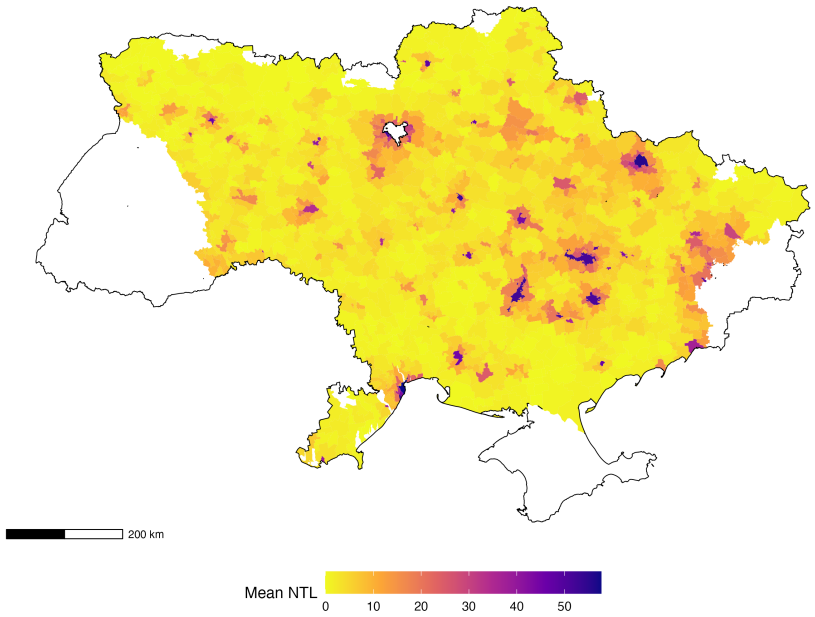


Figure A.5: Average nighttime light intensity by community, 2005–2013

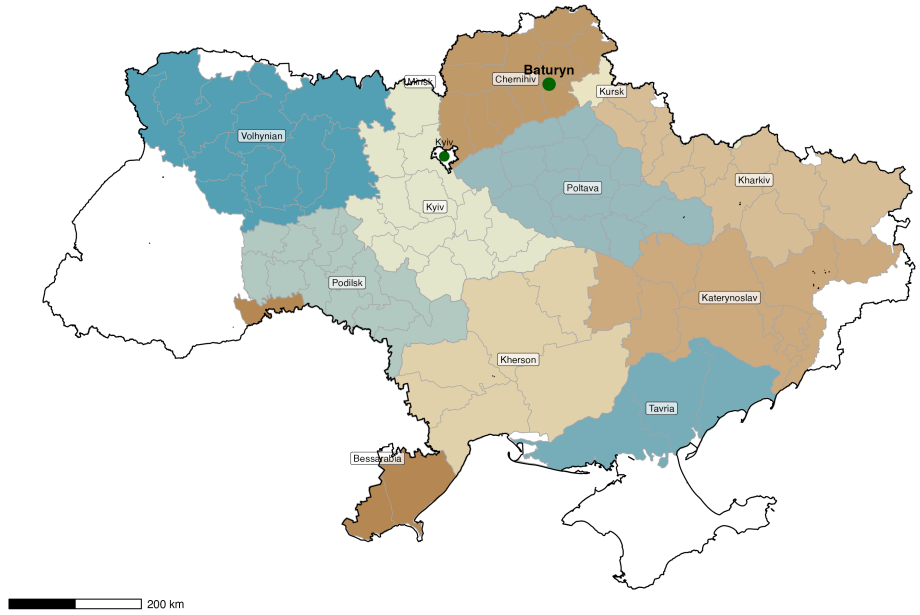


Figure A.6: Location of Baturyn relative to historical provinces

Another community, Ochakiv, has two overlapping districts, both at approximately 29%. Closer examination showed that this was due to minor spatial imprecision in the shapefiles. I manually reassigned this community to the Odesa district, where its largest city and most of its population were historically located.

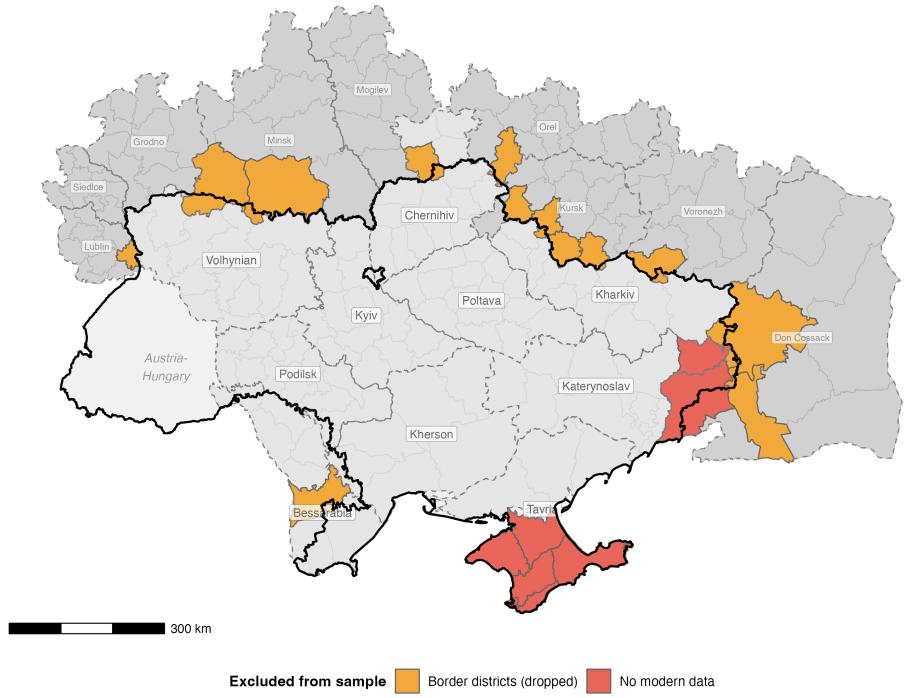


Figure A.7: Full extent of historical districts and excluded territories

Note: Light grey areas show Ukrainian provinces at their full historical extent; darker grey shows neighboring non-Ukrainian provinces. Orange marks border districts dropped due to ambiguous overlap with modern Ukraine. Red marks districts without modern ATC data (Crimea, Slovianoserbsk, Taganrog). The white area within Ukraine's borders (western regions) belonged to Austria-Hungary.

Five other communities exhibit inconclusive overlaps across multiple historical districts and are therefore removed from the sample. After all exclusions, the main regression sample consists of 1,150 communities.

Oblast	Raion	Community	District	Province	Ratio
Odesa	Berezivka	Berezivka	Tyraspol	Kherson	43.17
Odesa	Berezivka	Berezivka	Odesa	Kherson	37.77
Odesa	Berezivka	Berezivka	Ananiv	Kherson	19.05
Poltava	Poltava	Nekhvoroscha	Kostiantynohrad	Poltava	37.16
Poltava	Poltava	Nekhvoroscha	Novomoskovsk	Katerynoslav	31.51
Poltava	Poltava	Nekhvoroscha	Kobeliaky	Poltava	31.33
Mykolaiv	Mykolayiv	Ochakiv	Odesa	Kherson	29.04
Mykolaiv	Mykolayiv	Ochakiv	Dnipro	Taurida	28.91
Odesa	Podilsk	Okny	Ananiv	Kherson	42.11
Odesa	Podilsk	Okny	Balta	Podilsk	32.25
Odesa	Podilsk	Okny	Tyraspol	Kherson	25.64
Chernihiv	Novhorod-Siverskyi	Semenivka	Novozybkiv	Chernihiv	48.59
Chernihiv	Novhorod-Siverskyi	Semenivka	Novhorod-Siverskyi	Chernihiv	42.07
Chernihiv	Novhorod-Siverskyi	Semenivka	Sosnytsia	Chernihiv	9.34
Chernihiv	Novhorod-Siverskyi	Semenivka	Starodub	Chernihiv	0.00
Donetsk	Kalmius	Starobesheve	Mariupol	Katerynoslav	38.29
Donetsk	Kalmius	Starobesheve	Bakhmut	Katerynoslav	31.72
Donetsk	Kalmius	Starobesheve	Taganrog	Don Cossack	29.90
Donetsk	Kalmius	Starobesheve	Oleksandrivsk	Katerynoslav	0.08
Khmelnytsk	Khmelnytsk	Staryi Ostropil	Novohrad-Volynskyi	Volyn	40.19
Khmelnytsk	Khmelnytsk	Staryi Ostropil	Zhytomyr	Volyn	35.40
Khmelnytsk	Khmelnytsk	Staryi Ostropil	Starokostiantyniv	Volyn	24.41
Luhansk	Svatove	Troitske	Kupiansk	Kharkov	23.04
Luhansk	Svatove	Troitske	Starobilsk	Kharkov	17.61
Kyiv	Brovary	Zhurivka	Pryluky	Poltava	42.06
Kyiv	Brovary	Zhurivka	Pereyaslav	Poltava	35.29
Kyiv	Brovary	Zhurivka	Pyriatyn	Poltava	22.54
Kyiv	Brovary	Zhurivka	Kozelets	Chernihiv	0.11

Table A.3: Overlap Ratios by Administrative Unit and Historical Districts

Appendix B. Robustness Tables

Table B.1: Covariate Balance by Historical Governance Intensity

	Below median		Above median		
	Mean	SD	Mean	SD	Norm. diff.
Population density	0.168	0.599	0.112	0.537	−0.10
Population	28,933	99,323	22,148	48,081	−0.09
Slope (mean)	0.601	0.390	0.656	0.358	0.15
River density	0.228	0.064	0.229	0.048	0.03
Forest cover (%)	0.194	0.182	0.219	0.144	0.15
Log dist. to coast	4.954	1.504	5.583	0.495	0.56
Longitude	30.541	4.060	32.483	2.884	0.55
Latitude	48.734	1.739	49.467	1.117	0.50
Ukrainian pop. share 1897	58.222	16.291	85.597	8.016	2.13
Urbanization 1897	0.159	0.083	0.119	0.054	−0.57
Merchant share	3.449	2.848	2.163	1.246	−0.59
Literacy rate	0.232	0.080	0.162	0.033	−1.14
Industrialization	1.895	1.941	1.814	2.009	−0.04
Dist. to Kyiv (log)	12.707	0.625	12.338	0.614	−0.60
Chernozem share	0.630	0.443	0.689	0.394	0.14
N	573		577		

Notes: Communities split at the median share of local officials (40.6%). Normalized differences computed as $(\bar{x}_1 - \bar{x}_0)/\sqrt{(s_1^2 + s_0^2)/2}$. Values above 0.25 indicate meaningful imbalance. All variables are pre-treatment or geographic covariates included in the main specification.

Table B.2: Effect of Local Officials on Corruption

Dependent Variables:	Time	Probability	Time	Probability
	OLS		IV	
Model:	(1)	(2)	(3)	(4)
Local Officials	-0.0709*	0.0005	-0.2386**	-0.0076*
	(0.0370)	(0.0013)	(0.0900)	(0.0038)
Controls	Yes	Yes	Yes	Yes
Fit statistics				
Observations	392	394	392	394
R^2	0.08665	0.12450	0.05847	0.08904

Clustered (district) standard errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Notes: The models include the full set of controls. *Probability* is a binary variable that indicates whether a corruption case appeared in court in 2021. *Time* is a continuous variable describing the number of days it takes to resolve a case in a court on average.

Table B.3: Effect of Local Officials on Public Goods Provision

	OLS	**IV**
Libraries	0.004	0.114**
	(0.010)	(0.045)
Museums	0.014*	0.038*
	(0.007)	(0.021)
Primary Med. Care	0.022	−0.038
	(0.025)	(0.068)
Community Center	0.006	0.122**
	(0.011)	(0.043)
Preschools	0.001	0.043*
	(0.010)	(0.024)
Schools	−0.008	0.001
	(0.007)	(0.018)
Controls	Yes	Yes
Observations	1,150	1,150

Notes: Each row reports the coefficient on the share of local officials (%) from a separate regression. Standard errors clustered by district in parentheses. All models include the full set of demographic, geographic, and historical controls with macro-region fixed effects. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table B.4: Effect of Local Officials on Local Taxes: Subsample Analysis by Province

Model:	Podil (1)	Kyiv (2)	Volyn (3)	Kateryn. (4)	Poltava (5)	Kherson (6)	Kharkiv (7)	Tavria (8)	Chernih. (9)	Bessarab. (10)
Local Officials (OLS)	0.0058***	0.0062**	0.0064***	0.0060***	0.0063***	0.0055***	0.0055**	0.0072***	0.0076***	0.0047**
	(0.0020)	(0.0024)	(0.0022)	(0.0020)	(0.0020)	(0.0019)	(0.0023)	(0.0022)	(0.0018)	(0.0019)
Local Officials (IV)	0.0198**	0.0599	0.0244**	0.0166***	0.0161**	0.0195***	0.0428	0.0216**	0.0193**	0.0230**
	(0.0076)	(0.0583)	(0.0111)	(0.0061)	(0.0077)	(0.0072)	(0.0355)	(0.0086)	(0.0076)	(0.0112)
All Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,048	1,015	954	1,007	1,044	975	1,049	1,078	1,082	1,104

Clustered (District) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

Notes: Each column heading (e.g., Kyiv) denotes the province excluded from that specification.

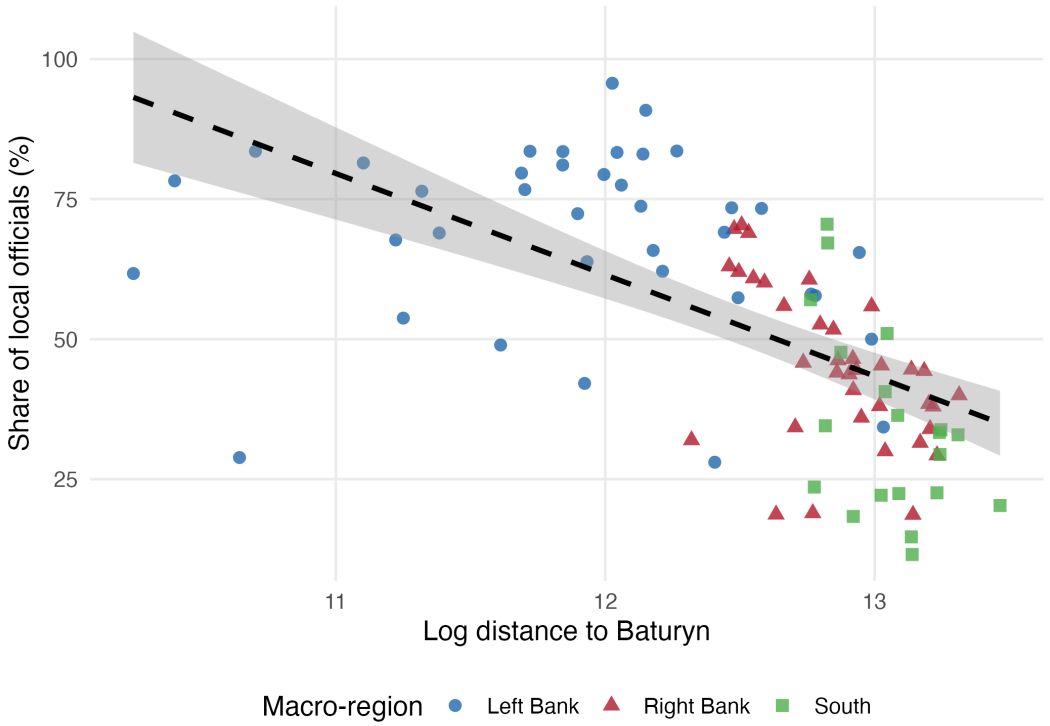


Figure B.1: First stage: Distance to Baturyn and share of local officials

Notes: Each point represents a historical district ($N = 93$). The dashed line shows the OLS fit; shaded area is the 95% confidence interval. Districts are colored by macro-region.

Table B.5: Robustness: Conley (1999) Spatial Standard Errors

		OLS		IV
Model:	(1)	(2)	(3)	(4)
Variables				
Local Officials	0.0045*	0.0079***	0.0062***	0.0205***
	(0.0025)	(0.0022)	(0.0023)	(0.0052)
Controls	No	Yes	Yes	Yes
Region FE	No	No	Yes	Yes
Fit statistics				
Observations	1,150	1,150	1,150	1,150
R^2	0.029	0.361	0.377	0.373
Wald (1st stage), Local Officials				4.1716

Conley (100km) standard-errors in parentheses
$^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$

Notes: Conley (1999) spatial standard errors with 100 km distance cutoff. IV instrument: log distance to Baturyn. Column (4) Wald statistic of 4.17 indicates a weak instrument concern when region FE are included; the preferred IV specification excludes FE (see main results). $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table B.6: Historical Self-Governance and Fiscal Capacity

	OLS				IV			
	Subsidy Dep. Rate (1)	Transfer Share (2)	Local Tax Share (3)	Culture & Sport p.c. (4)	Subsidy Dep. Rate (5)	Transfer Share (6)	Local Tax Share (7)	Culture & Sport p.c. (8)
Local Officials (%)	-0.008^{***}	-0.007^{***}	0.001^{*}	7.20^{***}	-0.012^{***}	-0.014^{***}	0.004^{***}	14.5^{***}
	(0.002)	(0.002)	(0.0007)	(1.35)	(0.003)	(0.003)	(0.001)	(3.11)
Observations	1,099	1,099	1,099	1,099	1,099	1,099	1,099	1,099
R^2	0.337	0.379	0.190	0.217	0.272	0.337	0.187	0.169
Region Fixed Effects	✓	✓	✓	✓	—	—	—	—

Notes: Subsidy Dep. Rate = share of budget from subsidies; Transfer Share = share of revenue from transfers; Local Tax Share = share of own-source revenue from local taxes excl. transfers; Culture & Sport p.c. = per capita spending on culture, physical education, and sport (UAH). All models include demographic, geographic, and historical controls. OLS includes region fixed effects; IV uses log distance to Baturyn as instrument. Clustered (district) standard errors in parentheses. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table B.7: Historical Self-Governance and Intermediate Outcomes

	Land Gini 1905 (1)	Elite servants per 1k (2)	Urban 1926 (3)
Local Officials (%)	-0.003^{***}	-0.003^{**}	0.003^{*}
	(0.0007)	(0.001)	(0.001)
Observations	95	93	81
R^2	0.74423	0.74870	0.36159
factor(Region) fixed effects	✓	✓	

Table B.8: Self-Governance and Holodomor Excess Mortality (1933)

	Excess mort. 1933	
	(1)	(2)
Local Officials (%)	0.0006**	0.0006**
	(0.0002)	(0.0003)
Ukrainian share 1926		0.010
		(0.034)
Observations	90	87
R^2	0.64947	0.64531
factor(Region) fixed effects	✓	✓

Table B.9: Night Lights and Historical Self-Governance (District Level)

	Dependent variable: log(NTL + 1)				
	All years	1992–1996	2001–2007	2010–2013	LACC mean
	(1)	(2)	(3)	(4)	(5)
Local Officials (%)	0.009	0.003	0.005	0.005	0.004
	(0.007)	(0.004)	(0.004)	(0.004)	(0.004)
Observations	93	99	99	99	99
R^2	0.474	0.652	0.598	0.530	0.538
Region FE	✓	✓	✓	✓	✓

Notes: OLS estimates. The dependent variable is the log of mean night-time light intensity (DMSP-OLS) plus one for the indicated period. Standard errors clustered by district in parentheses. All models include demographic, geographic, and historical controls with macro-region fixed effects. $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

Table B.10: Self-Governance and Soviet Electrification (Installed Power, MW)

	1928	1932	1946	1959	1969
	(1)	(2)	(3)	(4)	(5)
Local Officials (%)	-0.002	-0.007	0.002	-0.005	0.001
	(0.013)	(0.014)	(0.006)	(0.004)	(0.006)
Observations	89	89	93	93	93
R^2	0.72538	0.81281	0.81386	0.88375	0.82558
factor(Region) fixed effects	✓	✓	✓	✓	✓

Table B.11: Historical Self-Governance and 1991 Referendum Turnout

	Turnout % (1)
Local Officials (%)	0.022
	(0.044)
Observations	93
R^2	0.73350
factor(Region) fixed effects	✓

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