Losing Capital Status: Does it Matter for a City's Development?

Marta Korczak [1]

[1]Department of Economics, European University Institute

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Abstract

How do changes in the administrative hierarchy of cities impact their development? This paper focuses on the loss of regional capital status, using the context of the 1999 administrative reform in Poland. Exploiting variation in administrative status, I compare former regional capitals to control cities to construct a causal estimate of the loss of capital status. I find that treated cities experienced a persistent decline in both public and private sector activity, female employment, fertility, and local public good provision, despite receiving higher central government transfers relative to control cities. These results are consistent with a simple theoretical model that shows path-dependence in labor markets and *sticky feet* in migration: a decrease in administrative capacity does not lead to immediate adjustments in employment and migration. The findings highlight that administrative status is crucial for city-level development and that the loss of such status has negative consequences, even when accompanied by increased fiscal autonomy.[1]

JEL Codes: H70, H73, H75, J21, J45, O18

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1 Introduction

The administrative status of a city matters. It determines both the size of the public workforce and the sphere of governmental influence on the local economy. While it is well documented what the effects of *gaining* capital status are, not much is known about *losing* it (Chambru et al. 2022, Becker et al. 2021). Intuitively, the effects should not be symmetrical, as the cost of transitioning from the specialized administrative workforce to the private sector might be more costly than the other way around, and the in-built administrative infrastructure might become obsolete instead of being reused for other purposes. Conversely, a city can potentially thrive even after losing administrative functions if it accommodates a large portion of the educated population. The reforms that merge regions and reduce the number of capital cities usually serve to improve the management of public finances, or are an attempt to cut administrative spending. While this kind of reform might be net beneficial on a macro scale (e.g., faster development of large infrastructure projects), it is unclear what the effects are for the municipalities that are no longer the seats of regional power. So far, the effects of losing capital status on socio-economic development have not been explored causally in the economic literature. This paper represents the first attempt to do so, exploiting the context of an administrative reform that took place in Poland in 1999.

The reform was introduced just 10 years after the fall of communism in 1989, so the context I study is still an economy in transition with developing democratic institutions. During the reform, Poland reduced the number of its first-tier administrative regions (*voivodeships*) from 49 to 16. Additionally, this reform created approximately 300 second-tier regions (*poviats*), which I refer to hereafter as "counties". Among municipalities that lost their status as capitals, most became "city-counties", along with another 20 municipalities that had not previously had any administrative functions: such city-counties have an integrated municipal and county administration. Becoming a city-county for an ex-capital reduced the loss of fiscal resources associated with losing a regional capital status. Another important aspect is that before 1999, the self-governance of regions had been virtually non-existent, as regional governors had been representatives of the central government from Warsaw, and they had performed duties as assigned from the Polish capital. In 1999, regions got more autonomy, and Poland also introduced local elections. Therefore, paradoxically, although ex-capitals lost the regional capital status, with a new city-county status, they might have acquired more autonomy (but over a much smaller area than the region they previously officially governed).

The main motivation of the reform was the preparation of Poland to join the EU. As the EU funds were to be administered largely at the regional level, maintaining 49 small regions was deemed inefficient. Larger regions would be better suited to accommodate larger infrastructure projects, thereby accelerating economic development. Additionally, a three-tier administrative hierarchy would resemble the system used by EU countries of similar size, such as Italy, France, and Spain. Furthermore, the floods in Central Europe in 1997 accentuated the perceived inefficacy of disaster management within the system of many small first-tier regions.

To guide the empirical analysis, I outline a simple theoretical model with two cities, a labour market, both private and public sectors, and migration. Administrative capacity, determined exogenously, influences productivity in each sector and consequently employment. Available jobs can change as a result of a negative shock to administrative capacity, leading to either

unemployment or emigration.

In the empirical strategy, I use an event-study design with heterogeneous group-time effects as in Callaway and Sant'Anna (2021). To estimate the effect of losing capital status, I compare ex-capital cities to city-county municipalities (those with integrated municipal and county administration). The combined effect of losing capital status and gaining city-county status is deduced from a comparison of former capital cities to county seats. I also compare city-counties to county seats to estimate the effect of becoming a city-county versus only a county seat. While I rely on the parallel trends assumption, I test its sensitivity using the approach developed by Rambachan and Roth (2023).

Between 1999 and 2003, the ex-capitals received larger transfers from the central government compared to control cities. On average, they received 250 PLN per capita per year (approximately 77 USD), which was around 15% of the monthly average salary in Poland in 1999.[2] On the other hand, the municipality's own revenues decreased by 100 PLN (34% of pre-treatment mean). The additional revenues for ex-capitals were not spent on investment, but rather allocated to salaries in the public sector. Although part of this effect is mechanical: since 1999, salaries in the local public sector have been paid from municipal/county accounts, rather than from the central government. In the labour market, losing capital status was a particularly negative shock for women: between 1999 and 2003, the relative yearly decline in female employment rate oscillated between 3 and 5 p.p. points. The effect for men was also negative, but smaller in magnitude and not statistically significant. I hypothesize that most of the women who lost their employment had worked in public administration or in private firms providing services to the administration. Interestingly, around three years after the reform, compared to city-counties, ex-capitals experienced a significant and persistent fall in births per woman of working age. Potentially, the worsening of the labour market, particularly for women, discouraged many of them from having more children. I observe a delayed negative effect on the migration balance; however, this result is not statistically significant.

This paper contributes to several strands of the literature in urban and public economics. First, it adds to the work exploring the impact of institutional changes on local economic development. Prior studies have focused primarily on the benefits of *gaining* capital or administrative status - such as attracting population, increasing employment, investment, or amenities (e.g., Chambru et al. 2022, Dascher 2000, Becker et al. 2021) - but the effects of *losing* such status remain underexplored. Chambru et al. (2022) investigate the 1790 reform in France in which, due to an exogenous shock, a set of municipalities gained a local capital status. They find that 100 years after the reform, these capitals are 40% more populated than other, comparable cities. Becker et al. (2021), find that Bonn, after gaining capital status in Germany, experienced a substantial increase in public employment. This paper contributes by offering the first causal estimates of the economic impact of *losing* capital status, a relatively rare but highly consequential institutional downgrade. Second, the paper relates to the literature on political decentralization. Administrative reforms, especially those altering the territorial hierarchy (e.g., merging or abolishing subnational units), reshape public finance, governance, and local labor markets (Enikolopov and Zhuravskaya 2007, Tricaud 2019, Martinez-Vazquez et al. 2017, Jin 2023, Foa 2022, Breuillé et al. 2018). In a survey on literature about fiscal decentralization, Martinez-Vazquez et al. (2017) point out that the overall net effect on the economies is positive, while Enikolopov and Zhuravskaya

[2]Control cities: city-counties; treated: ex-capitals that have become city-counties.

(2007), using a panel of 75 countries, find that appointing local politicians instead of electing them does not enhance fiscal decentralization. While I do not focus on local elections in this study, an important aspect of the reform was the introduction of county and regional offices. Importantly, state capacity matters - both in Chambru et al. 2022 and Foa (2022), a more autonomous region does better economically if it has had a higher degree of historically accumulated state capacity. I am contributing to this literature by showing the effects of losing capital status in the context of fiscal decentralization and *de facto* gaining larger fiscal autonomy. Third, this study connects to the literature on reallocation or changes in local public employment. In the context of Italian municipalities in the 2000s, Auricchio et al. (2020) find that exogenous reductions in local public employment stimulated the growth of private jobs. In contrast, Faggio (2019) in studying relocation of 25,000 civil service jobs in the UK in 2004, finds that where public employment increased, there were positive spillovers to the private sector, although highly localised. Similar results were found in Berlin after moving the capital from Bonn in 1999 (Faggio et al. 2018). I add to this literature by showing the labour market effect of lowering the administrative status of a municipality.

The results from the literature indicate an ambiguous potential impact of losing capital status, accompanied by increased self-governance. On the one hand, given past strong administrative capacity, increased autonomy may lead to positive effects. On the other hand, retrenchment in public employment may have a negative impact on cities.

The rest of the paper is organised as follows. In the next section, I explain the context of the reform, which was preceded by heated discussions in the Parliament, as well as street protests. Section three outlines a theoretical framework that explains the main mechanism of the reform. Section four describes the data used and summary statistics, as well as outlines the empirical strategy. Section five presents results, followed by the conclusion in section six.

2 Context

In 1999, the number of first-level administrative regions in Poland (*voivodeships*) was reduced from 49 to 16. The reform not only changed the first-tier structure of administrative regions but also introduced second-tier administrative units (called "counties" hereafter). The capital of a county can have a status of either "city-county" or county seat, with the former bringing more powers to the local administration. Specifically, the main difference between a city-county and a county-seat is that in the former a mayor and a city council rule over the city *and* county, whereas in the latter the county had a separate administration from the municipality. The smallest administrative units, "communes", were preserved from before the reform. Since 1999, a municipality can be a regional capital ("always-capitals", 18 municipalities), a city-county (66), a county seat (248), or a commune seat (2,479). Importantly, 28 of the 31 former capitals became city-counties, along with 20 municipalities that had not previously served as a regional capital.[3] Figure 1 shows the administrative hierarchy of Polish cities from before and after the reform. If a city serves as a regional capital, it is also the seat of a city-county and a commune. If a city is a city-county, it is also the seat of a commune. However, if a city is a county seat, it can only be a commune seat. A city can also be a

[3]Ex-capitals: Ciechanów, Piła, and Sieradz have not become city-counties. Wałbrzych had held a city-county status until 2002 and has regained it since 2012.

commune seat only. I introduce labels L1, L2, ..., L6 for each group. Our main group of interest is L2 - ex-capitals, which have become city-counties. The comparison groups are L4 (commune seats which have become city-counties) and L5 (commune seats which have become county seats).

Before 1999 a city could be:	Since 1999 a city can be:	#	Labels
Regional capital + Commune seat	Regional capital + City-county + Commune seat	18	**L1**
	City-county + Commune seat	28	**L2**
	County seat + Commune seat	3	**L3**
Commune seat	City-county + Commune seat	20	**L4**
	County seat + Commune seat	314	**L5**
	Commune seat	2774	**L6**

Figure 1: Administrative hierarchy of Polish cities before and after the reform.

Regarding the regions, as shown in Figure 2, the reform closely followed the administrative division prior to 1975. The notable exception was the Koszalińskie region, situated between the present-day Zachodniopomorskie and Pomorskie regions on the Baltic coast. The regional capitals after 1999 were mostly the same as before 1975. In Figure 2, they are depicted in the middle map with gray points.

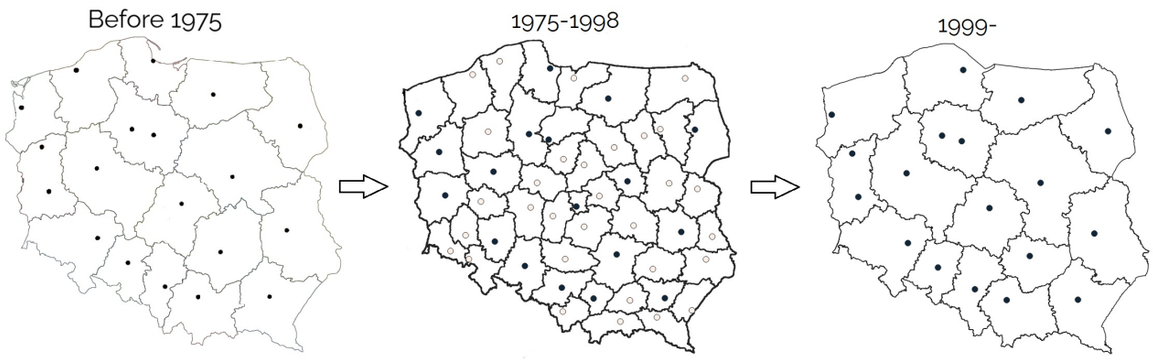


Figure 2: Administrative map of Poland over time

The creation of 49 regions in 1975 was a calculated political decision made by the communist nomenclature. Edward Gierek, the head of the communist party at the time, had been a prominent politician in the Silesia region before taking the highest office in Warsaw. He did not want another powerful communist politician to emerge from the local structures. Therefore, he divided the country into 49 small regions and sent a representative of the communist party from Warsaw to each of them. After the fall of the communist regime, between 1989 and 1998, these 49 regions were still ruled by the government representatives, and therefore, there was very little self-governance.

Figure 3 shows the map of counties in Poland with highlighted city-counties (together with the area of the county). Most of the city-counties are located in Silesia, a region situated in the southwest of Poland. Silesia is predominantly a mining region, with relatively high population density. The other municipalities that were upgraded from commune seat to a city-county status are Gdynia and Sopot (located near Gdańsk, an "always-capital"), Świnoujście (a port city close to the German border), and Grudziądz, located in the northern part of Poland. The main criterion for a municipality (which had not been a regional capital before 1999) to become a city-county was having a population of at least 100,000. Because Silesia is a highly urbanized region with a large population, most of the city-counties are located there. Only Świnoujście received city-county status due to its strategic location as a port city

bordering Germany. Potentially, spillovers from losing capital status might impact control municipalities (city-counties or county seats). Among the outcomes I study, the most likely channels of spillovers are migration and the labor market. Nevertheless, it is far more likely for unemployed people living in ex-capitals to seek employment in always-capitals (where they were often transferred), rather than in city counties.

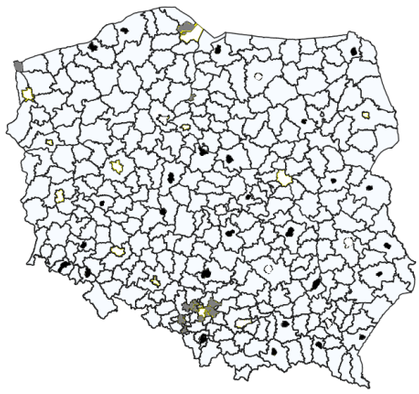


Figure 3: Map of counties in Poland: ex-capitals+city counties are in black, city counties are in gray, always-capitals are in light yellow

It was not necessarily the size that determined which municipalities remained regional capitals. For instance, Bielsko-Biała, one of the ex-capitals, is larger in population than seven cities that remained regional capitals.[4] The choice mostly followed the administrative division from before 1975, but political influences also played a significant role. For instance, Aleksander Kwaśniewski, the President of Poland at the time, with veto power over any legislation, promised the inhabitants of Kielce city a status of capital as a political favor. Additionally, two regions have two capitals, a result of a compromise with local politicians (Lubuskie region, with Gorzów Wielkopolski and Zielona Góra, and Kujawsko-Pomorskie region, with Toruń and Bydgoszcz).

2.1 Timeline of the Reform

The economic crisis brought about by the prolonged inefficiency of the communist system prompted the first discussions about changing the administrative landscape among Polish geographers and urbanists in the 1980s. In 1990, the communes gained power in self-governance: the first elections in democratic Poland were held locally, for commune councils and municipal mayors. In 1993, the government introduced a reform that elevated the status of communes to counties. However, in the same year, it lost the elections to the opposition, and the topic of the administration reform vanished from the public debate until 1997, when it won the elections again. At the beginning of 1998, the ruling coalition presented the first project of administrative reform, which aimed to change the regions in Poland. During the parliamentary sessions between April and June, politicians discussed dividing Poland into 27, 17, 16, 15, 14, or 12 regions. Finally, in July 1998, the coalition and opposition reached

[4]Also, an ex-capital, Częstochowa, and Radom are bigger than two of the remaining capitals. Finally, Kalisz is larger than Gorzów Wielkopolski.

a compromise on the project for 16 regions. The final project, which involved 16 regions and a three-tier administrative division of Poland, was voted on in the Parliament during the night of July 25-26, and the President signed it on July 27, 1998. The first local elections for all tiers — communal, county, and regional governments — were held in October 1998. Since January 1, 1999, Poland has had 16 regions, 373 counties, and 2489 communes.

The heated debate among politicians over the reform reflected the lack of consensus in society. Many municipalities at risk of losing their capital (especially in the context of the most debated idea of division into 12 regions) were genuinely worried about their future. In some cases, citizens took to the streets to protest against the potential loss of capital regions. However, according to a survey conducted in all regional capitals before 1999, not every former capital was afraid to lose its status. For instance, the majority of the population of Słupsk, an ex-capital of the słupskie region, wanted to be part of the gdańskie region after 1998.[5]

Given the lack of consensus among politicians, intense public debate, and even protests in some municipalities, it was difficult to conclude in mid-1998 what the reform would ultimately look like, or even whether it would be implemented. In one of the testimonies presented in the book "Miasto Archipelag" (eng. "City Archipelag") by Filip Springer, an ex-employee of the Regional Office in Łomża (one of the ex-capitals) complains about the lack of preparation to implement the administrative reform: *There was a disagreement about everything (in the last months of 1998). We learned about the reform process around half a year before its introduction, but it was too late. In my opinion, nothing had been prepared for this administrative reform apart from the legislation in Warsaw.* While this is just one testimony, it strongly suggests that the local administration had great difficulty anticipating the effects of the reform prior to its introduction.

2.2 Institutional Differences

Table 1 summarizes changes in administrative functions for the municipalities, according to the legislation from October 13, 1998.[6] Prior to the reform, regional capitals were headed by centrally appointed governors (*voivodes*), who held full administrative authority. These cities had regional offices and sector-specific branches (e.g., police, fire, education), all of which were under state control. Municipalities that later became city-counties typically hosted subordinate district offices. After the reform, new regional capitals hosted both the *voivode*, responsible for state tasks, and a newly elected regional *marshal*, heading the self-government. This introduced a dual structure: regional offices (state) and marshal offices (self-government). Public services were mostly subordinated to the voivode, though some (e.g., employment, road traffic) fell under the marshal's authority. Therefore, we can characterize voivodes as "state's managers", responsible for tasks assigned by the central government, while marshals as "regional executives", deciding together with the regional parliaments about the economic development in their respective regions.

Former capitals that lost status saw their regional offices downgraded to delegations. Many institutions not explicitly listed in the reform law became institutionally orphaned. Staff and assets were partially transferred to the new capitals, weakening local administrative

[5] Please see Appendix A for the details.

[6] Link to the legislation, in Polish

capacity. However, those municipalities that became city-counties, including ex-capitals, gained county-level powers, with unified governance and access to the county tax stream. County-seat cities, by contrast, maintained separate municipal and county administrations. City-counties assumed full responsibility for public services (e.g., secondary schools, healthcare), while county-seat cities remained limited to commune-level services.

Feature	**Old Regional Capitals (pre-1999)**	**New Regional Capitals (post-1999)**	**City-Counties / County Seats (post-1999)**
Administrative Status & Governance Structure	Seat of regional administration; governed under centrally-appointed voivodes	Seat of regional administration; governed under centrally-appointed voivodes, and regional self-government (marshal)	City-counties: control over municipality and county; County seats: separate municipal and county government
Offices Present	Regional Office (voivode) + sectoral state branches (e.g., fire, education, police)	Regional Office (voivode) + Marshall Office (regional gov); sectoral services mostly under voivode	City-counties: absorbed district offices; County seats: separate city and county offices coexist
Staff Transfers	N/A (fully centralized state staffing)	Split between the voivode's and the marshal's offices	City-counties: absorbed staff from former district offices; Ex-capitals: partial transfer to new capitals or local units
Revenue Sources	State-financed with limited local discretion	Regional budget (under marshal) + state oversight (voivode)	City-counties: receive both municipal and county tax shares; County seats: municipal government receives only commune-level funds
Public Services	Central government delivered services via regional branches	Split: voivode oversees services like police and fire; marshal handles regional roads, culture, planning	City-counties: responsible for both municipal- and county-level services County seats: county-level services under separate county administration

Table 1: Institutional differences across municipality types before and after the 1999 reform

De facto, former capitals that have become city-counties have gained greater autonomy than before. However, the jurisdiction present in the ex-capital ruled over a much smaller area (county vs. region). Furthermore, decisions about regional infrastructure and higher-level public services (e.g., specialist hospitals) were being made in the remaining regional capitals, and therefore, the population in ex-capitals often felt it was a downgrade. For instance, according to a former mayor of the Bialskopodlaski county (one year after the city of Biała Podlaska lost its capital status): *I admit that our area receives fewer financial transfers than before. We have less money to invest in infrastructure, education, and healthcare, all of which are important sectors. After the region's liquidation, we lost a great deal. We are afraid that the larger regions might not meet our needs. We would like to know the role of Biała Podlaska among other municipalities in the newly created region.*[7] The biggest winners of the reform: remaining regional capitals, not only gained governance over a much larger region than before, but also, since 2004, were the destination of the EU transfers. Therefore, comparing them to the ex-capitals would be misleading. To elicit the impact of losing capital

[7] "Miasto Archipelag", Filip Springer, 2008. Own translation from the original in Polish.

status, I compare ex-capitals (group of municipalities labeled L2 in Figure 1) to city-counties (labeled L4). Before 1999, the former had a larger "administrative capacity" than the latter, but since 1999, this has been equal. In the following section, I outline a simple theoretical model that takes that as a main mechanism driving the labor market and migration outcomes between two hypothetical cities. The definition of the equilibrium, as well as proofs for its existence and uniqueness, can be found in Appendix B.

3 Theoretical Framework

To build intuition behind the main mechanisms of the reform, I present a simple model with endogenous migration and labor market outcomes, including employment in the private and public sectors, as well as unemployment. There are three periods $t = 1, 2, 3$ and two cities, indexed by $i \in \{1, 2\}$. In each period, a continuum of myopic individuals choose between working in the public or private sector, depending on their preferences. However, in periods two and/or three, they might not find employment. They can migrate in the third period, but it is costly, so they might choose to remain unemployed in their home city. Administrative capacity affects productivity in both sectors, but more in the public sector. The capacity changes exogenously in the second period, and as a result, employment allocation might change, triggering unemployment and/or migration.

3.1 Population and Output

Let N_{it} denote the total population in city i in period t. The population in each city can be divided into:

$$N_{it} = N_{p,it} + N_{g,it} + N_{u,it} = 1 \tag{1}$$

where: $N_{p,it}$ are employed in private sector, $N_{g,it}$ are employed in public sector, and $N_{u,it}$: are unemployed. Unemployment might occur only in the second and third period ($N_{u,i1} = 0;\ N_{u,i2}, N_{u,i3} \geq 0)\ \forall_i$.

Output in each city and period is divided between the private P_{it} and the public sector G_{it}:

$$Y_{it} = P_{it} + G_{it} \tag{2}$$

$$P_{it} = A \cdot \text{adm}_{it}^{\beta} \cdot N_{p,it}, \quad G_{it} = \text{adm}_{it}^{\alpha} \cdot N_{g,it} \tag{3}$$

where adm_{it} is administrative capacity, A is the productivity parameter in the private sector, and $\alpha > \beta > 0$ are elasticities of the administrative capacity. The latter can be interpreted as the quality of local institutions shaping the business climate or the efficiency in the production of public goods.

3.2 Preferences and Sectoral Choice

The sector-specific consumption is given by equations:

$$c^p = (1 - \tau)A \cdot \text{adm}^{\beta} + \frac{\tau P}{N}, \quad c^g = \text{adm}^{\alpha} + \frac{\tau P}{N} \tag{4}$$

where τ are taxes from the private sector output P, distributed equally among all agents. The functional form of utility from consumption in either sector is of constant relative risk

aversion (CRRA):

$$u(c) = \frac{c^{1-\sigma}}{1-\sigma}, \quad \text{with } \sigma > 0 \tag{5}$$

Agents are heterogeneous with respect to the parameter ϕ, drawn from a uniform distribution: $\phi \sim U(0,1)$. It proxies the weight an agent puts on the public good, while $1-\phi$ is the weight on the private good. I assume that an agent chooses the public sector if:

$$(1-\phi)u(c^p) < \phi u(c^g) \tag{6}$$

Therefore, the indifference cutoff is derived to be:

$$\phi^* = \frac{1}{\frac{u(c^g)}{u(c^p)} + 1} \tag{7}$$

We can thus characterise the share θ^* choosing the public sector as:

$$\theta^* = \mathbb{P}[\phi \geq \phi^*] = 1 - \frac{1}{\frac{u(c^g)}{u(c^p)} + 1} \tag{8}$$

And the welfare of each agent is:

$$U = max\{(1-\phi)u(c^p), \phi u(c^g)\} \tag{9}$$

3.3 Timeline

Period 1

I assume that the administrative capacity in each city adm_{i1} is exogenous and known by everybody. Agents draw their parameter ϕ and choose the sector in which to work. There is no unemployment: $N_{u,i1} = 0, \ \forall_i$. The resulting labor allocation to both sectors in city $i = \{1,2\}$ is given by $N_{g,i1} = \theta_i^* N_i, \quad N_{p,i1} = (1-\theta_i^*)N_i$. Also, there is no migration.

Period 2

At the beginning of period 2, there is a shock to the administrative capacity in both cities: $\text{adm}_{i2} \neq \text{adm}_{i1}$. Importantly, in this period, the number of available jobs in both sectors and cities is fixed at the level of employment from period one, scaled by the change in administrative capacity:

$$\bar{N}_{g,i2} = N_{g,i1} \cdot \frac{\text{adm}_{i2}}{\text{adm}_{i1}}, \quad \bar{N}_{p,i2} = N_{p,i1} \cdot \frac{\text{adm}_{i2}}{\text{adm}_{i1}} \tag{10}$$

As the administrative capacity changes, agents might want to change the sectors (according to the decision rule defined in (6)). However, if demand in either sector exceeds the supply, unemployment occurs. I assume that in this period, agents cannot get employed in the less preferred sector and cannot migrate. Therefore, the employment in both sectors and cities in the second period is given by:

$$N_{g,i2} = \min\left\{\bar{N}_{g,i2}, \theta_i N_i\right\}, \quad N_{p,i2} = \min\left\{\bar{N}_{p,i2}, (1-\theta_i)N_i\right\} \tag{11}$$

And unemployment:

$$N_{u,i2} = N_i - N_{g,i2} - N_{p,i2} \tag{12}$$

with the utility of the unemployed assumed to be zero.

Period 3

Now, migration is allowed: unemployment agents from period 2 can seek employment in another city, but they face migration costs c. They may migrate from city i to city $j \neq i$ only if:

$$\text{available jobs in } j > \text{job demand in } j$$

When they migrate, they are placed into open positions (public or private, depending on an agent's preferences). Before they decide to migrate, they can also find, if available, employment in the less preferred sector. They can also remain unemployed. Their utility in each case would be:

$$\begin{aligned} \text{With migration: } U &= max\{(1-\phi)u(c^p), \phi u(c^g)\} - c \\ \text{Without, working in less preferred sector: } U &= min\{(1-\phi)u(c^p), \phi u(c^g)\} \\ \text{Unemployed: } U &= 0 \end{aligned} \tag{13}$$

Therefore, the decision of the unemployed whether to migrate or not depends on the relationship between migration costs and the difference in utility from working in different sectors (provided that the preferred job is available in another city and the less preferred job is available in the hometown). An agent would then decide to migrate if the difference in utility from working in both sectors is larger than the cost of migrating, according to:

$$max\{(1-\phi)u(c^p), \phi u(c^g)\} - min\{(1-\phi)u(c^p), \phi u(c^g)\} > c \tag{14}$$

Also, if there is no available job in the hometown, the utility of working in a less/more preferred job elsewhere should be larger than the cost of migrating:

$$\begin{aligned} (1-\phi)u(c^p) &> c \\ \phi u(c^g) &> c \end{aligned} \tag{15}$$

3.4 Main Takeaways

I outline the main results and related testable hypotheses for the empirical part here.

Proposition 1: Administrative capacity and unemployment. *A negative shock to administrative capacity ($\Delta adm_{it} < 0$) decreases employment in both the public and private sectors. If migration is costly or incomplete, total employment in the city falls, and local unemployment necessarily increases.*

Sketch of proof. From equations (3) in the model, sectoral outputs are given by

$$P_{it} = A \cdot \text{adm}_{it}^{\beta} N_{p,it}, \quad G_{it} = \text{adm}_{it}^{\alpha} N_{g,it}, \quad \alpha > \beta > 0.$$

A decline in administrative capacity (adm_{it}) reduces productivity in both sectors. In equilibrium, the demand for labor in each sector is proportional to its marginal product:

$$N^*_{p,it} = f_p(\text{adm}_{it}), \qquad N^*_{g,it} = f_g(\text{adm}_{it}),$$

where $f'_p(\cdot), f'_g(\cdot) > 0$. Hence, $\Delta\text{adm}_{it} < 0 \Rightarrow \Delta N_{p,it} < 0,\ \Delta N_{g,it} < 0$.

Total employment satisfies

$$N_{it} = N_{p,it} + N_{g,it} + N_{u,it} = 1.$$

Differentiating with respect to adm_{it} gives

$$\frac{dN_u}{d(\text{adm})} = -\left(\frac{dN_p}{d(\text{adm})} + \frac{dN_g}{d(\text{adm})}\right) < 0.$$

If migration is limited ($M \approx 0$), then the fall in N_p and N_g cannot be fully absorbed by out-migration, implying $\Delta N_u > 0$. Only if migration perfectly clears the local labor market ($\Delta M = -\Delta N_u$) will unemployment remain unchanged.

□

H1: A permanent decline in administrative capacity (such as losing regional capital status) increases local unemployment by reducing both public and private sector employment. The effect should be strongest where the public sector initially represented a large share of local employment and migration costs are high.

Proposition 2: Administrative capacity and local revenues. *A decline in administrative capacity reduces local own-source revenues by lowering productivity and employment in the private sector, which is the sole source of local taxation in the model.*

Sketch of proof. Let local own-source revenues be defined as:

$$T_{it}^{\text{own}} = \tau_p \cdot P_{it} = \tau_p \cdot A \cdot \text{adm}_{it}^{\beta} N_{p,it}, \quad \tau_p > 0,\ \beta > 0.$$

A drop in administrative capacity ($\text{adm}_{it} \downarrow$) reduces both the productivity of private labor and the demand for private labor:

$$\Rightarrow P_{it} \downarrow, \quad N_{p,it} \downarrow .$$

It follows that:

$$\frac{dT_{it}^{\text{own}}}{d\text{adm}_{it}} = \tau_p \cdot A \cdot \left(\beta \cdot \text{adm}_{it}^{\beta-1} N_{p,it} + \text{adm}_{it}^{\beta} \cdot \frac{dN_{p,it}}{d\text{adm}_{it}}\right) > 0,$$

so a negative shock to administrative capacity reduces T_{it}^{own}, holding all else constant.

Since public employment does not generate own revenue, and migration is limited, the municipality faces a structural erosion of its fiscal base.

□

H2: A decline in administrative capacity lowers local own-source revenues by reducing private sector productivity and employment, which constitute the taxable base. The effect should be strongest in municipalities where private sector activity is closely tied to administrative infrastructure or demand.

Remark 1: Migration occurs when gains>costs *Unemployed agents in city i will migrate to city $j \neq i$ if: i) their preferred sector has vacancies in city j, and ii) their utility gain from migrating exceeds cost c:*

$$\Delta U(\phi) = \max\left\{(1-\phi)u\left(c_j^p\right), \phi u\left(c_j^g\right)\right\} - \min\left\{(1-\phi)u\left(c_i^p\right), \phi u\left(c_i^g\right)\right\} > c$$

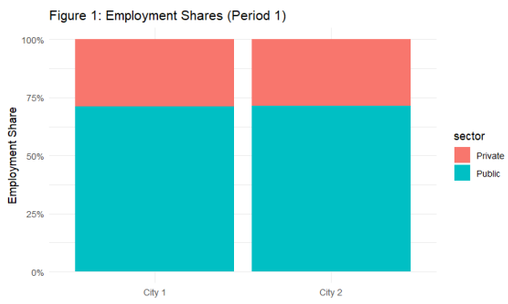
The related testable hypothesis would be:
H3: Migration flows respond positively to the availability of preferred jobs and the utility differential between origin and destination.

Given the studied context, I expect a decline in employment in the former capital cities. If migration is too costly, ex-capital cities should experience larger unemployment rates, despite having similar administrative capacities to city-counties. Furthermore, in the context I study, there is a group of municipalities that have undergone an administrative upgrade (always-capitals). Potentially, laid-off workers in ex-capitals could have emigrated to these municipalities (creating spillover effects). Hence, always-capitals would not be a reasonable control group.

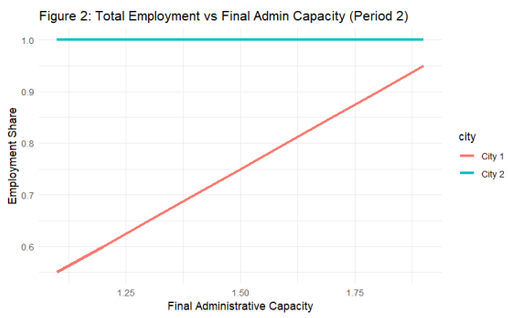
In the next section, I calibrate this model to simulate an example that maps the studied context and provides further intuition for the mechanisms at play.

3.5 Example

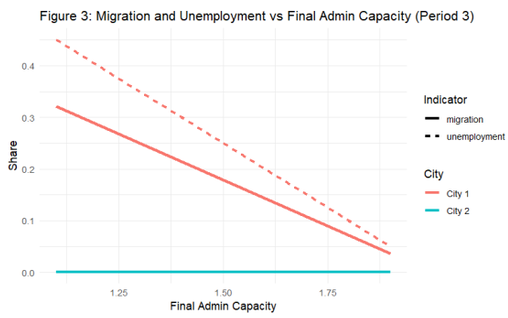
In this example, city 1 has higher administrative capacity than city 2 in the first period ($adm_{11} = 2,\ adm_{21} = 1$), while in the second period their capacities are equalised at value $adm_{i2} \in (1, 2)$. We can think of city 1 as our treated ex-capital, while city 2 is a control city-county.



(a) Period 1



(b) Period 2



(c) Period 3

Figure 4: Simulated outcomes with the following parameters and initial values: $adm_{1,1} = 2, adm_{2,1} = 1, A = 10, \alpha = 0.6, \beta = 0.5, \tau = 0.3, \sigma = 2, \phi \sim U(0, 1)$

In the first period (a), everybody finds employment, with a similar share of people working in the public sector in both cities. In the second period (b), the lower the final administrative capacity is, the smaller the employment share is in city 1. Despite both cities sharing the same administrative capacity, there are no unemployed individuals in city 2, which is consistent with Proposition 1. Finally, when the migration is allowed in the third period

(c), the lower the final administrative capacity, the larger the outflow of people from city 1. The unemployment rate remains larger than the migration share for all values of the final administrative capacity. Migration is limited by both the costs and the availability of public sector jobs in the second city. In turn, nobody is unemployed, nor do they migrate from the city 2.

In the empirical part, I do not focus solely on employment or migration. I hypothesize that the reform affected the labour market according to the mechanisms outlined above, although the development of a city also depends on the evolution of public goods, firms, and sound municipal finance.

4 Empirical Framework

4.1 Data

I use official data from Statistics Poland - Local Data Bank. I use yearly data at the municipal level. If a municipality is rural-urban, I consider only the urban part. In the traditional event study, I use data from 1995 to 2008. In the remaining analysis, I use data up to 2003 to avoid the confounding effect of the European Union's accession in 2004. I drop observations from before 1995 due to the confounding impact of the "Balcerowicz plan"[8] and the subsequent economic crisis in Poland at the beginning of the 1990s. Part of the data is newly digitized from the archives of Statistics Poland (unemployment, employment by sectors, arable and non-arable land, hospital beds, and number of nurses, access to sewage and mains gas, use of water and mains gas, use of tourist accommodation), but will be used in subsequent drafts of this paper.

All variables listed here are in per capita terms or per working-age population, depending on the context. I estimate the effect of losing capital status on the following outcomes. Firstly, I describe municipal finance, including revenues collected locally and transfers from the central government, as well as expenditures on salaries and investments. Secondly, I describe the condition of the labour market before and after the treatment, including employment rates for men and women, as well as the working-age population. Thirdly, I examine the economic conditions, including the number of firms in the public and private sectors, as well as household electricity use. I also show results for demographic variables and migration.

Finally, I construct a local public good index separately for education, healthcare and family, and public transport. The education index comprises the number of places in kindergartens, the number of books, and the number of public educational institutions.[9] The healthcare and family index consists of the number of creches, doctors, dentists, and public healthcare firms/institutions. The transport index comprises bus lines and public transportation firms. All indices are z-scores of the simple averages of the respective variables in per capita terms.

[8] Also termed "Shock Therapy", it was a set of reforms to rapidly transform the Polish economy from centrally planned to a capitalist market. Named after the Polish minister and economist Leszek Balcerowicz.

[9] I do not use data on primary schools or high schools due to another reform in 1999/2000, which introduced secondary schools in Poland and reshuffled employment in all levels of schooling.

4.2 Summary Statistics

I present summary statistics for the main variables used in the econometric analysis, as well as for the three main groups of municipalities: ex-capitals (L2), city-counties (L4), and county-seats (L5) (Table 2).[10]

Table 2: Summary statistics; pre- and post-reform

	Ex-capitals (L2)		City-counties (L4)		County seats (L5)	
	1995–98	1999–03	1995–98	1999–03	1995–98	1999–03
(per capita unless noted)						
Municipal finance						
Own revenues (PLN)	293.6	787.9	326.9	952.0	283.3	662.9
	(89.6)	(199.3)	(153.9)	(289.0)	(106.6)	(230.7)
Central transfers (PLN)	307.4	1257.2	347.1	907.3	304.8	524.5
	(103.5)	(214.1)	(229.9)	(225.8)	(137.4)	(106.4)
Investment (PLN)	182.0	257.4	186.7	276.6	180.2	192.6
	(92.4)	(120.5)	(242.4)	(182.5)	(108.9)	(124.3)
Salaries (PLN)	196.8	853.9	267.3	655.0	158.4	420.2
	(101.9)	(191.7)	(92.8)	(130.7)	(77.5)	(122.1)
Labor market & demographics						
Employment rate (%)	51.0	42.2	43.0	34.7	46.5	38.9
	(9.8)	(8.8)	(8.8)	(7.4)	(19.1)	(9.5)
Female employment (%)	49.6	41.5	36.0	30.8	45.7	39.5
	(7.1)	(6.5)	(7.4)	(6.2)	(9.8)	(9.0)
Net migration (abs.)	37.3	-162.1	-252.9	-412.5	-14.4	-68.4
	(220.0)	(213.6)	(517.0)	(518.2)	(100.7)	(120.0)
Working-age pop. ('000s)	67.4	68.6	87.6	86.3	22.6	22.4
	(34.3)	(34.3)	(45.2)	(44.1)	(12.6)	(12.4)
Firms & population						
Public firms / 1000 pop.	1.9	3.0	1.1	2.9	1.8	3.9
	(0.6)	(1.7)	(0.6)	(2.1)	(3.2)	(3.0)
Private firms / 1000 pop.	81.8	102.8	64.6	83.2	68.6	94.2
	(14.6)	(16.8)	(21.3)	(27.3)	(19.4)	(18.9)
Population ('000s)	100.7	99.3	128.4	123.4	32.6	31.8
	(51.4)	(50.1)	(65.9)	(63.1)	(18.5)	(17.9)
Public goods indices (std. scores)						
Education index	-0.05	-0.13	-0.38	-0.37	-0.01	0.02
	(0.36)	(0.44)	(0.25)	(0.26)	(0.55)	(0.58)
Health/Family index	0.16	-0.13	-0.46	-0.70	0.02	—
	(0.38)	(0.39)	(0.35)	(0.24)	(0.50)	
Transport index	0.23	0.00	-0.14	-0.12	0.19	0.17
	(0.58)	(0.33)	(0.34)	(0.33)	(0.72)	(0.65)
Observations (N)	112	139	80	100	592	768

Notes: Values are means with standard deviations in parentheses on the line below. "Working-age pop." in thousands. County seats' post-reform Health/Family index unavailable (em-dash).

[10]For the explanation of groups of municipalities, please see Figure 1.

In each group, there is a clear upward trend in public finances from the pre-reform to the post-reform period, a direct result of the decentralization in 1999. Due to the reform, a large bulk of public services has become a responsibility of local authorities. Ex-capitals (L2) exhibit particularly strong growth in central transfers, increasing from 307 PLN to 1,257 PLN, suggesting targeted support mechanisms. For comparison, the average monthly salary in Poland in 1999 was 1,706.74 PLN. Regarding expenditures, we can observe a significantly stronger growth in salaries than in investments for each group, but particularly for ex-capitals, which more than quadruples from 196 PLN per capita to 854 PLN per capita. Meanwhile, the increase in municipal spending on investment was relatively weaker for ex-capitals, city-counties, and county-seats. In the context of municipal finance, we can also observe that ex-capitals and city-counties were similar to each other before 1999 (except for their own municipal income), reflecting the fact that Poland, prior to reform, was a highly centralized state with limited fiscal autonomy for municipalities, regardless of their status.

In the labour market, a decline in employment rates (both overall and among females) is observed in all groups over time. This is due to the economic crisis in Poland: at the beginning of the 2000s, the unemployment rate reached 20%. The job loss was triggered by the 1998 Russian crisis and the massive layoffs of privatized companies, which were no longer obligated to maintain employment levels at 1989 levels. We can also observe a negative migration balance post-treatment for all groups of municipalities, which might in part be explained by the growing suburbanization in that period (please see Appendix F for discussion). Interestingly, in city counties, emigration was also more pronounced than immigration before 1999, which may be due to the decline of the coal mining industry in many of these cities. Meanwhile, the working-age population remained relatively stable. This might be due to the demographic boom cohort from the early 1980s, who began entering the labor market.

Differences in economic activity are also evident. Interestingly, the density of public and private firms increases for both groups, which may be linked to the declining population.

While the working-age population increased for most cities, the overall population decreased after the reform everywhere. This might reflect the steadily falling birth rate over the years considered (1999-2003).

Examining local public goods indices, the ex-capital municipalities experienced the largest decline post-reform, although the health/family index also significantly decreased for city-counties. While the transport index also fell dramatically for the ex-capitals, it remained at the top of the rank after the reform.

The summary statistics are just a snapshot of local socioeconomic and fiscal conditions before and after the reform, but they give a few important takeaways:

- Losing capital status was *not* associated with smaller transfers from Warsaw to municipal budgets
- The labor market was deteriorating in all regions in Poland around the time of the reform
- Ex-capitals registered, on average, the largest declines in local public good indices

The next section offers an overview of the empirical strategy, followed by the results.

4.3 Empirical strategy

4.3.1 Overview and identification

The administration reform implemented in 1999 involved a reorganization of territorial governance, affecting cities in different ways depending on their administrative status prior to the reform. I distinguish three main treatment types stemming from the reform:

- Remaining a regional capital (Cap) – cities that retained capital status and gained additional administrative powers (always-capitals);
- Becoming a city-county (CC) – cities granted broader local self-governance;
- Losing regional capital status (ExCap) – former capitals that lost regional status but often became city-counties (ex-capitals).

I distinguish several groups of municipalities that received different treatments:

- Cap+CC (N=18): Cities that remained regional capitals and became city-counties.
- CC+ExCap (N=28): Cities that lost capital status but became city-counties.
- ExCap only (N=3): Former capitals that did not gain city-county status.
- CC only (N=20): Cities that became city-counties but were never capitals.
- Control (N=240): County seats that did not experience any change in status.

Following Roller and Steinberg (2023), the average treatment effect of losing capital status on the treated municipalities that gained a city-county status can be described as:

$$\begin{aligned} ATT^{ExCap|CC=1}_{t|ExCap=1,CC=1} = \delta^{1,1}_t(x) = \\ E\left[Y_1 \mid X=x, ExCap=1, CC=1\right] - E\left[Y_0 \mid X=x, ExCap=1, CC=1\right] \\ -\left\{E\left[Y_1 \mid X=x, ExCap=1, CC=0\right] - E\left[Y_0 \mid X=x, ExCap=1, CC=0\right]\right\} \end{aligned} \tag{16}$$

If the Stable Unit Treatment-Value, no anticipation, exogeneity, and common trends assumptions hold.
This comparison isolates the effect of losing capital status conditional on receiving city-county status, capturing the impact of status loss over and above the general institutional and fiscal changes associated with city-county designation.
In turn, the average treatment effect of losing capital status and gaining city-county status on the treated municipalities is:

$$\begin{aligned} ATT^{ExCap,CC}_{t|ExCap=1,CC=1} = \gamma^{1,1}_t(x) = \\ E\left[Y_1 \mid X=x, ExCap=1, CC=1\right] - E\left[Y_0 \mid X=x, ExCap=1, CC=1\right] \\ -\left\{E\left[Y_1 \mid X=x, ExCap=0, CC=0\right] - E\left[Y_0 \mid X=x, ExCap=0, CC=0\right]\right\} \end{aligned} \tag{17}$$

If the Stable Unit Treatment-Value, no anticipation, exogeneity, and common trends assumptions hold.
In this specification, we compare ex-capitals that became city-counties to municipalities that became county seats but were never regional capitals. This comparison captures the

combined effect of losing regional capital status and gaining city-county status, relative to gaining county seat status alone.

In both comparisons, the identifying assumption is that, in the absence of losing capital status, both groups would have followed parallel trends in municipal outcomes. Furthermore, there is no anticipation of treatment and no spillovers of treatment to control units. I exclude always-capitals in identifying causal effects of losing capital status because remaining capitals obtained a lot of powers compared to the pre-reform period (e.g., decisions regarding infrastructure projects in a region). Moreover, in many cases, the choice of remaining capital cities was a result of political compromise and, therefore, does not satisfy the assumption of exogeneity. Conversely, the criterion for becoming a city-county (if it was not a former regional capital) was having a population larger than 100,000.

While becoming a city-county may have increased local autonomy, the loss of capital status implied a decline in prestige and a decline in the administrative hierarchy of local institutions. I am interested in the net effect of these transitions.

To visually check for parallel trends, I show a traditional event study design. In the main text, I present its results for municipal finance, and the remaining figures are included in Appendix C. Coefficients on pre-reform outcomes close to zero suggest parallel trends between treated and control municipalities. I complement the event-study analysis with the "honest Difference-in-Difference" method developed by Rambachan and Roth (2023) (all tables are in Appendix E). Rather than assuming exact parallel trends, this method allows for bounded deviations post-treatment, calibrated by observed pre-treatment trends. The treatment effect becomes partially identified under researcher-specified restrictions (e.g. the maximum post-treatment trend bias is at most M times the observed pre-trend), and uniformly valid confidence intervals are constructed. Thanks to these "honest" intervals, I can assess how strong the parallel trends assumption must be to support my findings. In the remaining results, I present event studies in accordance with Callaway and Sant'Anna (2021). The main difference between the traditional event-study design is that it incorporates covariates to balance pre-trends.

To investigate the aggregate effect of the treatment on the period 1999-2003, I proceed with a Two-Way Fixed Effect model (TWFE). The main assumption of a TWFE approach is a constant treatment effect across treated units and periods. This may not hold, and thus I complement the analysis with the Difference-in-Difference method (DiD) with group-time effects, as in Callaway and Sant'Anna (2021).

4.3.2 Event study design

The event study design examines the *dynamic effects* of the 1999 administrative reform and assesses the *validity of the parallel trends assumption.* This approach estimates how the outcomes of treated municipalities evolved relative to control municipalities, before and after the reform, while controlling for unit and time fixed effects. I estimate the following specification:

$$Y_{it} = \alpha_i + \delta_t + \sum_{k \neq -1} \beta_k \cdot \mathbb{1}\{\text{event\_time}_{it} = k\} + \varepsilon_{it} \tag{18}$$

where:

- Y_{it} is the outcome of interest for municipality i in year t,
- α_i are municipality fixed effects and δ_t are year fixed effects
- $\text{event\_time}_{it} = k$ is an indicator for k periods relative to treatment
- The omitted category is $k = -1$, the year immediately before treatment.

I cluster standard errors using spatial clusters defined by a fixed-radius rule: municipalities within a given distance (25km, 50km, 75km, 100km) are assigned to the same cluster. Here I show the results for the 50km cluster, while different distances are shown in the Appendix.

Assuming parallel trends and no anticipation holds, the estimated β_k can be interpreted as the *average treatment effect k years after treatment*, relative to the baseline year. In the first comparison, the treatment is losing capital status, conditional on both comparison groups becoming city-counties. In that case, β_k would be an estimation of the ATET effect from (16). In the second comparison, the treatment is defined as losing capital status and gaining city-county status, relative to municipalities that gained county seat status only. Finally, in the third comparison, the treatment is gaining city-county status, relative to county-seats. This would correspond to the ATET effect from (17).

4.3.3 Robust inference under relaxed parallel trends assumption

To assess the robustness of the estimates, I implement the method proposed by Rambachan and Roth (2023), which provides valid inference when the parallel trends assumption may be violated.

Let δ_t denote the bias from a violation of the parallel trends assumption in period t. The conventional DiD estimator assumes $\delta_t = 0$ for all $t \geq g$, where g is the treatment onset. In contrast, the honest DiD approach allows for nonzero violations, constrained within a plausible set Δ defined by the researcher.

Specifically, the treatment effect at time t is partially identified as:

$$\beta_t^{\text{Honest}} \in [\widehat{\beta}_t - \delta_t^-,\ \widehat{\beta}_t + \delta_t^+], \quad \delta_t \in \Delta, \tag{19}$$

where $\widehat{\beta}_t$ is the conventional event-study estimate (corresponding to β_k from (18)), and δ_t reflects potential deviations in trends. The set Δ typically restricts the magnitude and smoothness of δ_t based on observed pre-treatment trends.

One common restriction is the *bounded derivatives* assumption, which limits the slope of trend violations:

$$|\delta_t - \delta_{t-1}| \leq M, \quad \forall t \geq g, \tag{20}$$

where M is calibrated using the maximum first difference in estimated pre-treatment coefficients.

This approach yields *honest confidence intervals* that remain valid even when exact parallel trends do not hold, under the assumption that post-treatment trend deviations are no larger than those observed pre-treatment.

4.3.4 Two-Way Fixed Effects

In order to show the aggregate effects of the reform, we estimate the following equation:

$$Y_{it} = \alpha_i + \delta_t + \beta D_{it} + \varepsilon_{it} \tag{21}$$

where Y_{it} denotes the outcome of interest for municipality i in year t, α_i are unit fixed effects, and δ_t are time fixed effects. The parameter β captures the average treatment effect. Standard errors are clustered at a 50km radius. TWFE assumes a constant treatment effect across treated municipalities and years. If they vary across groups or over time (which is common in practice), then TWFE does not estimate the average treatment effect (ATE). Instead, it gives a weighted average of group-time-specific effects, and, in some cases, the weights can be negative. In this context, there is a risk of negative weights as the panel is unbalanced, effects can be heterogeneous, and group sizes are unequal (Goodman-Bacon 2021). Additionally, in case of the lack of parallel trends, the TWFE estimates are likely biased. Given the aforementioned difficulties, I also employed difference-and-difference method a la Callaway and Sant'Anna (2021).

4.3.5 Difference-in-Differences with Multiple Time Periods

The method developed by Callaway and Sant'Anna (2021) (CS-DiD) accommodates multiple time periods, while allowing treatment effects to vary over time. Specifically, the approach estimates group-time average treatment effects ($\text{ATT}_{g,t}$), defined as the average treatment effect for units first treated in period g, evaluated at time t. In our case, treatment is sharp and therefore there are only two groups: treated and never-treated, but the effects can be heterogeneous with respect to time. Estimation proceeds using doubly robust DiD estimation based on inverse probability weighting and ordinary least squares.
Let Y_{it} denote the outcome for municipality i in year t, and let $G_i = g$ indicate that unit i is first treated in period g. Let $C_i = 0$ indicate that unit i is never treated. The ATT is defined as:

$$\text{ATT}_{g,t} = \mathbb{E}[Y_{it}(1) - Y_{it}(0) \mid G_i = g] \tag{22}$$

The doubly robust estimator is then given by:

$$\widehat{\text{ATT}}^{DR}_{g,t} = \frac{1}{N_g} \sum_{i:G_i=g} (Y_{it} - \widehat{\mu}_0(i,t)) - \frac{1}{N_0} \sum_{i:C_i=0} (Y_{it} - \widehat{\mu}_0(i,t)) \tag{23}$$

where $\widehat{\mu}_0(i,t)$ is the predicted untreated outcome obtained from a regression of Y_{it} on unit and time fixed effects using only never-treated units in the pre-treatment period.

With covariates, the group-time average treatment effect is given by:

$$\widehat{\text{ATT}}^{DR}_{g,t} = \frac{1}{N_g} \sum_{i:G_i=g} [Y_{it} - \widehat{\mu}_0(X_i,t)] - \frac{1}{N_0} \sum_{i:C_i=0} \widehat{w}_i(X_i) \cdot [Y_{it} - \widehat{\mu}_0(X_i,t)] \tag{24}$$

where $\widehat{\mu}_0(X_i,t)$ is the predicted untreated outcome from a regression of Y_{it} on covariates X_i using only never-treated units, and $\widehat{w}_i(X_i)$ are inverse probability weights estimated from a propensity score model for treatment assignment.

In the next section, I present event-study graphs, *honest confidence intervals*, the TWFE, and CS-DiD results.

5 Results

Summary of main results. Former capital cities received much larger transfers from the central government than city-counties and county seats, but spent them relatively more on salaries rather than investment. In the labor market, the loss of capital status precipitated a decline in employment, especially among women, but it did not lead to a significant increase in emigration. In the economy, ex-capital cities experienced a decline in both public and private firms. Furthermore, around three years after the reform, ex-capital cities experienced a relative decline in births.

Results are divided between five sections, showing estimates for municipal finance, labor market, economic activity, migration, demographics, and local public goods. I begin with municipal finance outcomes, which are the primary channel through which the treatment of losing capital status was effective. I follow by describing the outcomes in the labor market, which, together with the economic situation of municipalities, are of the main interest in this analysis. Later, I describe migration and demographics outcomes, where changes might be partly assigned to the impact of the treatment in the labor market. Finally, I present results for the local public good indices, which mirror the fiscal soundness of municipal budgets.

I present event-study results in the first section on municipal finance outcomes, and for the remaining outcomes, I describe the event-study design according to Callaway and Sant'Anna 2021 and equation (24). For the event study design, I present the results for the period from 1995 to 2008. For the remaining outcomes, I display the results up to 2003. In the event study design, I aim to compare the period after the European Union's accession in 2004 with the 1999 administration reform. The year of joining the EU would be denoted as period 4 in the graphs. *Honest confidence intervals* according to Rambachan and Roth (2023) would complement the event study as a sensitivity analysis.

The second part, which contains aggregate estimates from simple TWFE and covariate-adjusted DiD, as described by Callaway and Sant'Anna, is presented in tables. The remaining results can be found in Appendix D. In the main text, I show two comparisons:

1. ex-capitals (treated) vs. city counties (control). It illustrates the impact of status loss beyond the general institutional and fiscal changes associated with city-county designation. The identifying assumption is that, in the absence of losing capital status, both groups would have followed parallel trends in municipal outcomes.

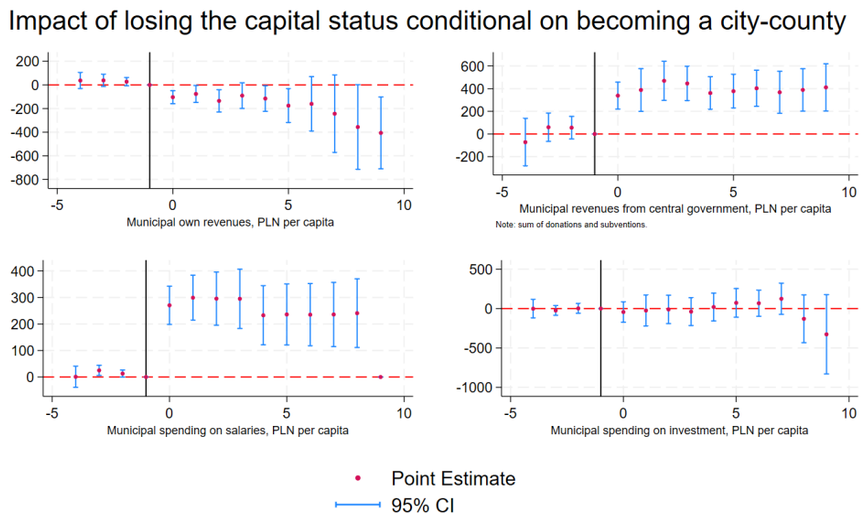
2. ex-capitals (treated) vs. county seats (control). The effect of losing capital status and gaining city-county status, relative to municipalities that gained county seat status only.

I also present event-study comparisons between villages and towns in proximity to ex-capitals, city-counties, and always-capitals: the latter being capitals that have not lost their status and, in the 1999 reform, gained additional powers (Appendix F).

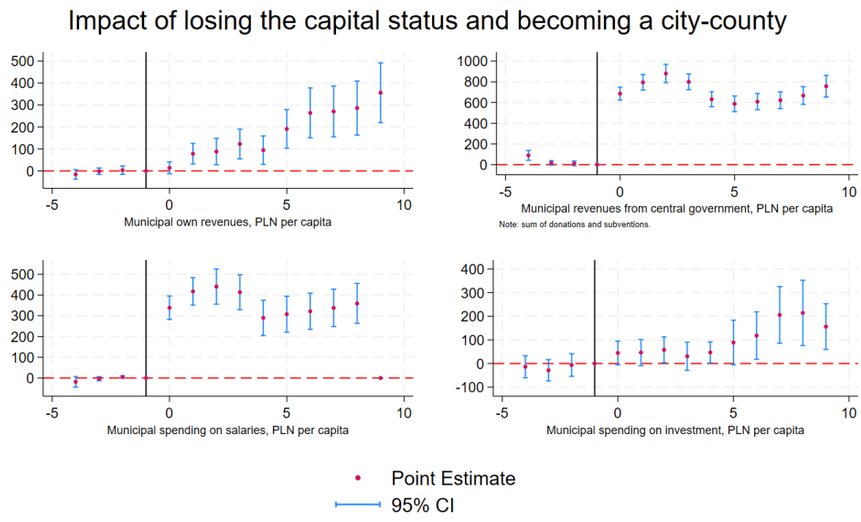
5.1 Municipal finance

The primary channel through which this reform operated was municipal finance: with decentralization, more funds were allocated to municipal budgets. The changes in administrative powers also brought some responsibilities to cities, depending on their status. Figures 5a and 5b present the results of the event study for the years 1995-2008, controlling for fixed year and municipality effects. In Figure 5a, showing the comparison between ex-capitals (treated) and city counties (control); we can see that the municipal own revenues in PLN per capita were lower in treated municipalities by an average of 100 PLN per capita post-1999 relative to city counties, suggesting relatively weaker economic conditions in places that lost capital status (100 PLN corresponded to 34% of the pre-treatment mean, see Table **??**). Conversely, these municipalities experienced much larger relative inflows of funds from the central government, averaging 400 PLN per capita until joining the EU in 2004 (400 PLN corresponded to 131% of the pre-treatment mean). Regarding the expenditure, while parallel trends might not exactly hold, municipal spending on salaries in ex-capital cities was relatively much higher post-1999, averaging 300 PLN per capita (158% of the pre-treatment mean). This, in large part, reflects the changes in public administration: before, salaries for employees of regional administration were paid from the central government, while after 1998 they were paid from municipal budgets. Given that some part of administrative offices have remained in ex-capitals (apart from city-county administration), such as the office for environmental matters, the increase in spending on salaries might reflect this. Interestingly, it seems that most of the inflow from Warsaw was spent on salaries, as there is no change in spending on investment post-reform in treated municipalities.

Figure 5b shows the comparison between ex-capitals and county seats, reflecting the combined effect of losing capital status and gaining the city-county status, the latter being higher in administrative hierarchy than the county seat. The effect shows the relative increase in municipal own and central revenues, the latter being on average 800 PLN per capita, which is almost half of the average monthly salary in 1999. It seems that most of this money was spent on salaries, as there is only a slight and not significant increase from zero in spending on investment post-1998.



(a) Event study: ex-capitals (treated) vs. city-counties (control)



(b) Event study: city-counties (treated) vs. county seats (control)

Figure 5

Relaxing parallel trend assumption In Table 3 I show "honest" difference-in-difference bounds for the first comparison (Figure 5a), describing the impact of losing capital status conditional on becoming a city-county (Honest DiD bounds for the remaining two comparisons are in Appendix C). Importantly, the 95% confidence intervals presented in Table 3 concern the aggregate outcomes over the period 1999-2003, and not 1999-2008 as in the event studies above, calculated as a simple overage of β_k coefficients from (18):

$$\tau = \frac{1}{5}\sum_{k=0}^{4}\beta_k$$

Parameter M denotes the deviations from the parallel trends before the treatment. "Original" is the standard confidence interval from the event study regression assuming perfect parallel trends. $M = 0$ assumes no trend violations post-treatment, but with the more conservative inference method. It allows some violations of parallel trends before the treatment and is constructed according to the conditional sensitivity model (Rambachan and Roth 2023). $M \in \{0.5, 1, 2\}$ allows for the worst-case change in outcome trends post-treatment to be $M\times$ as large as the biggest observed pre-trend shift (largest change between adjacent pre-treatment event-time coefficients).

We can see in Table 3 that the impact of losing capital status conditional on becoming a city-county on the municipal own revenue is negative and robust to 0.5× violations of parallel trend. The same magnitude of violation for the central government revenues increases the confidence interval to be negative, but to a relatively small degree. The outcomes for municipal spending on salaries are quite robust, as even for $M = 1$ the bounds do not include zero, and the effect is positive. As could be predicted by inspecting Figure 5a, there is no effect on municipal investment regardless of the magnitude of M.

Table 3: "Honest DiD": Impact of losing the capital status conditional on becoming a city-county

	Municipal Own Revenue		**Central Government Revenues**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−1054.60	−131.42	1286.67	2795.96
0	−1050.36	−135.66	1293.61	2789.02
0.5	−1336.22	−17.15	−19.61	3667.44
1	−1695.73	243.00	−1551.24	4994.76
2	−2494.23	986.72	−4662.38	8068.81
	Municipal Spending on Salaries		**Municipal Spending on Investment**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	886.98	1829.23	−817.47	850.35
0	891.31	1824.90	−809.80	842.68
0.5	694.02	1992.23	−1073.02	1297.65
1	421.63	2253.19	−1347.32	1772.39
2	−263.79	2924.65	−2133.92	2837.03

Notes: Ex-capital cities are treated, city-counties are controls. Honest DiD bounds reported for the sensitivity parameter M. "Original" denotes baseline specification. All values in PLN per capita.

According to Table 4 across both comparisons, central transfers emerge as the most responsive fiscal category, with large, statistically significant increases in per capita terms. For example, ex-capitals received an additional 390–437 PLN per capita relative to city-counties, and even higher transfers compared to county seats (729–820 PLN), suggesting a compensatory role of central government funding post-reform. Nevertheless, it appears to be the least robust outcome according to more conservative confidence intervals (Table 3).

In contrast, own revenues declined in ex-capitals relative to city-counties by 98–136 PLN, which was 5.7-8% of the average monthly salary in Poland in 1999. City-counties, in turn, exhibit significantly higher own revenues than county seats only under TWFE. Spending on salaries mirrors the pattern in central transfers, with large and significant increases in treated municipalities, consistent across specifications. Investment spending, however, appears far less responsive and more volatile, with point estimates generally imprecise and confidence intervals spanning zero. Overall, while central support and recurrent expenditures (such as salaries) increased in treated municipalities, the own revenue capacity did not follow a uniform trend.

Table 4: Impact of losing capital status on municipal finance (1999–2003)

	Ex-capitals vs. City-counties		Ex-capitals vs. County seats	
Outcome (PLN per capita)	TWFE	CS-DiD	TWFE	CS-DiD
Own revenues	-136***	-98.3**	77.2**	-15.9
	(48.0)	(46.6)	(58.2)	(23.6)
Central transfers	390***	437.1***	729***	820.5***
	(40.4)	(99.0)	(36.8)	(51.1)
Salaries	275***	270.7***	390***	418.8***
	(40.6)	(43.6)	(34.3)	(37.3)
Investment	-12.3	15.0	59.2***	80.0
	(54.8)	(118.9)	(17.7)	(55.1)
Observations	628	628	2,030	2,030

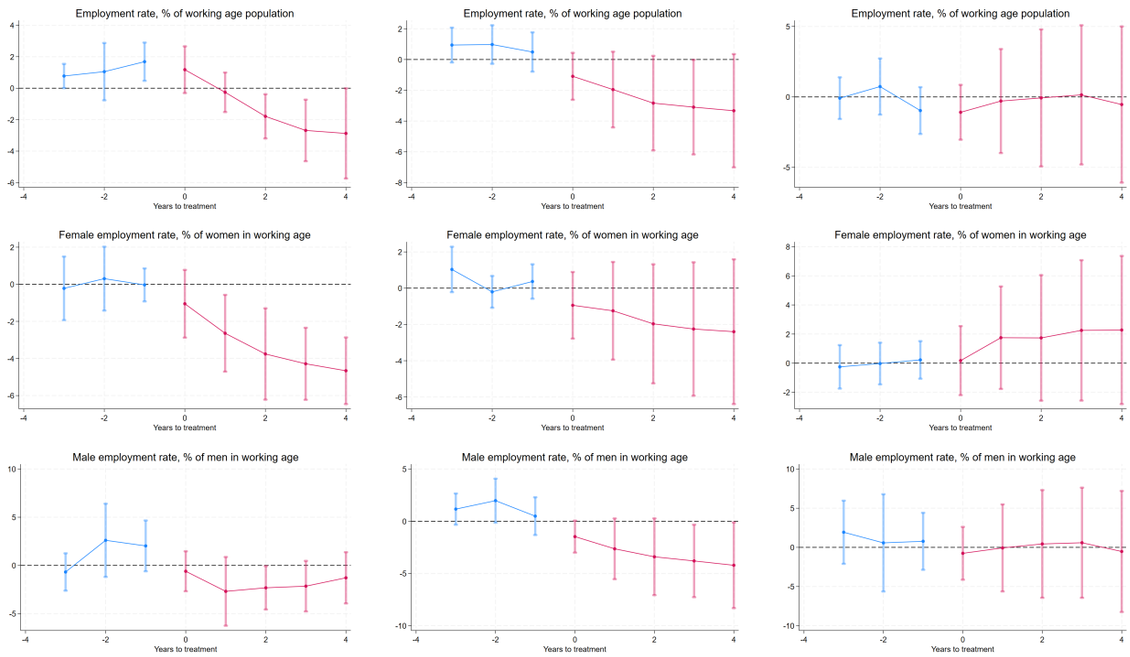
Notes: Estimates from Two-Way Fixed Effects (TWFE) and Callaway–Sant'Anna Difference-in-Differences (CS-DiD). Standard errors clustered at 50 km radius. *, **, *** denote $p < 0.1$, $p < 0.05$, $p < 0.01$.

5.2 Labor market

Figure 6 shows results of an event-study according to Callaway and Sant'Anna 2021 and equation (24). The choice of covariates balancing pre-trends depends on the variable; for example, the female employment rate is balanced with the number of firms in the service sector (please see the footnotes in Table 5). Panel (6a) compares ex-capitals to city-counties, showing an impact of losing capital status conditional on becoming a city-county. There is a negative and significant effect for women, as two years after the reform, the female employment share decreased by approximately 4 percentage points. The effect for men is not significant.

However, if we look at the combined effect of losing capital status *and* becoming a city-county (Panel 6b), there is still a negative effect, but not significant for women. The male employment rate is significantly below zero only in the third year following the reform. The negative effects are driven by the loss of capital status: Panel (6c) shows the third comparison, according to which the impact of becoming a city-county only did not have a significant effect on the labour market (in the case of women, it is positive and insignificant).

Table 5 compares aggregate employment outcomes across municipalities. When considering county seats, I adjust the regressions additionally by population to give a larger weight to municipalities of similar size. Zooming in on the employment rate and the first column, adjusting the regression for firms per capita strengthens the effect and makes the impact of the reform more significant. Results for the female employment rate suggest that the reform had a particular, negative effect on the situation of women in affected labor markets. In the first column, while adjusting the regression with the number of firms in traditionally female sectors (hospitality, health, education, services, and administration), the effect becomes larger than in the standard TWFE.



(a) Impact of losing capital status cond. on becoming a city-county

(b) Impact of losing capital status and becoming a city-county

(c) Impact of becoming a city-county

Figure 6: Results from event-study according to Callaway and Sant'Anna 2021. Each panel (a–c) shows four event-study plots: total, female, and male employment shares.

Table 5: Impact of losing capital status on employment outcomes (1999–2003)

	Ex-capitals vs. City-counties		Ex-capitals vs. County seats	
Outcome	TWFE	CS-DiD	TWFE	CS-DiD
Employment rate (%)	-0.26	-1.29**	-2.22***	-2.46*
	(0.77)	(0.60)	(0.54)	(1.33)
Female employment (%)	-2.82***	-3.28***	-1.78***	-1.76
	(0.72)	(0.97)	(0.54)	(1.50)
Male employment (%)	2.16**	-1.81	-2.67***	-3.10**
	(1.06)	(1.01)	(0.63)	(1.51)
Working-age pop. ('000s)	2.60**	1.77**	1.59***	2.35***
	(1.09)	(0.67)	(0.26)	(0.60)
Observations	628	628	2,030	2,030

Notes: Estimates from Two-Way Fixed Effects (TWFE) and Callaway–Sant'Anna Difference-in-Differences (CS-DiD). Standard errors in parentheses, clustered at 50 km. *, **, *** denote $p < 0.1$, $p < 0.05$, $p < 0.01$. CS-DiD covariates differ by outcome: (i) Employment rate and working-age population: firms per capita; (ii) Female employment: firms in female-intensive sectors (hospitality, health, education, services, admin); (iii) Male employment: firms per capita, mining firms, coal mine closures, Silesia region FE. For Ex-capitals vs. County seats comparisons, population is additionally included as a control.

The negative effect can also be seen in the second column of Table 5, but it becomes insignificant in the CS-DiD specification. Interestingly, in the comparison of city-counties and county seats, the coefficients are positive (but become insignificant once adjusted for the number of firms and population). These estimates suggest that the effect of losing capital status, conditional on becoming a city-county, was negative and significant for the female

employment rate. On average, over the period of 1999-2003, employment among women declined by 3.28 percentage points compared to the city-counties.

Regarding male employment, once adjusted for firms per capita, mining firms per capita, years of local coal mine closure, and fixed effect of being located in the Silesia region (dominated by the mining industry), the effect of reform flips sign from positive and significant to negative and significant. Many coal mines in Poland, particularly in the 1990s and 2000s, were closed, with the majority located in the Silesia region. After accounting for the worsening economic conditions in this industry, the CS-DiD estimator can isolate the effect of reform, which is negative, but almost half as strong as the effect for women. The effect on the male employment rate is stronger in the comparison of ex-capitals with county seats, but the results are very sensitive to the parallel trend assumption (Table 19).

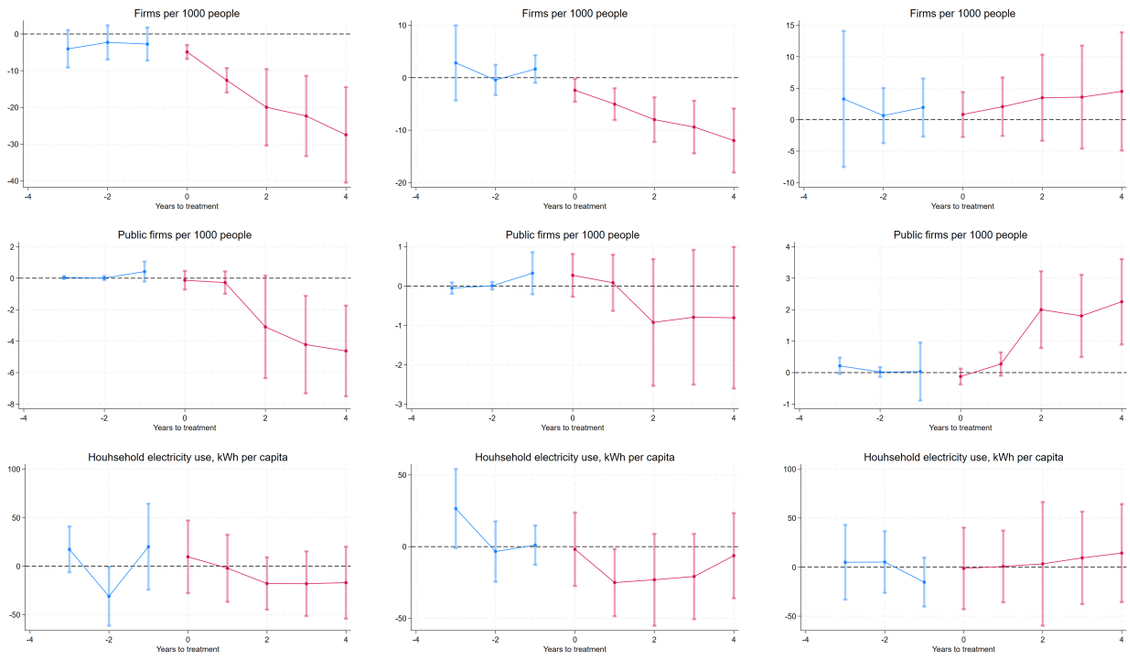
Overall, the estimates in Table 5 suggest that the reform had a strong and negative impact on employment, particularly for women. Moreover, given the differences between TWFE and CS-DiD estimates, adjusting for observed heterogeneity and estimating the effect for each year matters for the interpretation of the results. According to CS-DiD estimate, the decline amounted to 3.28%. Given that, on average, there were 32,808 women of working age in ex-capital cities, this corresponds to approximately 1,250 job losses for women in the years 1999-2003 in a city that lost its capital status.

5.3 Economic activity

In this section, I present outcomes for firms per capita, public firms per capita, and household electricity use. The first two outcomes serve as an indicator of local economic conditions. Public firms also include public institutions; therefore, this indicator provides insight into the size of the public sector. Finally, household electricity use is a proxy of consumers' situation and overall demand.

According to the Panel (7a), losing capital status led to a decline in economic activity, as measured by the number of firms per capita. Public firms per capita decrease only in the third year following the reform. The combined effect of losing capital status and gaining a city-county status also shows a decline in economic activity (Panel 7b). However, it is driven by the loss of capital status, as the impact of becoming a city-county is ambivalent for overall activity, and has a strong positive effect on the number of public firms per capita (Panel 7c). Regarding electricity use by households, there is a significant negative effect in the comparison of ex-capitals to county-seats only in the second year following the reform, which is again driven by the loss of capital status, as there is no effect in Panel (7c).

Consistent with the theoretical framework, economic activity decreased in both the private and public sectors, but it was more pronounced in the former. It is unclear how many people were employed on average in either sector, and whether employment decreased in public institutions that remained. However, we can deduce that the loss of employment was not concentrated in the public sector. As the middle figure in Panel (7c) shows, gaining a city-county status was associated with an increase in public firms per capita starting in the second year after the reform.



(a) Impact of losing capital status cond. on becoming a city-county

(b) Impact of losing capital status and becoming a city-county

(c) Impact of becoming a city-county

Figure 7: Event study results according to Callaway and Sant'Anna 2021. Each panel (a–c) shows event-study results for the total number of firms, firms in the public sector, and electricity usage.

Table 6: Impact of losing capital status on economic activity (1999–2003)

	Ex-capitals vs. City-counties		Ex-capitals vs. County seats	
Outcome	TWFE	CS-DiD	TWFE	CS-DiD
Firms per 1000 people	1.46	-17.46***	-5.90***	-7.36***
	(3.58)	(3.75)	(1.81)	(1.95)
Public firms per 1000 people	-0.74*	-2.47**	-1.08***	-0.43
	(0.37)	(1.00)	(0.31)	(0.56)
Electricity use (kWh per capita)	-20.83*	-9.14	-23.32***	-15.44
	(11.20)	(14.73)	(6.42)	(12.51)
Observations	628	628	2,030	2,030

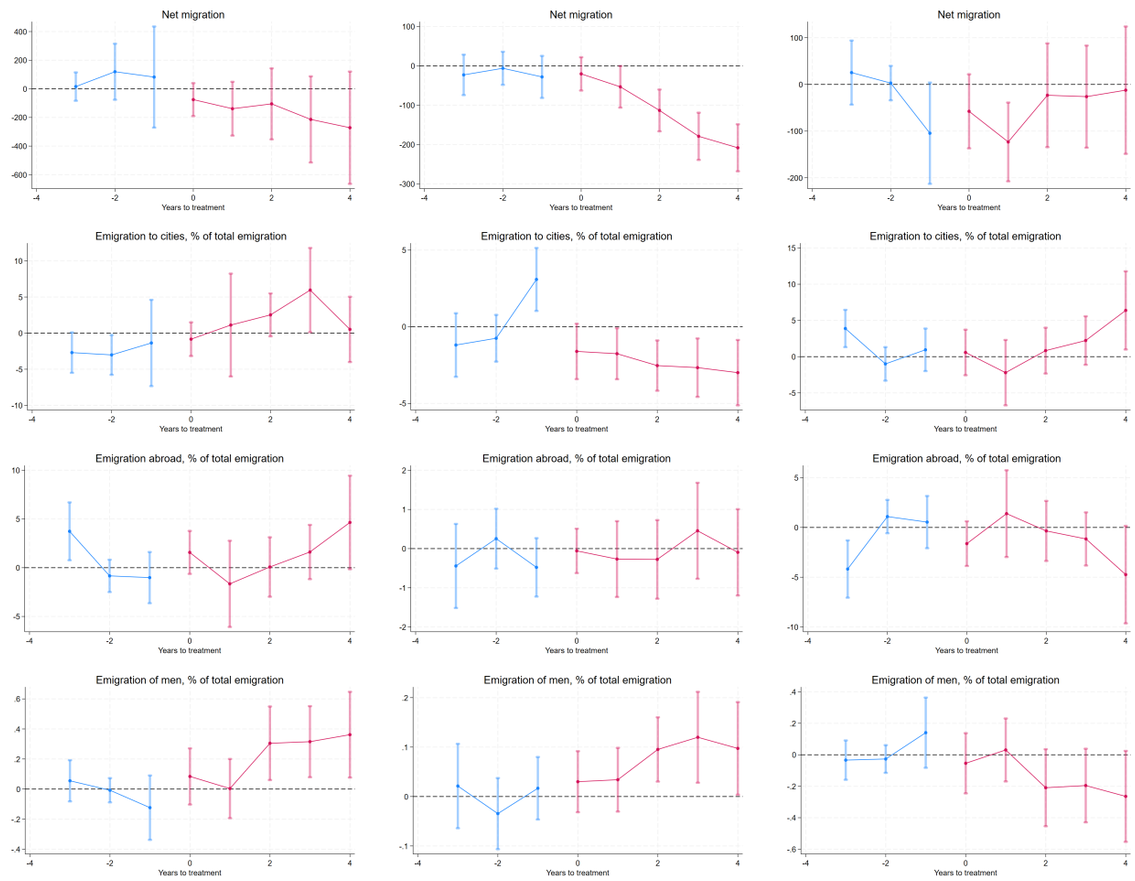
Notes: Estimates from Two-Way Fixed Effects (TWFE) and Callaway–Sant'Anna Difference-in-Differences (CS-DiD). Standard errors in parentheses, clustered at 50 km. *, **, *** denote $p < 0.1$, $p < 0.05$, $p < 0.01$. CS-DiD covariates differ by outcome: (i) Firms per 1000 people: working-age population; (ii) Public firms: municipal expenditure, population, Silesia region FE (where relevant); (iii) Electricity use: employment rate, population, Silesia region FE.

Table 6 shows TWFE and CS-DiD estimates for all three comparisons of municipalities. Comparing ex-capitals to both city-counties and county-seats yields a negative and statistically significant coefficient. Impact of losing capital status was -17.46 firms per capita when comparing, adjusting for the fixed effect of being in the Silesia region. The coefficient changes significantly: it is insignificant and positive when estimated with TWFE (1.46) and negative and significant when adjusted for observed covariates and averaged across year ATTs. The traditional event study (Figure (13a) also shows no significant effect on the number of firms per capita following the reform. These differences (not only for firms per 1,000 people, but also for public firms) suggest that covariate adjustment corrects for confounding in this set-

ting. The adjusted regression comparing city-counties and county seats shows a positive and insignificant effect of reform on firms per capita. These results suggest that losing capital status had a negative effect on the number of firms per capita, and without city-county status, the fall could have been even steeper. Interestingly, the adjusted regression shows, on average, 2.47 fewer firms per 1000 people in ex-capitals compared to city counties (Table 6), a credible conclusion given the lack of pretrends in Panel (7a). There is also no effect when compared to county seats (the coefficient is -0.43 and insignificant). The CS-DiD regression also shows a positive impact of getting an administrative upgrade on the number of public firms in the comparison of city-counties and county seats.

5.4 Migration

According to the Panel (8a), ex-capitals did not experience a significant outflow of population as compared to city-counties. Compared to county seats (Panel 8b), there is a negative effect on migration following the reform, although not steep. A comparison of net migration between city counties and county seats is inconclusive, as pre-trends do not appear to be parallel (Panel 8c).



(a) Impact of losing capital status cond. on becoming a city-county

(b) Impact of losing capital status and becoming a city-county

(c) Impact of becoming a city-county

Figure 8: Event-study results according to Callaway and Sant'Anna 2021. Each panel (a–c) shows event-study estimates for total migration, emigration share, emigration abroad, and male emigration.

If administrative employees from former capitals had been transferred to another capital post-reform, we should observe a significantly higher emigration to cities. However, according to

Panel (8a), there is no evidence of immediate exodus to other cities. There is neither a significant outflow of population abroad. According to Panels (8a) and (8b), men were on average more likely to migrate than women, suggesting that they found jobs elsewhere more easily and faced smaller migration costs. Results for net migration in Table 7 show that there is no effect of losing capital status on net migration, even after adjusting for firms per capita and distance to a remaining regional capital.[11]

The results in Table 7 for emigration to cities support the hypotheses from the event study. Also, there is no significant emigration abroad. Male emigration seems to be larger than female emigration in ex-capitals, while not in the comparison between city-counties and county seats.

The effect of losing capital status on migration is not strong, which, as the theoretical framework suggests, may be due to the high cost of migration and the lack of opportunities in other places. This is likely, given the country-wide economic crisis at the time. A significantly higher share of migrating men may explain the worse labor market outcomes for women, as it appears that men were more able to find employment elsewhere than women.

Table 7: Impact of losing capital status on migration outcomes (1999–2003)

	Ex-capitals vs. City-counties		Ex-capitals vs. County seats	
Outcome	TWFE	CS-DiD	TWFE	CS-DiD
Net migration (absolute)	-46.64	-161.0	-151.1***	-114.9***
	(41.21)	(119.6)	(25.43)	(23.01)
Emigration to cities (%)	-1.04	1.86	-0.65	-2.31***
	(0.94)	(1.76)	(0.64)	(0.72)
Emigration abroad (%)	1.00	1.25	-0.39	-0.05
	(0.73)	(1.52)	(0.34)	(0.37)
Male emigration (%)	0.13***	0.21*	0.08**	0.08**
	(0.05)	(0.11)	(0.03)	(0.03)
Observations	628	628	2,030	2,030

Notes: Estimates from Two-Way Fixed Effects (TWFE) and Callaway–Sant'Anna Difference-in-Differences (CS-DiD). Standard errors in parentheses, clustered at 50 km. *, **, *** denote $p < 0.1$, $p < 0.05$, $p < 0.01$. CS-DiD covariates differ by outcome: (i) Net migration: firms per capita, distance to new capital; (ii) Emigration to cities: distance to new capital; (iii) Emigration abroad: no covariates; (iv) Male emigration: no covariates.

5.5 Demographics

Losing a job can also alter decisions towards forming a family. In this section, we focus on outcomes such as births, marriages, and the age dependency ratio to gain insight into demographic changes following the 1999 reform.

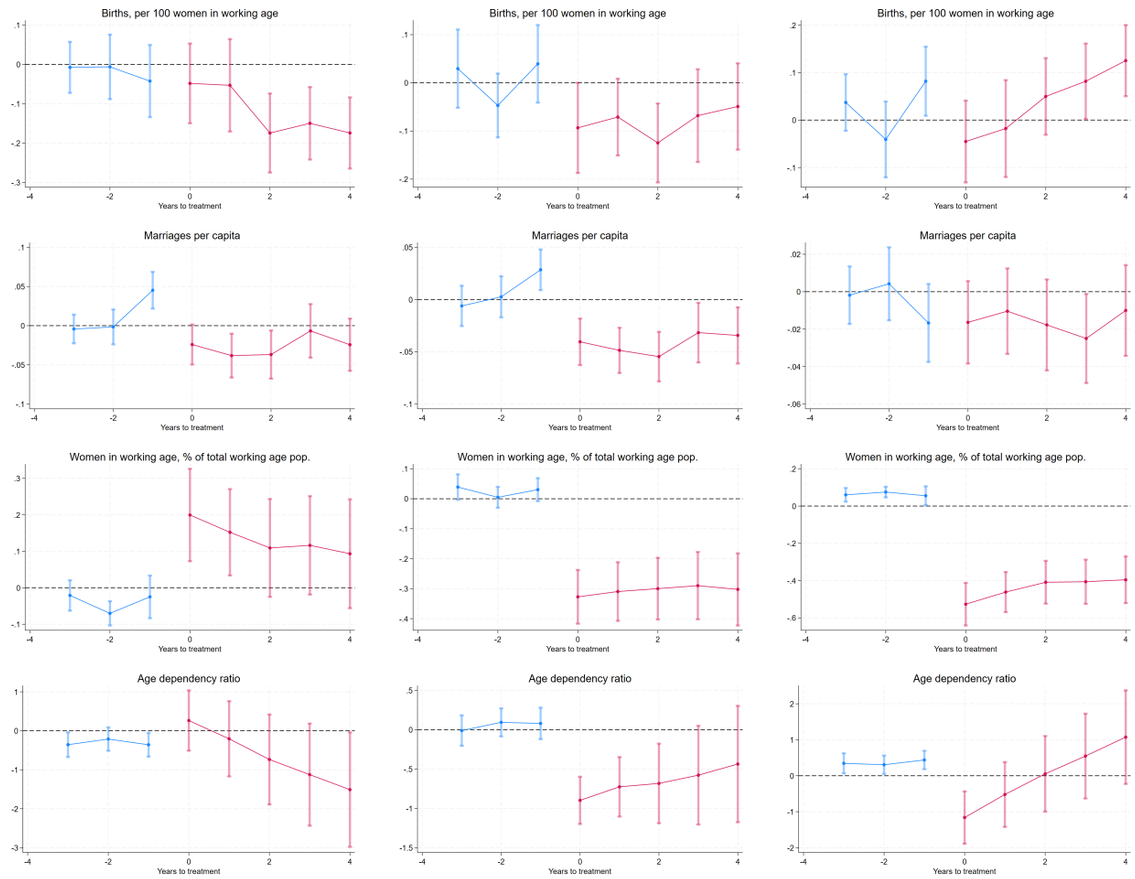
Panel (9a) illustrates an event study comparing ex-capital cities with city counties. We can see that in the third year following the reform, there were significantly fewer births as

[11] If a municipality is located relatively close to a remaining regional capital, people could look for work there without moving out of their hometowns.

a share of women of working age, suggesting that worse employment outcomes for women translated into decisions not to expand families. There is also a fall in marriages following the reform, which might reflect the imbalance between the number of men and women in the affected cities after 1999. We can also observe a relative increase in the share of women in the working-age population. This result is consistent with the observed outflow of men in the migration data.

If we compare ex-capitals to county seats in Panel (9b), we can also see a significant fall in births following the reform. Interestingly, there is also a relative decline in the share of women in the working-age population, which is driven by the gaining city-county status, as indicated by the negative coefficients in Panel (9c).

The top panel in Table 8 confirms a negative effect of reform on fertility. After adjusting for coefficients, there is also a negative effect of losing capital status on the number of marriages per capita. It appears that ex-capital cities were actually places with a relatively larger share of the working-age population than comparable cities - age dependency is falling in both the event study (Figure 9) and aggregated outcomes in Table 8.



(a) Impact of losing capital status cond. on becoming a city-county

(b) Impact of losing capital status and becoming a city-county

(c) Impact of becoming a city-county

Figure 9: Event-study according to Callaway and Sant'Anna 2021. Each panel (a–c) shows event-study estimates for births, marriages, women's productivity, and the age-dependency ratio.

Table 8: Impact of losing capital status on demographic outcomes (1999–2003)

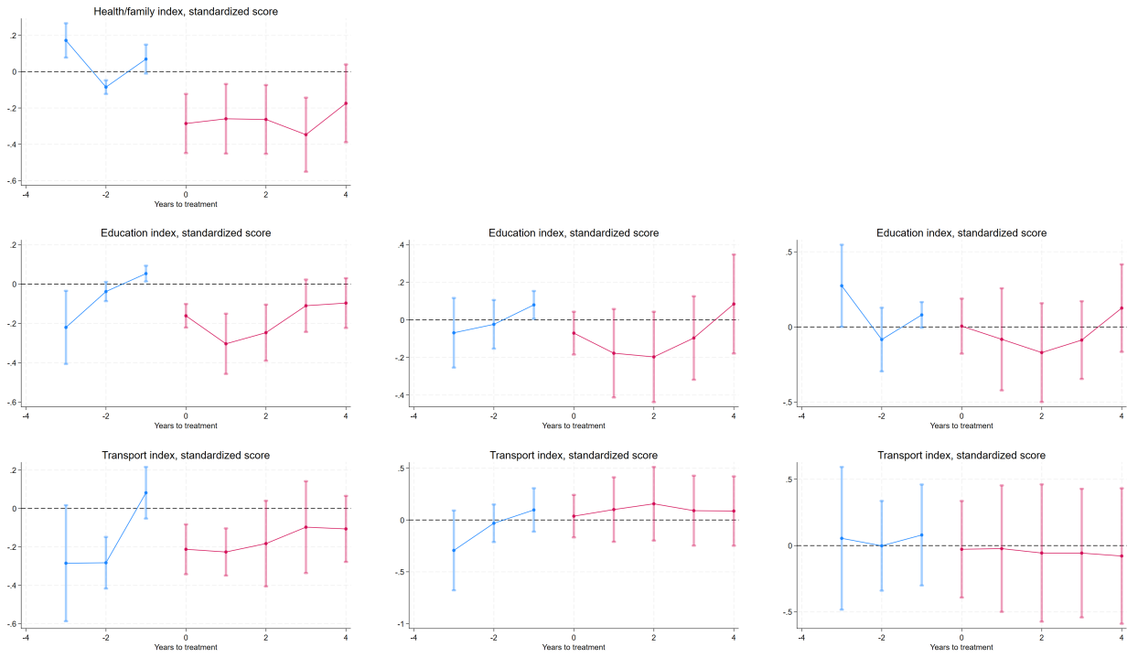
	Ex-capitals vs. City-counties		Ex-capitals vs. County seats	
Outcome	TWFE	CS-DiD	TWFE	CS-DiD
Births per 100 women	-0.16***	-0.12***	-0.07*	-0.08**
	(0.04)	(0.04)	(0.03)	(0.04)
Marriages per capita	0.01	-0.03*	-0.02**	-0.04***
	(0.01)	(0.01)	(0.01)	(0.01)
Women in working age (%)	0.08	0.13**	-0.27***	-0.31***
	(0.06)	(0.06)	(0.05)	(0.05)
Age dependency ratio (%)	-1.13	-0.66	-0.56	-0.66**
	(0.77)	(0.57)	(0.36)	(0.25)
Observations	628	628	2,030	2,030

Notes: Estimates from Two-Way Fixed Effects (TWFE) and Callaway–Sant'Anna Difference-in-Differences (CS-DiD). Standard errors in parentheses, clustered at 50 km. *, **, *** denote $p < 0.1$, $p < 0.05$, $p < 0.01$. CS-DiD covariates: (i) Births, marriages: population; (ii) Women in working age: population; (iii) Age dependency ratio: population.

5.6 Public Goods

Finally, I show results for the local public goods. I construct three simple indices, describing: education, health/family, and public transport. The education index comprises the number of places in kindergartens, the number of books, and the number of public educational institutions. The healthcare and family index comprises the number of creches, doctors, dentists, and public healthcare facilities or institutions. The transport index comprises bus lines and public transportation firms. All indices are z-scores of the simple averages of the respective variables in per capita terms. In Panel (10b), in the comparisons with the county seats, there are no results for the health/family index due to the lack of data.

According to the event study presented in Panel 10a, the impact of losing capital status was negative for health, education, and transport, with the latter showing no parallel trends. The effect of gaining a city-county status did not have a significant effect on public goods, as indicated in Panels (10b) and (10c). These results are consistent with the lack of effects on investment by municipal authorities (Figure 5a). Despite receiving higher central transfers, former capitals did not invest in local public goods.



(a) Ex-capitals vs. city-counties **(b)** Ex-capitals vs. county seats **(c)** City-counties vs. county seats

Figure 10: CS-DiD results for public goods indices under different comparison groups. Each panel (a–c) shows event-study estimates for health/family, education, and transport indices.

Table 9: Impact of losing capital status on local public goods (1999–2003)

	Ex-capitals vs. City-counties		Ex-capitals vs. County seats	
Outcome (std. score)	TWFE	CS-DiD	TWFE	CS-DiD
Education index	-0.09	-0.18***	-0.11***	-0.09
	(0.06)	(0.06)	(0.03)	(0.09)
Healthcare / family index	-0.02	-0.27***	–	–
	(0.08)	(0.09)		
Public transport index	-0.27***	-0.17**	-0.24***	0.09
	(0.08)	(0.08)	(0.08)	(0.14)
Observations	628	628	2,030	2,030

Notes: Estimates from Two-Way Fixed Effects (TWFE) and Callaway–Sant'Anna Difference-in-Differences (CS-DiD). Standard errors in parentheses, clustered at 50 km. *, **, *** denote $p < 0.1$, $p < 0.05$, $p < 0.01$. CS-DiD covariates: (i) Education and healthcare indices: municipal revenues per capita, population; (ii) Transport index: municipal investment per capita, population, Silesia region FE. Data for the healthcare/family index is unavailable for county seats.

Overall, while the results for the local public goods indices suggest a negative overall impact of the reform, the lack of parallel trends in some figures undermines the validity of these estimates as causal.

6 Conclusion

The results provide robust evidence that losing capital status induced a negative shift in socioeconomic outcomes. First, consistent with the theoretical model's predictions, the loss of

administrative capacity led to a decline in employment and activity in the public and private sectors, with particularly strong effects on women's labor force participation. This likely reflects the concentration of women in public administration jobs and services supporting the public sector. These results suggest that institutional downgrades trigger a gendered reallocation in local labor markets.

Second, I find that while central government transfers to ex-capitals relatively increased after the reform, they only slightly offset the loss of own-source revenue, and they did not translate into higher investment spending. This suggests that fiscal compensation either was insufficient to maintain prior levels of administrative activity or was mostly spent on salaries. The negative impact of losing capital status on public goods supports the finding of no significant changes in investment.

Third, there is evidence of demographic decline in the affected cities: the birth rate, as a ratio of women of working age, has fallen significantly, along with the marriage rate. Migration effects, by contrast, were limited and relevant for men, consistent with the model's assumption of costly and selective mobility.

Overall, these findings confirm that administrative status operates as a productive asset with real economic and demographic consequences. Cities that lost status experienced sustained declines in fiscal capacity, employment, and demographic vitality, despite receiving partial fiscal compensation and undergoing formal city-county upgrades. These results have broader implications for how institutional status shapes spatial inequality. Reforms that downgrade administrative functions in secondary cities should consider not only direct fiscal transfers but also restructuring local economies to enhance their competitiveness. In the theoretical framework, the loss of administrative capacity was associated with welfare declines in both public and private sectors, which is consistent with the empirical results. To restore efficiency, local authorities could have invested in, e.g., increasing the productivity of the private sector.

Future research could investigate whether administrative downgrades lead to political disaffection or shifts in voting behavior, or whether different forms of compensation—such as relocating public agencies—can mitigate the effects of status loss.

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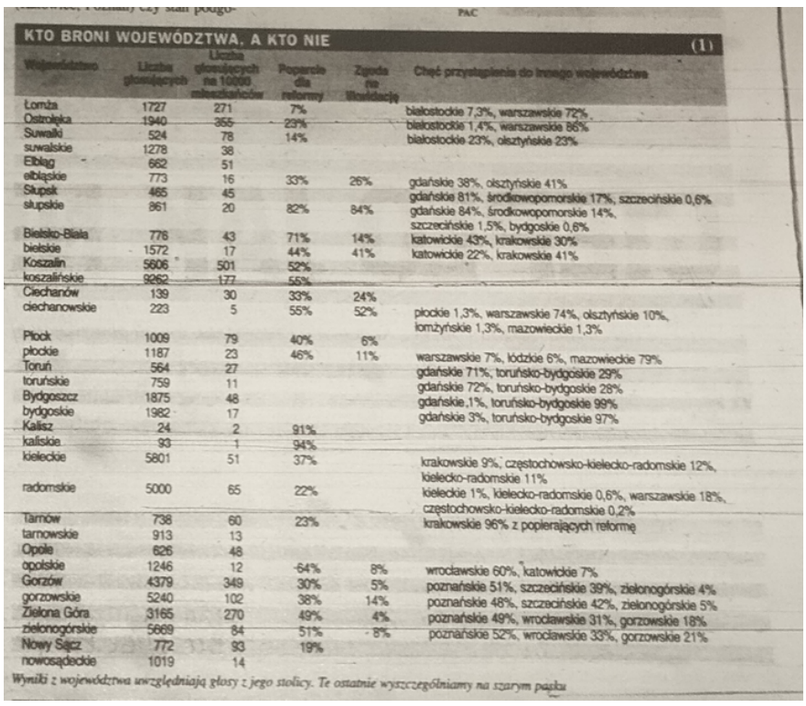
A Context



KTO BRONI WOJEWÓDZTWA, A KTO NIE (1)

Województwo	Liczba głosujących	Liczba głosujących na 10000 mieszkańców	Poparcie dla reformy	Zgoda na likwidację	Chęć przystąpienia do innego województwa
Łomża	1727	271	7%		białostockie 7,3%, warszawskie 72%
Ostrołęka	1940	355	23%		białostockie 1,4%, warszawskie 86%
Suwałki	524	78	14%		białostockie 23%, olsztyńskie 23%
suwalskie	1278	38			
Elbląg	662	51			
elbląskie	773	16	33%	26%	gdańskie 38%, olsztyńskie 41%
Słupsk	465	45			gdańskie 81%, środkowopomorskie 17%, szczecińskie 0,6%
słupskie	861	20	82%	84%	gdańskie 84%, środkowopomorskie 14%, szczecińskie 1,5%, bydgoskie 0,6%
Bielsko-Biała	776	43	71%	14%	katowickie 43%, krakowskie 30%
bielskie	1572	17	44%	41%	katowickie 22%, krakowskie 41%
Koszalin	5606	501	52%		
koszalińskie	9262	177	55%		
Ciechanów	139	30	33%	24%	
ciechanowskie	223	5	55%	52%	płockie 1,3%, warszawskie 74%, olsztyńskie 10%, łomżyńskie 1,3%, mazowieckie 1,3%
Płock	1009	79	40%	6%	
płockie	1187	23	46%	11%	warszawskie 7%, łódzkie 6%, mazowieckie 79%
Toruń	564	27			gdańskie 71%, toruńsko-bydgoskie 29%
toruńskie	759	11			gdańskie 72%, toruńsko-bydgoskie 28%
Bydgoszcz	1875	48			gdańskie,1%, toruńsko-bydgoskie 99%
bydgoskie	1982	17			gdańskie 3%, toruńsko-bydgoskie 97%
Kalisz	24	2	91%		
kaliskie	93	1	94%		
kieleckie	5801	51	37%		krakowskie 9%, częstochowsko-kielecko-radomskie 12%, kielecko-radomskie 11%
radomskie	5000	65	22%		kieleckie 1%, kielecko-radomskie 0,6%, warszawskie 18%, częstochowsko-kielecko-radomskie 0,2%
Tarnów	738	60	23%		krakowskie 96% z popierających reformę
tarnowskie	913	13			
Opole	626	48			
opolskie	1246	12	64%	8%	wrocławskie 60%, katowickie 7%
Gorzów	4379	349	30%	5%	poznańskie 51%, szczecińskie 39%, zielonogórskie 4%
gorzowskie	5240	102	38%	14%	poznańskie 48%, szczecińskie 42%, zielonogórskie 5%
Zielona Góra	3165	270	49%	4%	poznańskie 49%, wrocławskie 31%, gorzowskie 18%
zielonogórskie	5669	84	51%	8%	poznańskie 52%, wrocławskie 33%, gorzowskie 21%
Nowy Sącz	772	93	19%		
nowosądeckie	1019	14			

Wyniki z województwa uwzględniają głosy z jego stolicy. Te ostatnie wyszczególniamy na szarym polu

Figure 11: Results of the survey on preferences for remaining in a regional capital, Rzeczpospolita newspaper, March 1998

B Theoretical framework

Equilibrium Definition

An **equilibrium** in this economy is a sequence of allocations $\{\theta_{it}, N_{g,it}, N_{p,it}, N_{u,it}, M_{i3}\}$ for each city $i \in \{1, 2\}$ and period $t = 1, 2, 3$ such that:

1. Agents choose their sector according to preferences and expected utility:
$$\theta_{it} = \mathbb{P}\left[\phi \geq \phi^*_{it}\right], \quad \text{where } \phi^*_{it} = \frac{1}{\frac{u(c^g_{it})}{u(c^p_{it})} + 1}$$

2. Employment in period 1 is frictionless:
$$N_{g,i1} = \theta_{i1}, \quad N_{p,i1} = 1 - \theta_{i1}, \quad N_{u,i1} = 0$$

3. In period 2, employment is capped by available jobs, derived from administrative capacity:
$$\bar{N}_{g,i2} = N_{g,i1} \cdot \frac{\text{adm}_{i2}}{\text{adm}_{i1}}, \quad \bar{N}_{p,i2} = N_{p,i1} \cdot \frac{\text{adm}_{i2}}{\text{adm}_{i1}}$$
$$N_{g,i2} = \min\{\bar{N}_{g,i2}, \theta_{i2}\}, \quad N_{p,i2} = \min\{\bar{N}_{p,i2}, 1 - \theta_{i2}\}$$
$$N_{u,i2} = 1 - N_{g,i2} - N_{p,i2}$$

4. In period 3, migration occurs if the utility gain from moving exceeds the migration cost c, and there are open positions in the target city:
$$M_{i3} = \int_{\phi \in \mathcal{M}_{i3}} d\phi, \quad \text{where } \mathcal{M}_{i3} = \{\phi \in \mathcal{U}_{i2} : \Delta U(\phi) > c\}$$

5. All markets clear and agents are matched to jobs based on availability and preferences.

Existence of Equilibrium

An equilibrium exists under the assumptions that:

1. The utility function $u(c)$ is continuous, strictly increasing, and concave (CRRA).
2. The public-good weight ϕ is drawn from a continuous distribution $U[0,1]$.
3. Administrative capacity adm_{it} is finite and strictly positive for all i, t.

Sketch of Proof. Given the continuous and strictly increasing nature of $u(c)$ and the CRRA functional form, the indifference cutoff ϕ^*_{it} is a continuous function of sectoral consumption. Since consumption depends on the number of workers in each sector, and that in turn depends on θ_{it}, we are solving a fixed point problem:

$$\theta_{it} = 1 - \frac{1}{\frac{u(c^g_{it}(\theta_{it}))}{u(c^p_{it}(\theta_{it}))} + 1}$$

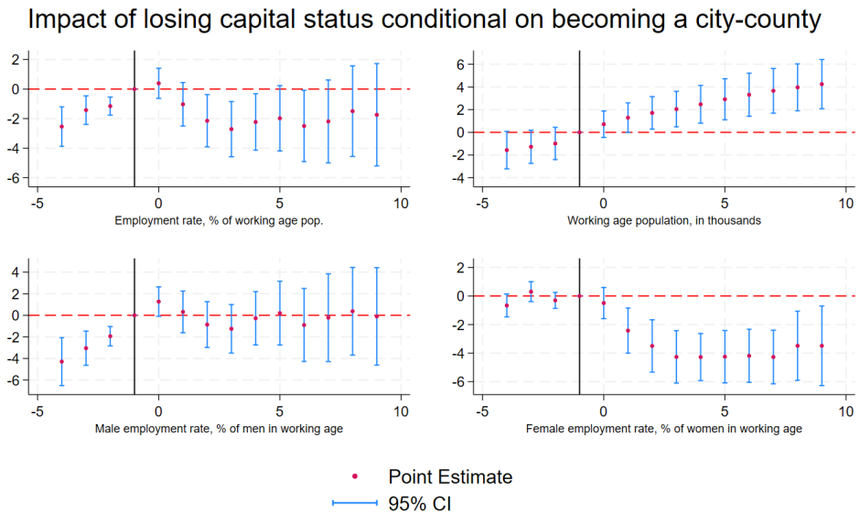
This function maps $[0,1] \to [0,1]$ and is continuous. By Brouwer's fixed point theorem, a solution exists for each city-period pair. □

Uniqueness of Equilibrium

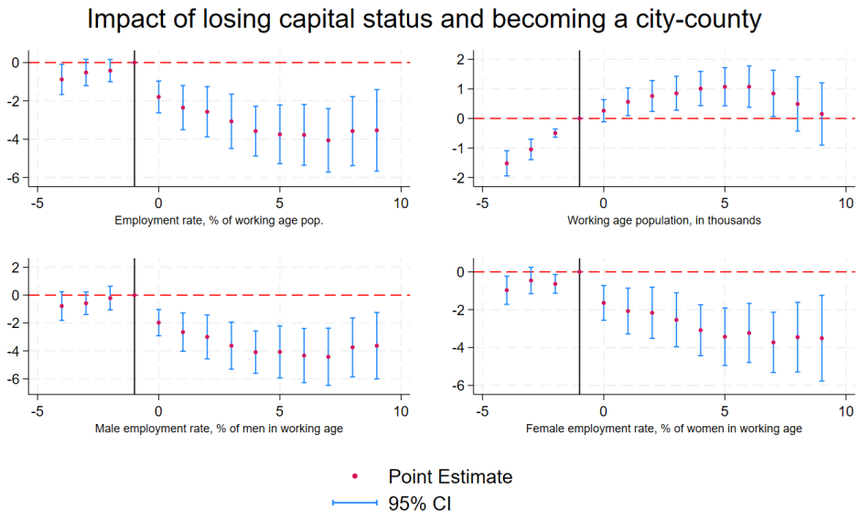
If the utility functions are strictly concave and the difference in sectoral productivity is sufficiently large, the equilibrium share θ_{it} is unique in each city and period.

Sketch of Proof. Given strict concavity of the utility functions, the indifference cutoff ϕ^*_{it} is strictly monotonic in θ_{it}. The right-hand side of the fixed point equation defines a strictly monotonic function in θ_{it}. A strictly monotonic continuous function can have at most one fixed point. Thus, the solution θ_{it} is unique. The uniqueness of migration and unemployment in period 3 follows from the monotonicity of utility gain in ϕ and capacity constraints. □

C Event-studies

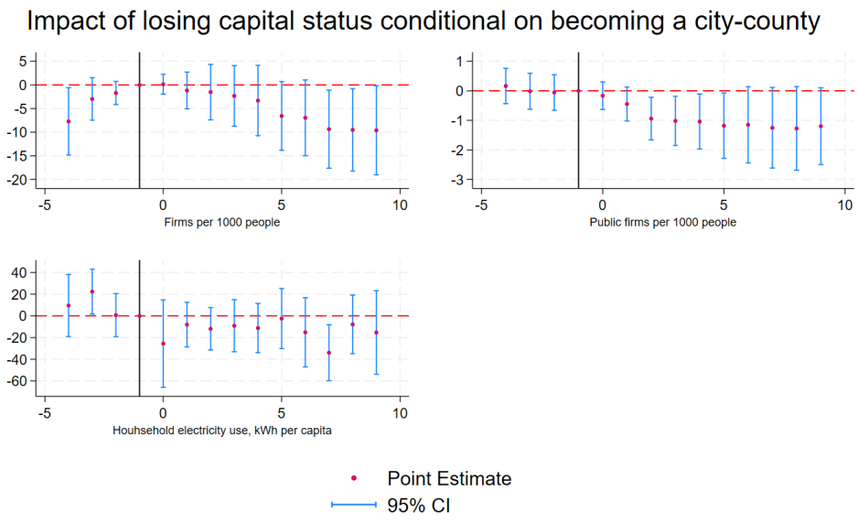


(a) Event study: ex-capitals (treated) vs. city-counties (control)

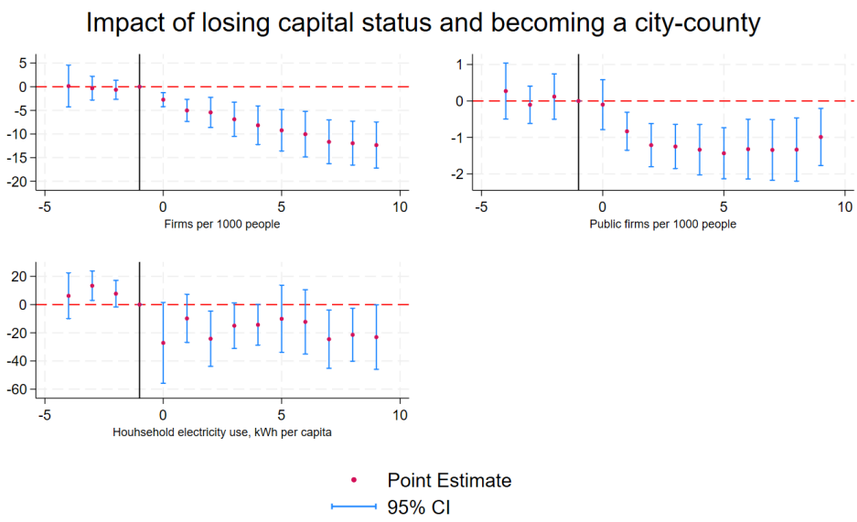


(b) Event study: city-counties (treated) vs. county seats (control)

Figure 12



(a) Event study: ex-capitals (treated) vs. city-counties (control)



(b) Event study: city-counties (treated) vs. county seats (control)

Figure 13

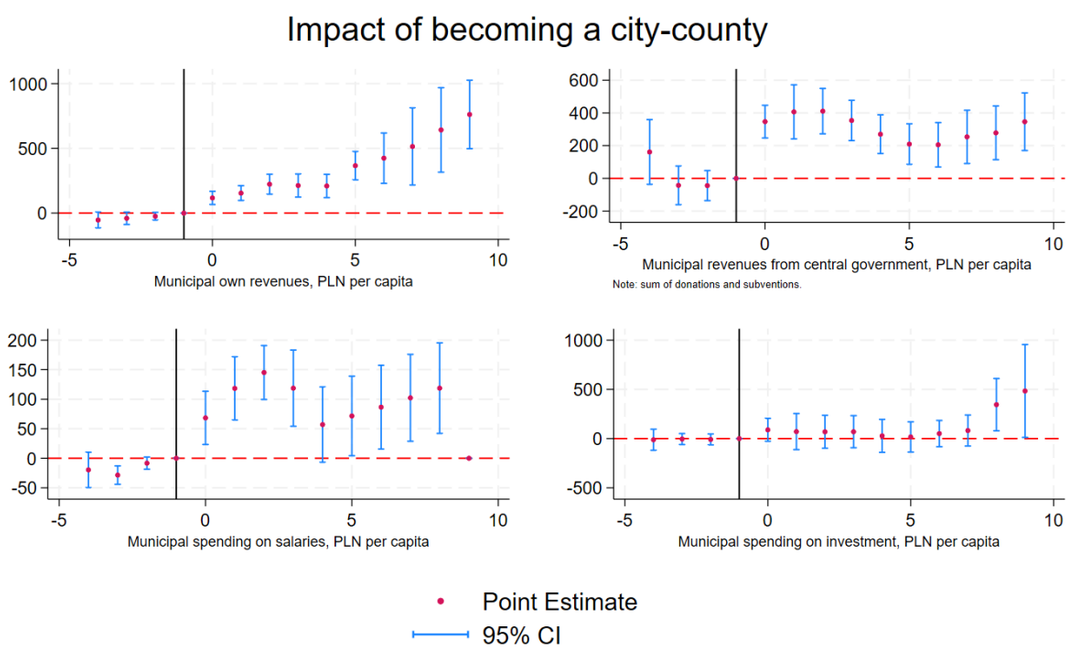


Figure 14: Event study: city-counties (treated) vs. county seats (control)

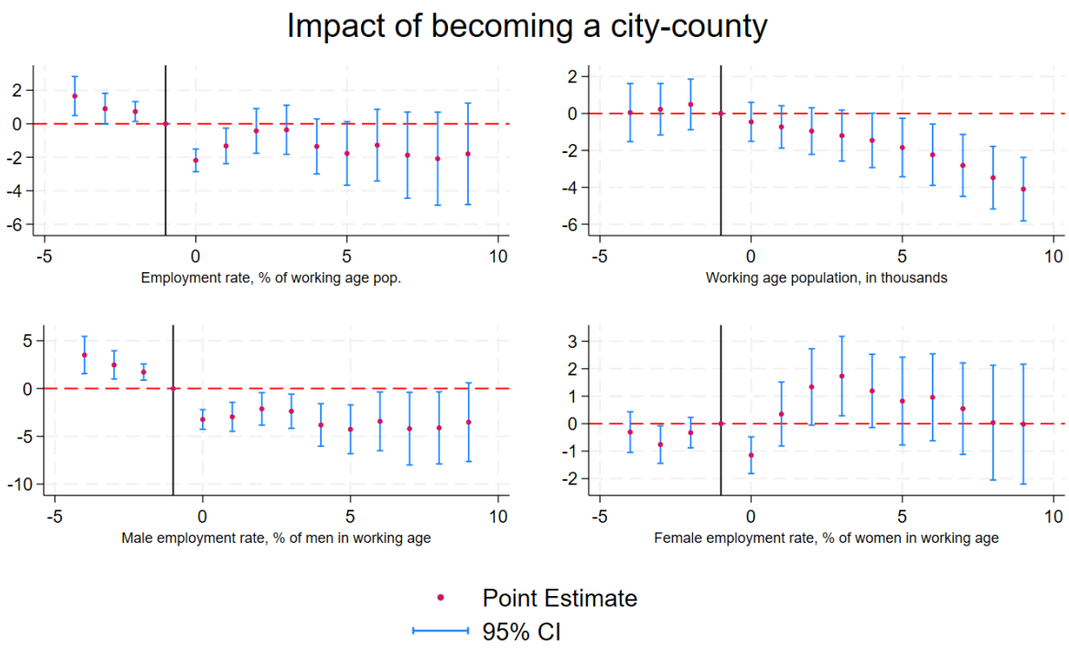


Figure 15: Event study: city-counties (treated) vs. county seats (control)

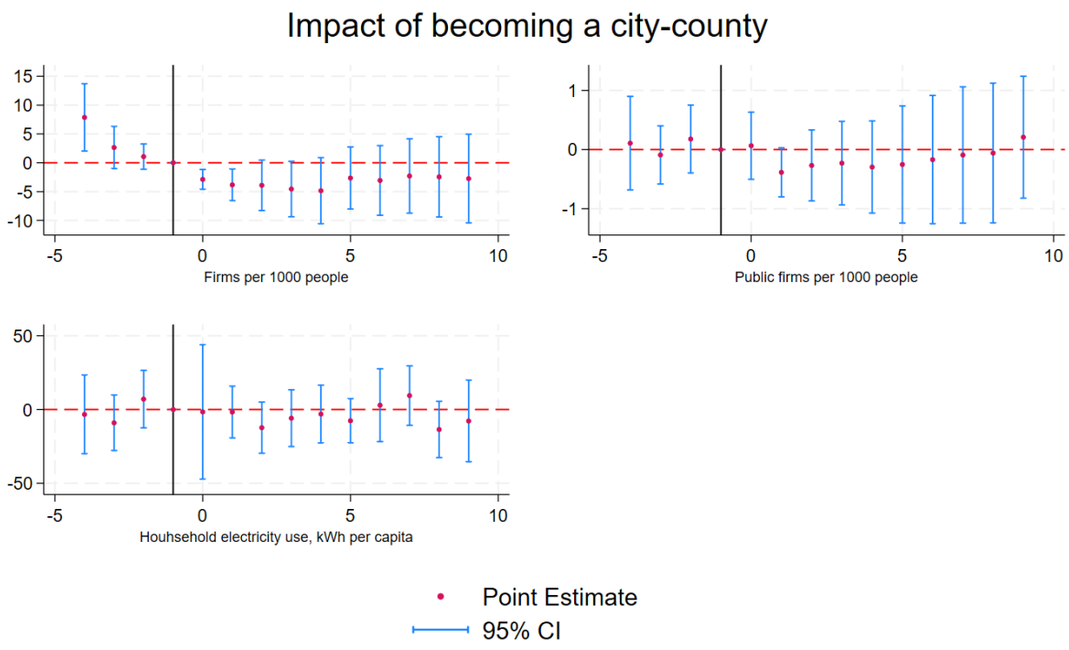
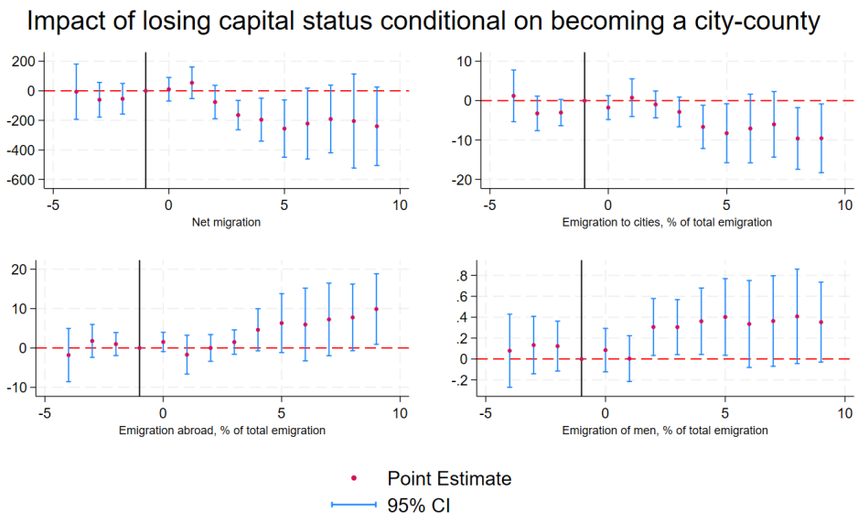
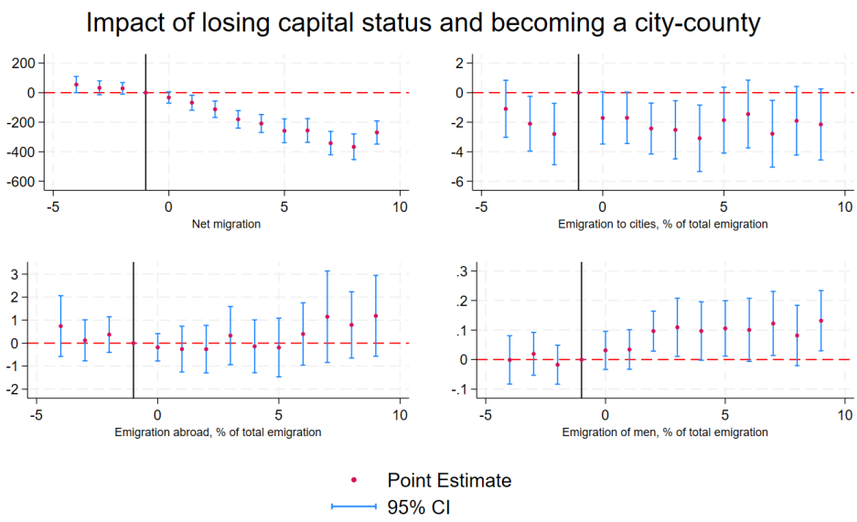


Figure 16: Event study: city-counties (treated) vs. county seats (control)



(a) Event study: ex-capitals (treated) vs. city-counties (control)



(b) Event study: city-counties (treated) vs. county seats (control)

Figure 17

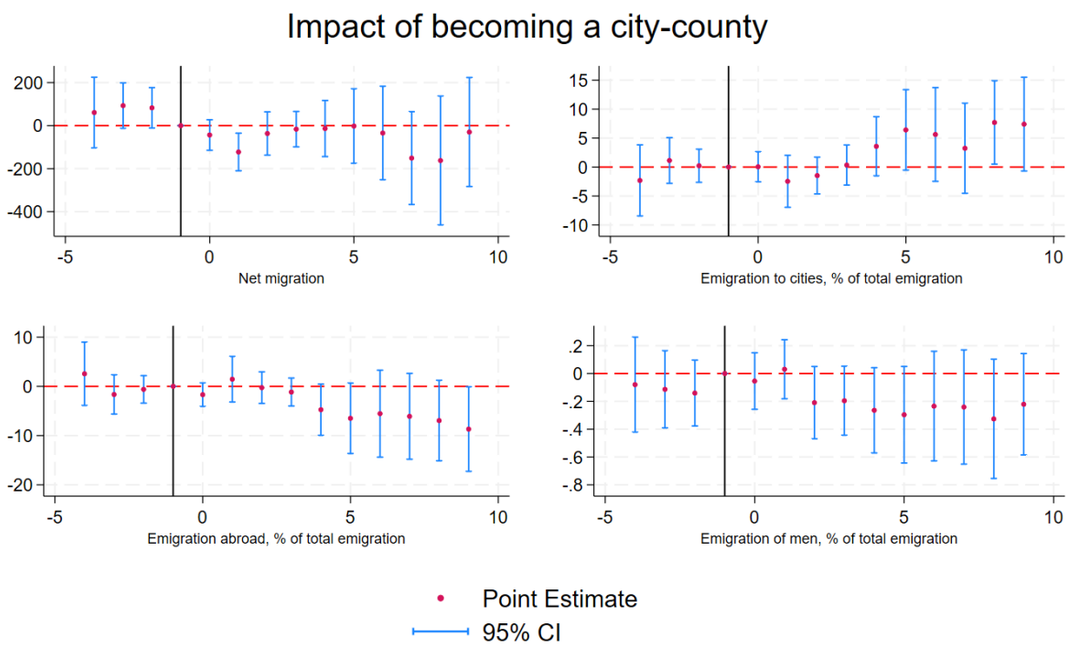


Figure 18: Event study: city-counties (treated) vs. county seats (controls)

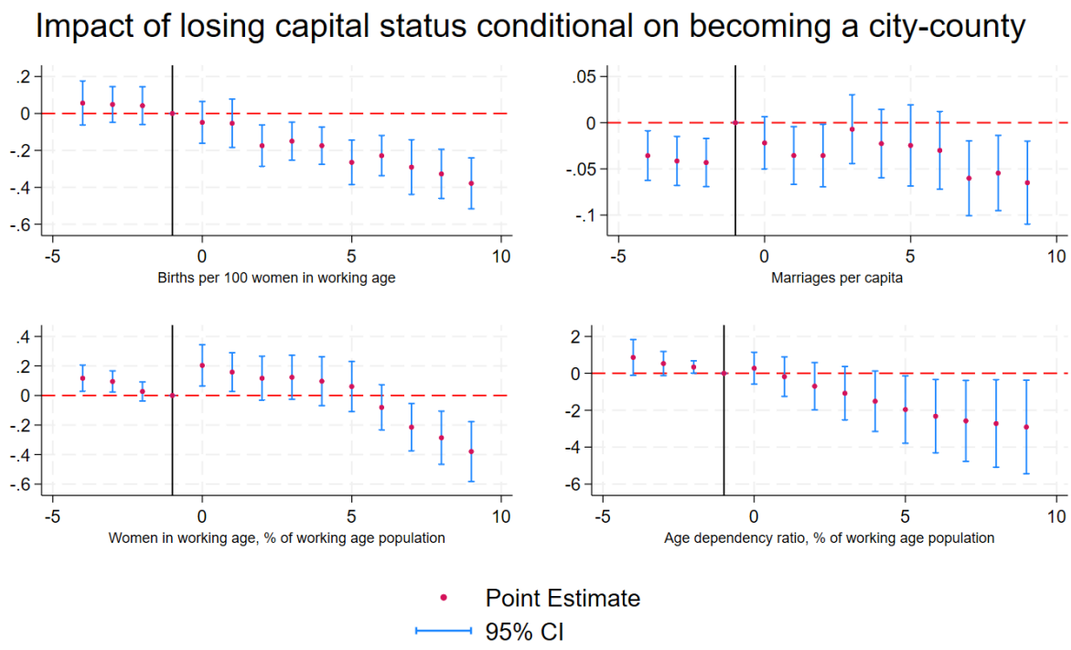


Figure 19: Event study: ex-capitals (treated) vs. city-counties (control)

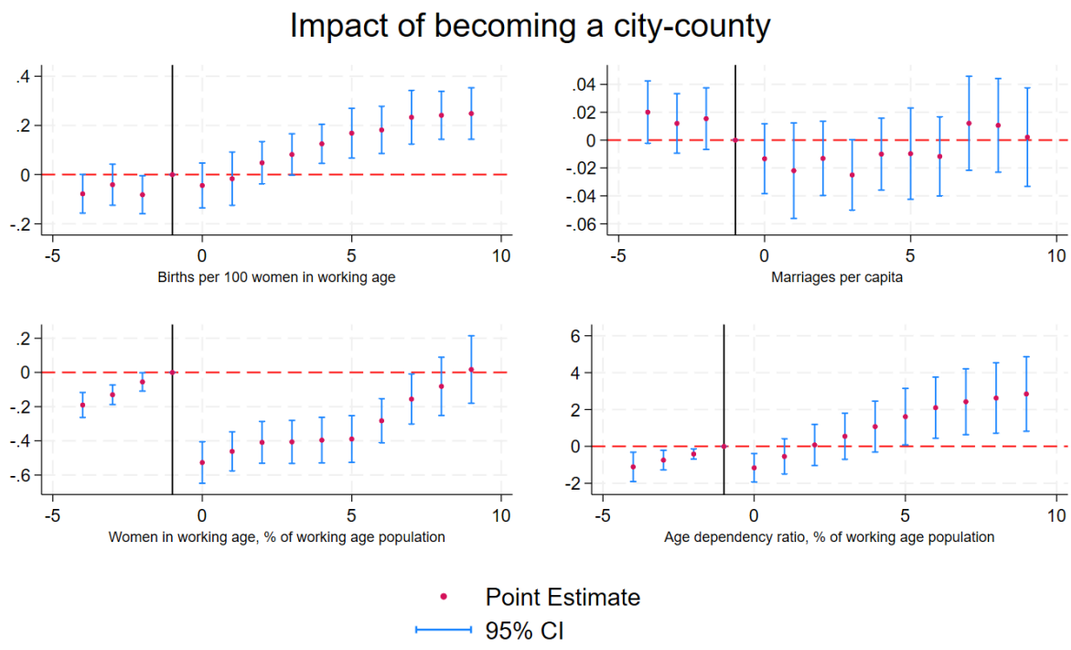


Figure 20: Event study: city-counties (treated) vs. county seats (controls)

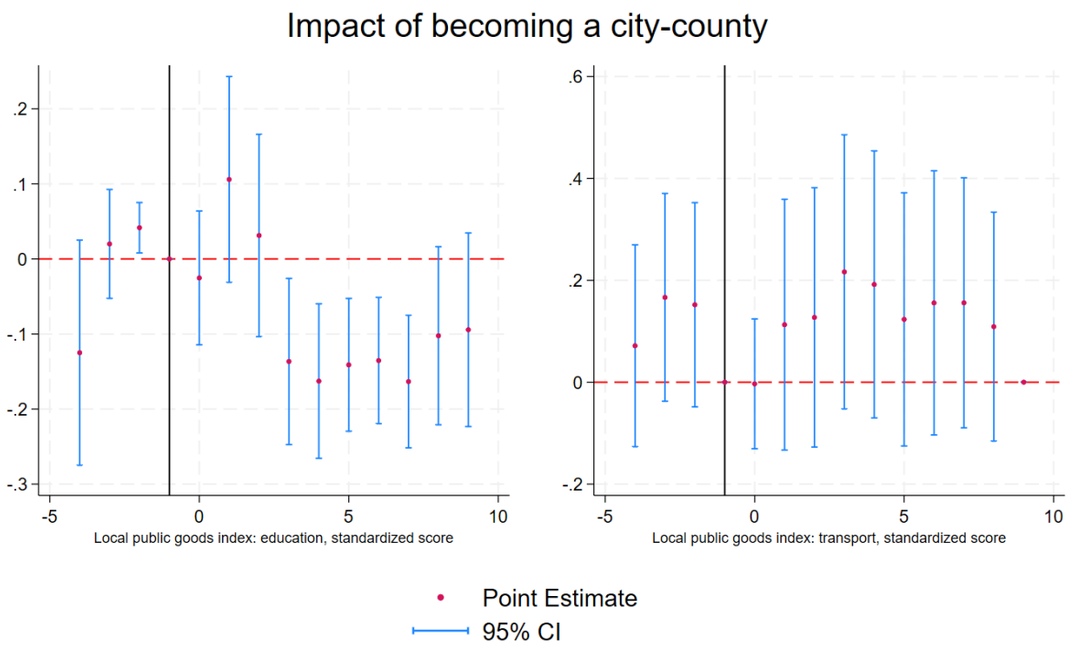


Figure 21: Event study: city-counties (treated) vs. county-seats (controls)

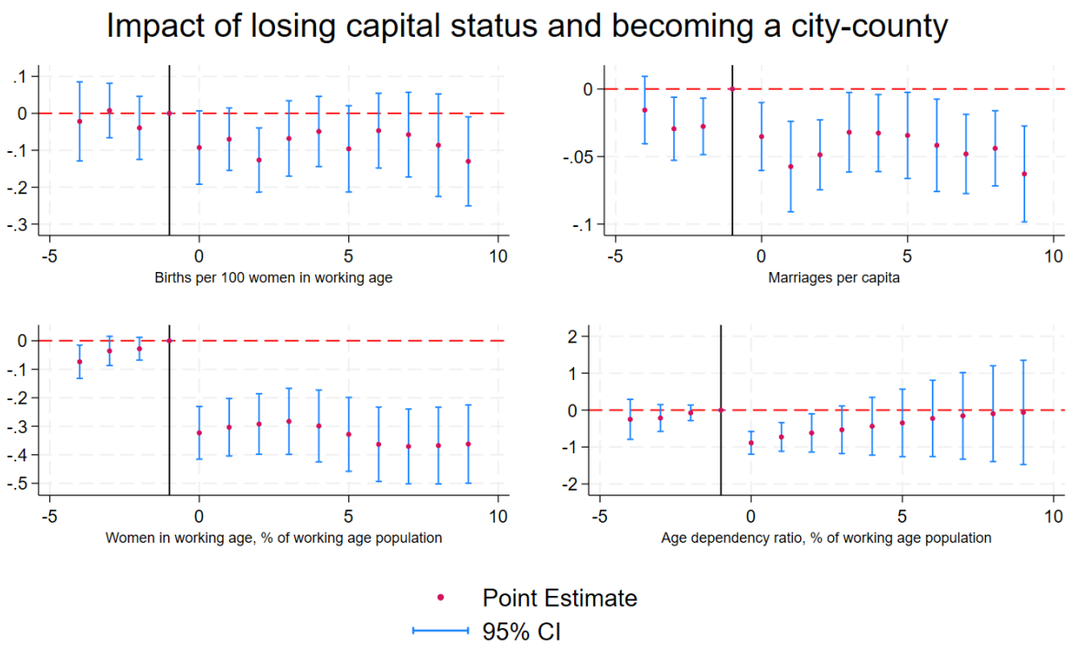
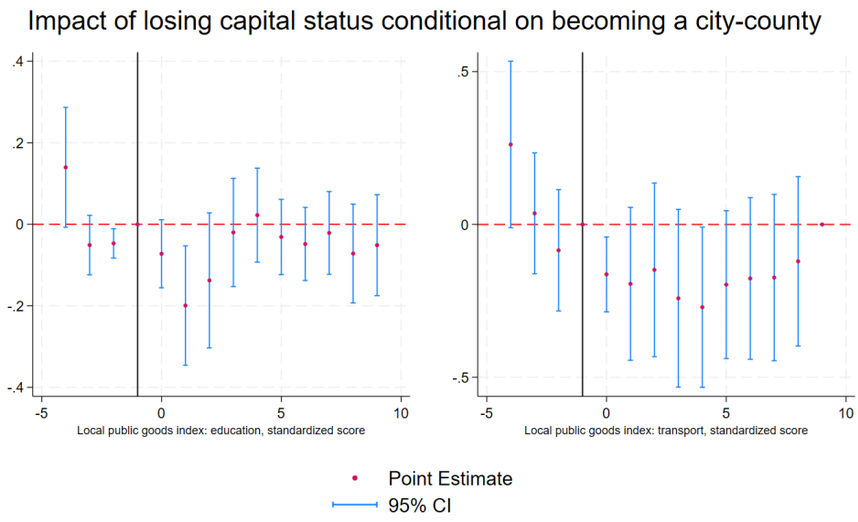
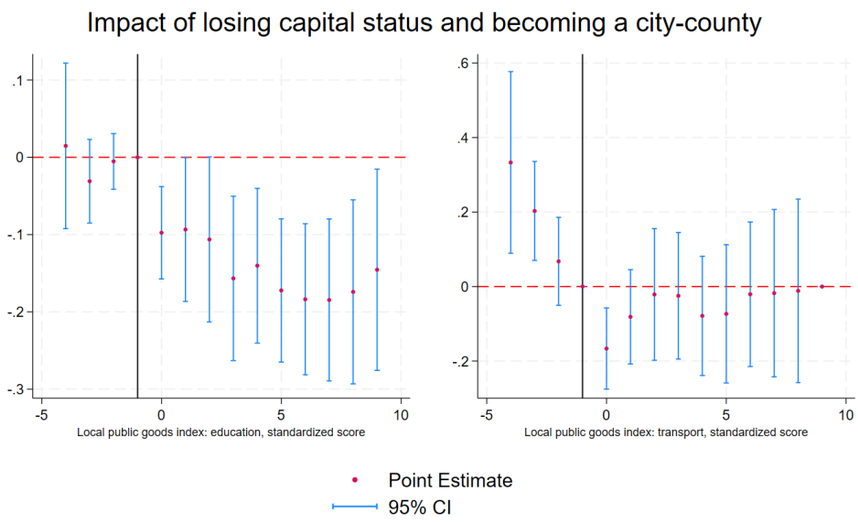


Figure 22: Event-study: ex-capitals (treated) vs. county seats (controls)



(a) Event study: ex-capitals (treated) vs. city-counties (control)



(b) Event study: city-counties (treated) vs. county seats (control)

Figure 23

D All results

Table 10: Results: municipal finance, per capita in PLN

	Ex-capitals vs City-counties		Ex-capitals vs County seats		City-counties vs County seats	
	TWFE	*CS-DiD*	*TWFE*	*CS-DiD*	*TWFE*	*CS-DiD*
Own revenues	−135.87	−98.26	77.20	−15.93	213.07	48.59
SE	48.02	46.56	58.16	23.56	41.31	77.59
t-stat/z-stat	−2.83	−2.11	2.94	−0.27	5.16	0.63
P-val	0.01	0.04	0.00	0.78	0.00	0.53
95% CI	[-233.57, -38.18]	[-189.52, -6.99]	[25.15, 129.26]	[-129.91, 98.06]	[131.00, 294.95]	[-103.48, 200.65]
Central transfers	389.64	437.14	728.88	820.46	339.25	450.87
SE	40.40	99.03	36.78	51.08	23.17	85.57
t-stat/z-stat	9.65	4.41	19.82	16.06	14.64	5.27
P-val	0.00	0.00	0.00	0.00	0.00	0.00
95% CI	[307.45, 471.83]	[243.05, 631.23]	[656, 801.77]	[720.35, 920.58]	[294.32, 385.18]	[283.15, 618.60]
Spending on salaries	274.67	270.68	390.27	418.80	115.60	153.95
SE	40.61	43.58	34.32	37.33	21.09	30.79
t-stat/z-stat	6.76	6.21	11.37	11.22	5.48	5.00
P-val	0.00	0.00	0.00	0.00	0.00	0.00
95% CI	[192.04, 357.29]	[185.27, 356.08]	[322.27, 458.26]	[345.64, 491.95]	[73.80, 157.41]	[93.60, 214.30]
Spending on investment	−12.32	14.98	59.22	80.01	71.54	96.88
SE	54.81	118.86	17.74	55.13	52.01	99.30
t-stat/z-stat	−0.22	0.13	3.34	1.45	1.38	0.98
P-val	0.82	0.90	0.00	0.15	0.17	0.33
95% CI	[-123.83, 99.20]	[-217.99, 247.95]	[24.07, 94.38]	[-28.04, 188.07]	[-31.54, 174.62]	[-97.74, 291.50]

Notes: Standard errors clustered at 50 km radius. TWFE = Two-Way Fixed Effects; CS-DiD = Callaway–Sant'Anna Difference-in-Differences. CS-DiD estimation controls for population.

Table 11: Employment outcomes across municipal comparisons

	Ex-capitals vs City-counties		Ex-capitals vs County seats		City-counties vs County seats	
	TWFE	*CS-DiD*	*TWFE*	*CS-DiD*	*TWFE*	*CS-DiD*
Employment rate, %	−0.26	−1.29	−2.22	−2.46	−1.95	−0.37
SE	0.77	0.60	0.54	1.33	0.65	2.04
t-stat/z-stat	−0.34	−2.13	−4.14	−1.85	−3.00	−0.18
P-val	0.73	0.03	0.00	0.07	0.00	0.86
95% CI	[-1.83, 1.30]	[-2.47, -0.11]	[-3.28, -1.16]	[-5.07, 0.15]	[-3.24, -0.66]	[-4.37, 3.63]
Covariates	-	Firms per capita	-	Firms per capita; Population	-	Firms per capita; Population
Working age pop. (thousands)	2.60	1.77	1.59	2.35	−1.15	0.39
SE	1.09	0.67	0.26	0.60	1.05	0.94
t-stat/z-stat	2.39	2.64	6.24	3.89	−1.10	0.41
P-val	0.02	0.01	0.00	0.00	0.28	0.68
95% CI	[0.39, 4.82]	[0.46, 3.08]	[1.09, 2.10]	[1.17, 3.53]	[-3.23, 0.92]	[-1.46, 2.24]
Covariates	-	Firms	-	Firms	-	Firms
Female employment rate, %	−2.82	−3.28	−1.78	−1.76	1.04	1.64
SE	0.72	0.97	0.54	1.50	0.60	1.92
t-stat/z-stat	−3.94	−3.38	−3.28	−1.17	1.74	0.85
P-val	0.00	0.00	0.00	0.24	0.09	0.39
95% CI	[-4.28, -1.37]	[-5.18, -1.38]	[-2.86, -0.71]	[-4.70, -1.18]	[-0.15, 2.23]	[-2.13, 5.40]
Covariates	-	Firms per capita in hospitality, health education, services and adm. sectors	-	Firms per capita in hospitality, health education, services and adm. sectors Population	-	Firms per capita in hospitality, health education, services and adm. sectors Population
Male employment rate, %	2.16	−1.81	−2.67	−3.10	−4.83	−0.07
SE	1.06	1.01	0.63	1.51	0.95	2.94
t-stat/z-stat	2.04	−1.79	−4.21	−2.05	−5.06	−0.02
P-val	0.05	0.07	0.00	0.04	0.00	0.98
95% CI	[0.01, 4.31]	[-3.79, 0.17]	[-3.93, -1.42]	[-6.07, -0.14]	[-6.72, -2.94]	[-5.82, 5.69]
Covariates	-	Firms per capita; Mining firms per capita; Years of local coalmine closure; Silesia region	-	Firms per capita; Population	-	Firms per capita; Mining firms per capita; Years of local coalmine closure; Silesia region population

Notes: Standard errors clustered at 50 km radius. TWFE = Two-Way Fixed Effects; CS-DiD = Callaway–Sant'Anna Difference-in-Differences. Employment rate is a share of employed working age population (18-64) in %, female employment rate is a share of women in working age (18-59) in %, male employment rate is a share of men in working age (18-64) in %

Table 12: Firms and household electricity use across municipal comparisons

	Ex-capitals vs City-counties		Ex-capitals vs County seats		City-counties vs County seats	
	TWFE	*CS-DiD*	*TWFE*	*CS-DiD*	*TWFE*	*CS-DiD*
Firms per 1000 people	1.46	−17.46	−5.90	−7.36	−7.36	2.89
SE	3.58	3.75	1.81	1.95	2.97	3.11
t-stat/z-stat	0.41	−4.66	−3.26	−3.77	−2.48	0.93
P-val	0.69	0.00	0.00	0.00	0.01	0.35
95% CI	[-5.83, 8.75]	[-24.80, -10.12]	[-9.50, -2.31]	[-11.19, -3.54]	[-13.26, -1.47]	[-3.21, 8.99]
Covariates	-	Working age pop.; Silesia region	-	Working age population	-	Working age pop.; Silesia region
Public firms per 1000 people	−0.74	−2.47	−1.08	−0.43	−0.33	1.24
SE	0.37	1.00	0.31	0.56	0.26	0.39
t-stat/z-stat	−1.99	−2.48	−3.53	−0.78	−1.27	3.18
P-val	0.06	0.01	0.00	0.44	0.21	0.00
95% CI	[-1.51, 0.02]	[-4.42, -0.51]	[-1.69, -0.47]	[-1.52, 0.65]	[-0.86, 0.19]	[0.48, 2.00]
Covariates	-	Municipal exp.; Population; Silesia region	-	Municipal exp.; Population	-	Municipal exp.; Population; Silesia region
Electricity use (kWh/capita)	−20.83	−9.14	−23.32	−15.44	−2.49	5.23
SE	11.20	14.73	6.42	12.51	9.42	20.36
t-stat/z-stat	−1.86	−0.62	−3.63	−1.23	−0.26	0.26
P-val	0.07	0.53	0.00	0.22	0.79	0.80
95% CI	[-43.62, 1.95]	[-38.00, 19.72]	[-36.05, -10.60]	[-39.96, 9.08]	[-21.15, 16.17]	[-34.67, 45.14]
Covariates	-	Employment rate; Population; Silesia region	-	Employment rate; Population	-	Employment rate; Population; Silesia region

Notes: Standard errors clustered at 50 km radius. TWFE = Two-Way Fixed Effects; CS-DiD = Callaway–Sant'Anna Difference-in-Differences.

Table 13: Migration outcomes across municipal comparisons

	Ex-capitals vs City-counties		Ex-capitals vs County seats		City-counties vs County seats	
	TWFE	*CS-DiD*	*TWFE*	*CS-DiD*	*TWFE*	*CS-DiD*
Net migration (abs.)	−46.64	−161.00	−151.05	−114.89	−104.41	−48.50
SE	41.21	119.57	25.43	23.01	31.53	45.37
t-stat/z-stat	−1.13	−1.35	−5.94	−4.99	−3.31	−1.07
P-val	0.27	0.18	0.00	0.00	0.00	0.29
95% CI	[-130.49, 37.21]	[-395.37, 73.35]	[-201.43, -100.66]	[-160.00, -69.79]	[-166.92, -41.90]	[-137.42, 40.42]
Covariates	-	Firms per capita Distance to new capital	-	Firms per capita Distance to new capital	-	Firms per capita Distance to new capital
Emigration to cities (%)	−1.04	1.86	−0.65	−2.31	0.38	1.56
SE	0.94	1.76	0.64	0.72	0.80	1.63
t-stat/z-stat	−1.11	1.05	−1.01	−3.22	0.48	0.96
P-val	0.28	0.29	0.31	0.00	0.63	0.34
95% CI	[-2.94, 0.86]	[-1.60, 5.31]	[-1.93, 0.62]	[-3.72, -0.91]	[-1.20, 1.97]	[-1.64, 4.78]
Covariates	-	Distance to new capital	-	Distance to new capital	-	Distance to new capital
Emigration abroad (%)	1.00	1.25	−0.39	−0.05	−1.39	−1.30
SE	0.73	1.52	0.34	0.37	0.67	1.52
t-stat/z-stat	1.37	0.82	−1.16	−0.13	−2.09	−0.85
P-val	0.18	0.41	0.25	0.90	0.04	0.39
95% CI	[-0.49, 2.49]	[-1.74, 4.24]	[-1.06, 0.28]	[-0.78, 0.67]	[-2.71, -0.07]	[-4.28, 1.69]
Covariates	-	-	-	-	-	-
Male emigration (%)	0.13	0.21	0.08	0.08	0.53	−0.23
SE	0.05	0.11	0.03	0.03	0.32	0.83
t-stat/z-stat	2.82	1.91	2.41	2.50	1.66	−0.27
P-val	0.01	0.06	0.02	0.01	0.10	0.79
95% CI	[0.04, 0.23]	[-0.01, 0.43]	[0.01, 0.14]	[0.02, 0.13]	[-0.01, 1.15]	[-1.86, 1.41]
Covariates	-	-	-	-	-	-

Notes: Standard errors clustered at 50 km radius. TWFE = Two-Way Fixed Effects; CS-DiD = Callaway–Sant'Anna Difference-in-Differences.

Table 14: Demographic outcomes across municipal comparisons

	Ex-capitals vs City-counties		Ex-capitals vs County seats		City-counties vs County seats	
	TWFE	*CS-DiD*	*TWFE*	*CS-DiD*	*TWFE*	*CS-DiD*
Births per 100 women	−0.16	−0.12	−0.07	−0.08	0.09	0.04
SE	0.04	0.04	0.03	0.04	0.04	0.04
t-stat/z-stat	−3.55	−2.78	−1.98	−2.25	2.42	1.08
P-val	0.00	0.01	0.05	0.02	0.02	0.28
95% CI	[-0.25, -0.07]	[-0.20, -0.04]	[-0.14, 0.00]	[-0.15, -0.01]	[0.02, 0.16]	[-0.03, 0.11]
Marriages per capita	0.01	−0.03	−0.02	−0.04	−0.03	−0.02
SE	0.01	0.01	0.01	0.01	0.01	0.01
t-stat/z-stat	0.55	−1.90	−2.51	−3.80	−3.06	−1.57
P-val	0.58	0.06	0.01	0.00	0.00	0.12
95% CI	[-0.02, 0.03]	[-0.05, 0.00]	[-0.04, -0.004]	[-0.06, -0.02]	[-0.04, -0.01]	[-0.04, 0.00]
Women in working age (%)	0.08	0.13	−0.27	−0.31	−0.35	−0.44
SE	0.06	0.06	0.05	0.05	0.06	0.06
t-stat/z-stat	1.17	2.11	−5.42	−6.03	−6.15	−7.91
P-val	0.25	0.03	0.00	0.00	0.00	0.00
95% CI	[-0.06, 0.21]	[0.01, 0.26]	[-0.37, -0.17]	[-0.41, -0.21]	[-0.46, -0.23]	[-0.55, -0.33]
Age dependency ratio (%)	−1.13	−0.66	−0.56	−0.66	0.57	0.00
SE	0.77	0.57	0.36	0.25	0.68	0.52
t-stat/z-stat	−1.47	−1.16	−1.55	−2.66	0.84	0.00
P-val	0.15	0.25	0.13	0.01	0.41	1.00
95% CI	[-2.69, 0.44]	[-1.78, 0.46]	[-1.28, 0.16]	[-1.15, -0.17]	[-0.76, 1.91]	[-1.02, 1.02]

Notes: Standard errors clustered at 50 km radius. TWFE = Two-Way Fixed Effects; CS-DiD = Callaway–Sant'Anna Difference-in-Differences. Age dependency ratio is the share of people aged 0-17 and >65 to the working age population, in %.

Table 15: Local public goods

	Ex-capitals vs City-counties		Ex-capitals vs County seats		City-counties vs County seats	
	TWFE	*CS-DiD*	*TWFE*	*CS-DiD*	*TWFE*	*CS-DiD*
Education index	−0.09	−0.18	−0.11	−0.09	−0.02	−0.04
SE	0.06	0.06	0.03	0.09	0.06	0.12
t-stat	−1.41	−3.19	−3.42	−0.97	−0.36	−0.36
P-val	0.17	0.00	0.00	0.33	0.72	0.72
95% CI	[-0.22, 0.04]	[-0.30, -0.07]	[-0.18, -0.05]	[-0.28, 0.09]	[-0.14, 0.10]	[-0.27, 0.19]
Covariates	-	Municipal revenue per capita; Population	-	Municipal revenue per capita; Population	-	Municipal revenue per capita; Population
Healthcare/family index	−0.02	−0.27				
SE	0.08	0.09				
t-stat	−0.29	−3.04				
P-val	0.77	0.00				
95% CI	[-0.04, -0.01]	[-0.44, -0.09]				
Covariates	-	Municipal revenue per capita; Population				
Public transport index	−0.27	−0.17	−0.24	0.09	0.03	−0.05
SE	0.08	0.08	0.08	0.14	0.06	0.21
t-stat/z-stat	−3.33	−2.18	−2.96	0.65	0.49	−0.23
P-val	0.00	0.03	0.00	0.52	0.63	0.81
95% CI	[-0.43, -0.10]	[-0.31, -0.02]	[-0.40, -0.08]	[-0.19, 0.38]	[-0.10, 0.16]	[-0.46, 0.36]
Covariates	-	Population; Municipal investment per capita; Silesia region	-	Population; Municipal investment per capita	-	Population; Municipal investment per capita; Silesia region

Notes: Standard errors clustered at 50 km radius. TWFE = Two-Way Fixed Effects; CS-DiD = Callaway–Sant'Anna Difference-in-Differences.

E Robustness of parallel trends

Municipal finance

Table 16: "Honest DiD": Impact of losing the capital status and becoming a city-county

	Municipal Own Revenue		**Central Government Revenues**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	268.88	879.46	3317.83	4068.87
0	271.69	876.65	3321.29	4065.42
0.5	196.52	997.00	2620.08	4512.54
1	76.93	1158.17	1816.68	5244.93
2	−282.81	1544.94	174.27	6863.54
	Municipal Spending on Salaries		**Municipal Spending on Investment**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	1478.83	2258.98	22.34	518.58
0	1482.42	2255.39	24.63	516.30
0.5	1348.31	2348.51	−277.74	721.44
1	1182.02	2488.37	−689.84	1116.10
2	753.55	2904.28	−1543.21	1962.59

Notes: Ex-capitals are treated, county seats are controls. Honest DiD bounds reported for sensitivity parameter M. "Original" denotes the baseline specification. All values are PLN per capita.

Table 17: "Honest DiD": Impact of becoming a city-county

	Municipal Own Revenue		**Central Government Revenues**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	794.34	1540.02	1008.54	2295.54
0	797.77	1536.59	1014.45	2289.63
0.5	684.33	1793.68	−366.25	4205.30
1	445.32	2114.36	−2116.46	6249.42
2	−216.55	2814.04	−6211.22	10 379.11
	Municipal Spending on Salaries		**Municipal Spending on Investment**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	259.10	762.50	−541.64	1049.69
0	261.41	760.19	−534.33	1042.38
0.5	99.69	916.47	−901.08	1310.82
1	−61.15	1077.01	−1257.03	1566.91
2	−458.26	1409.97	−2069.16	2124.32

Notes: City-counties are treated, county seats are controls. Honest DiD bounds reported for sensitivity parameter M. "Original" denotes the baseline specification. All values are PLN per capita.

Labor market

Table 18: "Honest DiD": Impact of losing capital status conditional on becoming a city-county

	Employment rate, % of working-age population		**Working-age population, thousands**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−18.56	−1.62	3.00	17.87
0	−18.48	−1.69	3.07	17.80
0.5	−27.51	7.14	−2.98	31.52
1	−38.64	18.68	−17.97	47.19
2	−62.31	43.35	−49.42	79.16
	Male employment rate, % of men in working age		**Female employment rate, % of women in working age**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−12.56	8.81	−26.61	−10.83
0	−12.46	8.71	−26.54	−10.90
0.5	−27.47	22.23	−32.69	−3.86
1	−45.94	39.98	−40.89	4.98
2	−84.64	78.21	−59.20	23.74

Notes: Ex-capitals are treated, city-counties are controls. Honest DiD bounds reported for sensitivity parameter M. "Original" denotes the baseline specification.

Table 19: "Honest DiD": Impact of losing capital status and becoming a city-county

	Employment rate, % of working-age population		**Working-age population, thousands**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−21.57	−9.07	1.57	6.94
0	−21.51	−9.12	1.60	6.92
0.5	−25.71	−6.13	−2.97	11.30
1	−31.53	−1.35	−7.84	16.65
2	−44.47	11.24	−19.01	27.97
	Male employment rate, % of men in working age		**Female employment rate, % of women in working age**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−24.94	−9.93	−19.61	−6.97
0	−24.87	−10.00	−19.55	−7.02
0.5	−28.63	−6.08	−24.73	−2.82
1	−34.45	−0.09	−31.60	3.54
2	−47.53	13.54	−46.51	18.26

Notes: Ex-capital cities are treated, county seats are controls. Honest DiD bounds reported for the sensitivity parameter M. "Original" denotes the baseline specification.

Table 20: "Honest DiD": Impact of becoming a city-county

	Employment rate, % of working-age population		Working-age population, thousands	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−12.17	1.70	−12.92	0.56
0	−12.10	1.64	−12.86	0.50
0.5	−17.70	7.55	−23.22	3.90
1	−25.86	15.89	−35.21	14.32
2	−43.86	34.14	−59.40	38.52
	Male employment rate, % of men in working age		**Female employment rate, % of women in working age**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−24.74	−6.37	−0.81	11.67
0	−24.66	−6.46	−0.75	11.61
0.5	−37.45	6.75	−4.30	15.56
1	−53.98	23.58	−10.57	21.86
2	−89.37	58.83	−24.63	35.95

Notes: City-counties are treated, county seats are controls. Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Economic Activity

Table 21: "Honest DiD": Impact of losing capital status conditional on becoming a city-county

	Firms per 1,000 people		Public firms per 1,000 people	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−44.19	14.34	−8.25	−1.00
0	−43.92	14.07	−8.22	−1.03
0.5	−72.81	61.70	−9.73	0.63
1	−123.42	117.26	−13.32	4.23
2	−236.18	231.94	−21.19	12.11
	Household electricity use, kWh per capita			
M	**Lower bound**	**Upper bound**		
Original	−139.79	53.94		
0	−138.90	53.05		
0.5	−375.98	230.20		
1	−651.97	497.71		
2	−1213.27	1055.18		

Notes: Ex-capital cities are treated, city-counties are controls. Honest DiD bounds reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Table 22: "Honest DiD": Impact of losing capital status and becoming a city county

	Firms per 1,000 people		Public firms per 1,000 people	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−51.54	−17.86	−8.95	−3.17
0	−51.38	−18.01	−8.92	−3.19
0.5	−64.58	−9.06	−13.60	1.29
1	−86.09	11.97	−20.10	7.77
2	−131.64	57.27	−33.54	21.18

	Household electricity use, kWh per capita	
M	**Lower bound**	**Upper bound**
Original	−149.44	2.47
0	−148.74	1.77
0.5	−264.45	79.12
1	−415.10	223.53
2	−723.69	530.34

Notes: Ex-capitals are treated, county seats are controls. Honest DiD bounds are reported for the sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Table 23: "Honest DiD": Impact of becoming a city-county

	Firms per 1,000 people		Public firms per 1,000 people	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−42.13	2.58	−4.41	1.55
0	−41.93	2.38	−4.38	1.52
0.5	−93.34	35.07	−7.56	4.77
1	−150.73	88.48	−12.63	9.91
2	−267.33	203.91	−23.41	20.63

	Household electricity use, kWh per capita	
M	**Lower bound**	**Upper bound**
Original	−102.84	41.72
0	−102.17	41.06
0.5	−239.30	234.88
1	−456.74	456.37
2	−903.69	906.07

Notes: City-counties are treated, county seats are controls. Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Migration

Table 24: "Honest DiD": Impact of losing capital status conditional on becoming a city-county

	Net migration		**Emigration to cities, % of total emigration**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−1152.21	−122.27	−38.38	2.40
0	−1147.48	−127.00	−38.19	2.21
0.5	−2003.39	638.21	−75.76	47.51
1	−3013.40	1617.37	−118.97	98.95
2	−5056.32	3602.60	−223.54	204.67
	Emigration abroad, % of total emigration		**Emigration of men, % of total emigration**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−0.10	0.31	0.02	2.73
0	−0.10	0.31	0.04	2.72
0.5	−0.50	0.53	−0.79	4.82
1	−0.96	0.96	−2.34	7.19
2	−1.89	1.88	−7.05	11.91

Notes: Ex-capital cities are treated, city-counties are controls. Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Table 25: "Honest DiD": Impact of losing capital status and becoming a city-county

	Net migration		**Emigration to cities, % of total emigration**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−1084.62	−571.82	−19.15	−4.06
0	−1082.26	−574.17	−19.08	−4.13
0.5	−1398.13	−269.65	−49.16	21.24
1	−1850.56	157.50	−82.45	54.24
2	−2790.01	1063.88	−149.99	121.95
	Emigration abroad, % of total emigration		**Emigration of men, % of total emigration**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−0.05	0.04	0.10	0.78
0	−0.05	0.04	0.10	0.78
0.5	−0.12	0.13	−0.35	1.28
1	−0.23	0.24	−1.06	1.99
2	−0.46	0.48	−2.52	3.46

Notes: Ex-capital cities are treated, county seats are controls. Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Table 26: "Honest DiD": Impact of becoming a city-county

	Net migration		Emigration to cities, % of total emigration	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−660.11	278.16	−13.27	26.04
0	−655.80	273.85	−13.09	25.85
0.5	−1192.43	1351.80	−50.04	49.21
1	−2333.23	2542.65	−93.33	89.95
2	−4724.55	4939.31	−181.90	177.64
	Emigration abroad, % of total emigration		**Emigration of men, % of total emigration**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−0.31	0.09	−2.27	0.40
0	−0.31	0.09	−2.25	0.38
0.5	−0.57	0.53	−4.52	1.01
1	−1.03	1.03	−7.04	3.10
2	−2.03	2.04	−12.07	8.13

Notes: City-counties are treated, county seats are controls. Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Demographics

Table 27: "Honest DiD": Impact of losing capital status on fertility

	Births per 100 women in working age	
M	**Lower bound**	**Upper bound**
Original	−1.28	−0.36
0	−1.27	−0.36
0.5	−1.71	0.35
1	−2.59	1.26
2	−4.44	3.12

Notes: Ex-capital cities are treated, city-counties are controls. Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Table 28: 'Honest DiD": Impact of losing capital status conditional on becoming a city-county

	Births per 100 women in working age		Marriages per capita	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−1.28	−0.36	−0.28	0.03
0	−1.27	−0.36	−0.28	0.03
0.5	−1.71	0.35	−0.71	0.32
1	−2.59	1.26	−1.18	0.77
2	−4.44	3.12	−2.14	1.72
	Women of working age, % of total working-age population		**Age dependency ratio, % of working-age population**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−0.15	1.26	−12.38	1.52
0	−0.15	1.26	−12.32	1.46
0.5	−0.55	1.77	−15.95	2.73
1	−1.08	2.39	−19.81	4.84
2	−2.38	3.77	−28.57	11.70

Notes: Ex-capital cities are treated, city-counties are controls. Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Table 29: "Honest DiD": Impact of losing capital status and becoming a city-county

	Births per 100 women in working age		Marriages per capita	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−0.81	−0.01	−0.33	−0.08
0	−0.81	−0.01	−0.33	−0.08
0.5	−1.42	0.49	−0.62	0.11
1	−2.21	1.23	−0.95	0.43
2	−3.85	2.81	−1.62	1.10
	Women in working age, % of total working-age population		**Age dependency ratio, % of working-age population**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−2.05	−0.96	−5.82	0.49
0	−2.05	−0.96	−5.79	0.46
0.5	−2.41	−0.72	−6.35	2.09
1	−2.88	−0.32	−6.95	4.02
2	−3.94	0.70	−10.26	8.36

Notes: Ex-capital cities are treated, county seats are controls. Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Table 30: "Honest DiD": Impact of becoming a city-county

	Births per 100 women in working age		Marriages per capita	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	0.02	0.79	−0.20	0.04
0	0.03	0.79	−0.20	0.04
0.5	−0.87	1.49	−0.32	0.24
1	−1.93	2.53	−0.55	0.49
2	−4.10	4.70	−1.05	0.99
	Women in working age, % of total working-age population		**Age dependency ratio, % of working-age population**	
M	**Lower bound**	**Upper bound**	**Lower bound**	**Upper bound**
Original	−2.66	−1.46	−3.37	8.90
0	−2.66	−1.47	−3.31	8.84
0.5	−3.19	−0.97	−4.93	12.83
1	−3.84	−0.34	−7.22	17.03
2	−5.26	1.05	−14.59	26.28

Notes: City-counties are treated, county seats are controls. Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds reflect identification under deviations from parallel trends of magnitude M.

Public Goods

Table 31: "Honest DiD": All comparisons.

	Impact of losing capital status conditional on becoming a city-county				Impact of losing capital status and becoming a city-county			
M	Education index (std. score)		Transport index (std. score)		Education index (std. score)		Transport index (std. score)	
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Original	−0.92	0.19	−2.24	0.14	−1.08	−0.26	−0.99	0.43
0	−0.92	0.19	−2.23	0.13	−1.08	−0.26	−0.98	0.43
0.5	−2.68	1.91	−4.60	2.06	−1.58	0.41	−2.91	2.20
1	−4.79	4.00	−7.52	4.89	−2.42	1.28	−5.29	4.58
2	−9.10	8.32	−13.46	10.83	−4.20	3.06	−10.15	9.43
	Impact of becoming a city-county							
M	Education index (std. score)		Transport index (std. score)					
	Lower	Upper	Lower	Upper				
Original	−0.81	0.20	−0.39	1.93				
0	−0.81	0.20	−0.38	1.92				
0.5	−2.25	1.71	−1.19	3.96				
1	−4.09	3.54	−3.37	6.30				
2	−7.82	7.27	−8.05	11.04				

Notes: Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds are presented for standardized education and transport indices under three different municipal status change scenarios.

Table 32: "Honest DiD": Impact of losing capital status on local public goods

M	Impact of losing capital status conditional on becoming a city-county				Impact of losing capital status and becoming a city-county			
	Education index (std. score)		Transport index (std. score)		Education index (std. score)		Transport index (std. score)	
	Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper
Original	−0.92	0.19	−2.24	0.14	−1.08	−0.26	−0.99	0.43
0	−0.92	0.19	−2.23	0.13	−1.08	−0.26	−0.98	0.43
0.5	−2.68	1.91	−4.60	2.06	−1.58	0.41	−2.91	2.20
1	−4.79	4.00	−7.52	4.89	−2.42	1.28	−5.29	4.58
2	−9.10	8.32	−13.46	10.83	−4.20	3.06	−10.15	9.43

Notes: Honest DiD bounds are reported for sensitivity parameter M; "Original" denotes the baseline specification. Bounds are presented for standardized education and transport indices under two different municipal status change scenarios.

F Net migration in neighbouring towns and villages

The analysed period (late 1990s and early 2000s) was a time of growing suburbanization. This might be due to the growing wealth of the middle class or congestion in cities. Figure 24 presents the event study for villages within a 20km radius from ex-capitals (treated) and from city-counties (control).

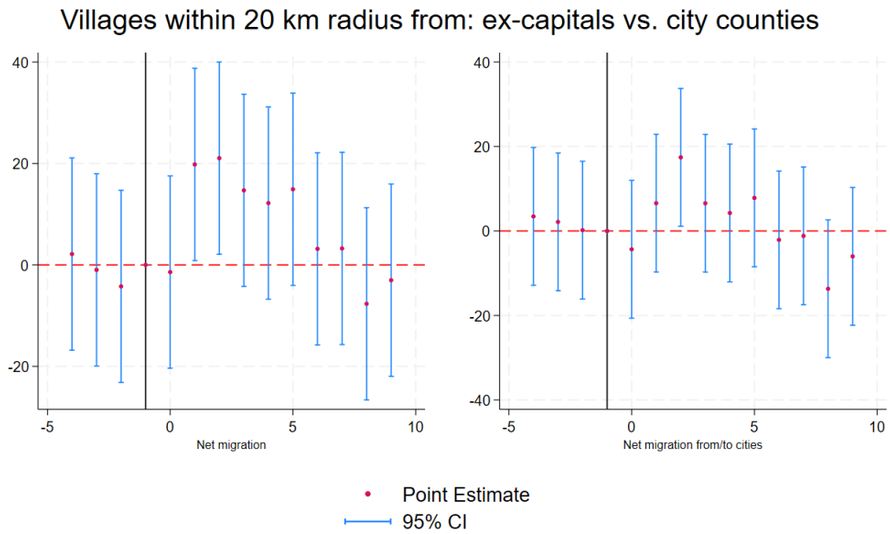


Figure 24: Event study: migration

While the net migration to villages close to the ex-capital was positive in the second and third year as compared to city-counties, the confidence intervals are as large as close to zero and 40. Also, only in the third year following the treatment, the net migration from cities becomes positive.

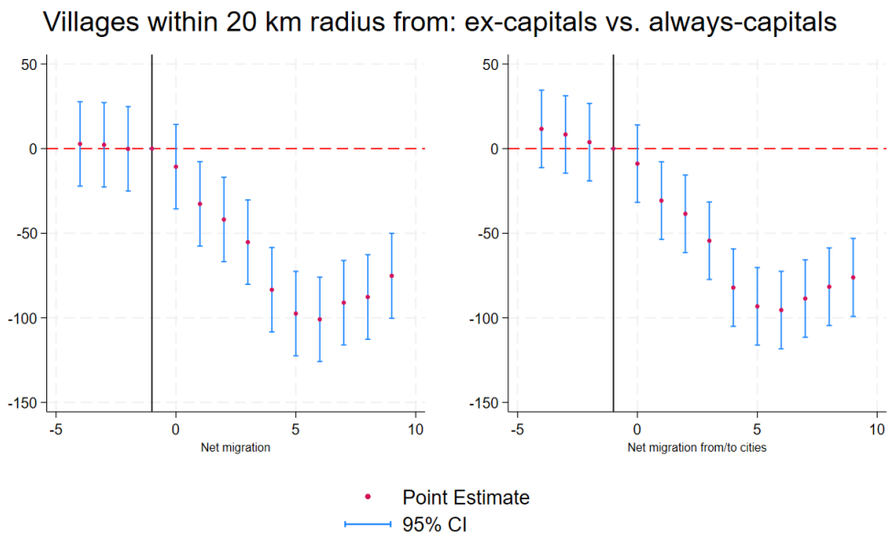


Figure 25: Event study: migration

On the other hand, if we compare villages close to ex-capitals (treated) with those from always-capitals (control), we can see that the latter have experienced a much pronounced suburbanization process, as also net migration from/to cities mirrors the overall migration balance (Figure 25).