## SUPPLEMENTARY MATERIAL

## IMPERIAL RULE, THE IMPOSITION OF BUREAUCRATIC INSTITUTIONS, AND THEIR LONG-TERM LEGACIES

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## A Supplementary Material

This supplementary material includes additional empirical evidence and further discussions of claims that were made in the article "Imperial Rule, the Imposition of Bureaucratic Institutions, and Their Long-Term Legacies" (World Politics, Vol. 71, No. 4, October 2019). In subsection A.1, I analyze data on pretreatment characteristics of towns in the three partitions. In subsection A.2, I present a list of the tasks of Polish communes. In subsection A.3, I examine the chosen dependent variables and provide further support for the operationalization. In subsection A.4, I discuss how the measurement of efficiency is related to the historical literature on state building. In subsection A.5, I present the results of my expert interviews. In subsection A.6, I discuss two alternative mechanisms of transmission and why they can be ruled out in the case of Poland. In subsection A.7, I present comprehensive background information on the expert interviews. In subsection A.8, I present details of the electronic survey, including the questions that were used to construct the dependent variables. In subsection A.9, I show the results of simple dummy variable regressions when limiting the sample to the optimal bandwidth and using a minimal number of covariates. In subsection A.10, I apply the Holm-correction to the p-values obtained in the regressions of the previous section. In subsection A.11, I discuss the possibility of and provide evidence for multiple treatment effects of imperial rule. In subsection A.12, subsection A.13, and subsection A.14, I provide additional empirical analyses to complement the results presented in the main body of the article. Finally, in subsection A.15, subsection A.16, and subsection A.17, I provide three extensions of the empirical analyses. In the first extension (subsection A.15), I analyze data from a small subset of present-day provinces that are crossed by historical imperial boundaries. In the second extension (subsection A.16), I include controls for the political affiliation of mayors and regional GDP. In the third extension (subsection A.17), I introduce weights for distance to the historical border, giving greater weight to observations close to the imperial boundaries.

#### A.1Pretreatment Characteristic Comparison

In the historical background section of the article, I provide both evaluations by historians and references to multiple publications that support the claim of quasi-randomness of the imperial borders. Additionally, I use data by Becker et al. (2016) on medieval city size, access to medieval trade routes, and presence of a medieval diocesan town to compare pretreatment (meaning "prepartitioning") characteristics of towns in the Prussian, Austrian, and Russian partition to towns in the other two partitions, respectively. The purpose of this comparison is to address arguments that historically deeply rooted pretreatment characteristics could have differed so significantly that they might be responsible for the observed long-term variation.<sup>1</sup>

While the data by Becker et al. (2016) cover a large number of towns across most of South-Eastern Europe, I have used a subset of towns in present-day Poland. The results indicate that there were some differences, but they were either small, not statistically significant, or both. In all of the comparisons below, I fail to reject the null hypothesis at  $\alpha = 0.1$ . For more details, see Table 1, Table 2, Table 3 below.

ole 1: I	Pretreatment Characteristic C	ompai	rison:	Prussian and N	on-Prussi	an Tow
	Variable	x	ÿ	Test Statistic	p-value	
	Medieval City Size	7.08	3.90	t = 0.69	0.53	1
	Access to Medieval Trade Route	0.11	0.31	z = -1.53	0.13	1
	Medieval Diocesan Town	0.11	0.16	z = -0.40	0.68	1

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Table 2: Pretreatment Characteristic Comparison: Austrian and Non-Austrian Towns

Variable	Ā	$\bar{\mathbf{y}}$	Test Statistic	p-value
Medieval City Size	4.67	5.64	t = -0.24	0.82
Access to Medieval Trade Route	0.33	0.18	z = 0.85	0.40
Medieval Diocesan Town	0.22	0.11	z = 0.73	0.47

Table 3: Pretreatment Characteristic Comparison: Russian and Non-Russian Towns

Variable	x	$\bar{\mathbf{y}}$	Test Statistic	p-value
Medieval City Size	2.75	6.05	t = -1.22	0.26
Access to Medieval Trade Route	0.30	0.19	z = 0.67	0.50
Medieval Diocesan Town	0.10	0.15	z = -0.40	0.69

<sup>&</sup>lt;sup>1</sup>See Arias and Girod (2014) and Hariri (2012) for in-depth studies on the issue of precolonial influences.

## A.2 Organizational Tasks of Polish Communes

In the historical background section of the article, I describe that Polish communes have the same legally required tasks across Poland. A Polish law from the year 1990 (Dz.U. 1990 nr 16 poz. 95) specifies these objectives. In articles 7 and 8 it prescribes that the fundamental tasks of Polish communes include ensuring, maintaining, and operating the following:<sup>2</sup>

(1) Spatial order, real estate management, environmental protection, conservation of nature, and water management; (2) municipal roads, streets, bridges, squares and traffic systems; (3) waterworks and water supply, sewers, waste disposal, water purification, maintenance of cleanliness and order, sanitary facilities, dumping grounds and the disposal of municipal waste, electricity and thermal gas supply; activities in telecommunications; (4) local public transport; (5) health care; (6) social assistance, care homes; family support and foster care systems; (7) communal housing construction; (8) public education; (9) cultural facilities, including municipal libraries and other cultural institutions, protection of and care for monuments; (10) sport and tourist facilities, including recreational areas and equipment; (11) outdoor and indoor marketplaces; (12) green spaces; (13) communal cemeteries; (14) public order and citizens' safety, protection from fire and floods, including the equipment and maintenance of the municipal flood protection warehouse; (15) maintenance of municipal facilities, utilities, and administrative buildings; (16) pro-family policies, including support for pregnant women, medical and legal care; (17) support and dissemination of the idea of self-government, including the creation of conditions for the operation and development of supporting units and the implementation of programs stimulating civic participation; (18) promotion of the municipality; (19) cooperation with and activities for non-governmental organizations and entities mentioned in art. 3, paragraph 3 in the Act of April 24th, 2003 regarding public benefit activities and volunteering; (20) cooperation with local and regional

 $<sup>^{2}</sup>$ Note that I include a large number of covariates that could account for potential differential use of those services. Also note that Polish communes may choose to provide additional services (optional tasks) to their constituents. However, these optional tasks are unlikely to vary systematically with the historical imperial borders which I (and other scholars) found to be quasi-random.

communities in other countries; (21) (art. 8) tasks commissioned by the central government.

#### A.3 Further Examination of the Chosen Dependent Variables

In the historical background section of the article, I theoretically discuss the operationalization of efficiency and meritocracy. The work of a large number of scholars supports my choices of the dependent variables. But an additional empirical justification would be desirable. Thus, in this section, I provide further empirical evidence in favor of my operationalization.

I use the relative number of applicants as a proxy for meritocracy. If the number of applicants is a good proxy for the meritocracy of recruitment, it could theoretically be correlated with bureaucratic performance (cf. Calvo and Murillo, 2004). Indeed, as Table 4 shows, meritocracy in recruitment, as measured by the number of applicants per job opening, is a key determinant of bureaucratic efficiency in two ways. First, controlling for a large number of other variables that could have an impact on efficiency, there is a significant effect on the average processing time of vehicle registration certificates. I also account for the absolute number of vehicle certificate requests a commune receives and for the distance to Warsaw, as the certificates are produced in the capital and sent to the communes.

Note that only county-level communes are responsible for processing vehicle certificate requests. Therefore, the number of observations is substantially lower here (26). Considering that only county-level communes work on this task, there is no need to control for commune type. Unfortunately, I do not have comparable data for regular communes, and this is why I cannot use this measure in the geographic RDD framework.

Second, communes with a higher level of meritocracy, as measured in terms of applicants per job, also have significantly fewer employees relative to their population size, indicating a higher level of efficiency. These results hold when controlling for a variety of factors that could have an impact on the size of an administration, such as a commune's tax revenues and county status among others. They are broadly in line with arguments by Calvo and Murillo (2004). Overall, these results strengthen the perspective that the chosen measure is a good proxy for the theoretical concept.

		Dependent variable:					
	Process.	Time (Log)	Empl./P	op. (Log)			
	(1)	(2)	(3)	(4)			
App./job (log)	-0.180	$-0.434^{**}$	$-0.065^{***}$	$-0.045^{***}$			
	(0.116)	(0.204)	(0.017)	(0.016)			
No. veh. req. (log)		0.315					
		(0.206)					
Dist. to Warsaw		0.00000					
		(0.00000)					
Revenue (log)		-0.365		$0.515^{***}$			
		(0.844)		(0.058)			
Pop. dens. (log)		-0.022		$-0.106^{***}$			
1 ( 0)		(0.153)		(0.019)			
Avg. migr.		0.054		-0.0002			
0 0		(0.043)		(0.002)			
Unempl. average		0.041		-0.001			
r		(0.029)		(0.002)			
County-level city		(0.010)		-0.105			
e o unity to tot only				(0.065)			
Rural commune				$-0.241^{***}$			
				(0.062)			
Urban-rural commune				$-0.319^{***}$			
				(0.056)			
Constant	3.166***	3.194	1.482***	$-1.961^{***}$			
	(0.304)	(6.370)	(0.028)	(0.508)			
Observations	26	26	557	551			
R <sup>2</sup>	0.092	0.287	0.026	0.272			
Adjusted $B^2$	0.052 0.054	0.010	0.020	0.212 0.262			
	0.004	0.010	0.024	0.202			
Note: OLS	*p<0.1; **p<0.05; ***p<0.01						

Table 4: Meritocracy and Efficiency

Moreover, in Table 5, I show that that communes with more employees—meaning a greater financial burden—do not compensate for their size with improved performance (at either processing vehicle registration certificates or responding to my survey). In fact, taking a large number of other factors into account, I find that communes with a larger relative number of employees needed more—not less—time to respond to my survey. This supports the notion that having more employees is not systematically associated with superior performance at providing services. The results strengthen the argument for using the relative

number of employees as a key dependent variable for efficiency.

		Dependent variable:					
	Process.	Time (Log)	Response	Time (Log)			
	(1)	(2)	(3)	(4)			
Empl./pop. (log)	0.082	0.387	0.039	0.438***			
	(0.430)	(0.547)	(0.120)	(0.152)			
No. veh. req. (log)		0.065					
		(0.180)					
Dist. to Warsaw		-0.00000					
		(0.00000)					
Revenue (log)		0.241		-0.219			
		(0.872)		(0.208)			
Pop. dens. (log)		-0.041		0.003			
- ( ),		(0.171)		(0.054)			
Avg. migr.		0.050		0.003			
		(0.048)		(0.008)			
Unempl. average		0.039		$0.017^{**}$			
		(0.033)		(0.008)			
Population (log)		· · · ·		0.300***			
- ( ),				(0.094)			
County-level city				-0.077			
• •				(0.257)			
Constant	$2.599^{***}$	-0.306	$2.230^{***}$	0.442			
	(0.596)	(6.932)	(0.171)	(1.798)			
Observations	26	26	661	655			
$\mathbb{R}^2$	0.002	0.132	0.0002	0.050			
Adjusted R <sup>2</sup>	-0.040	-0.205	-0.001	0.040			
Note: OLS		*p<0.	.1; **p<0.05	; ***p<0.01			

Table 5: Relative Employees and Speed

## A.4 The Number of Employees and State Capacity

In the historical literature on the development of the state, the number of public employees as a percentage of the population is often considered a possible indicator of the development of state capacity (Mann, 1993, Ch. 11, esp. 393).<sup>3</sup> The underlying assumption is that bureaucratic capacity expands with the number of state employees. Given the significant increases of (fiscal) state capacity many countries experienced in the nineteenth and twentieth centuries (Queralt, 2015), an expansion in the number of public employees also took place

<sup>&</sup>lt;sup>3</sup>One should be cautious when applying this measurement to socialist countries in which the vast majority of economic activity is under the control of the public sector.

(Mann, 1993, Ch. 11-12, esp. 393). If this is correct, it might cast doubt on using the relative number of employees as a measurement of bureaucratic efficiency.

However, a crucial qualification has to be made with respect to using the relative number of employees as a measurement for state capacity. This measurement is best for historical or intertemporal comparisons—when the expected outputs (or organizational tasks) of the state are expanding jointly with the size of the administrative apparatus. For example, in late-nineteenth-century Germany, the outputs of the state in terms of public goods and services and the size of the administration increased together, leading to a significantly higher proportion of employees working for the state apparatus (Wunder, 1986, 72-73).

Yet when we hold the organizational tasks of the administrative state constant, as is the case across Polish communes (see subsection A.2), the relative number of state employees is no longer an appropriate measure for state capacity. In the section above (subsection A.3), I demonstrated that more employees are not associated with the superior provision of services. Thus, a larger number of employees is primarily associated with an increased financial burden to the respective commune.

#### A.5 Expert Interviews

In the historical background section of the article, I discussed two theoretical mechanisms of intertemporal transmission. For both of those mechanisms, I already provided some empirical evidence, amongst others from existing studies (e.g., Becker et al., 2016; Grosfeld and Zhuravskaya, 2015). In addition to the evidence from previous studies, I conducted expert interviews, primarily with Polish scholars and employees of public administrations.

Here, I provide an overview of these expert interviews that took place in May 2017. Semistructured interviews (often with an exploratory component) were conducted in six different Polish cities (Warsaw, Gdańsk, Toruń, Poznań, Kraków, and Lublin) and one by email. The participants included 13 scholars and 3 employees of local public administrations (Warsaw and Gdańsk). Some more details, including a list of all interview partners and the question topics, are provided below.

The mechanisms outlined below cannot be seen as entirely independent from each other. On the contrary, they are likely related and mutually reinforcing. I discuss them separately for two reasons. First, each of them is related to another strand of the political economy literature. Second, these mechanisms were often discussed separately during the expert interviews. Accordingly, I present these three related mechanisms in distinct sections while acknowledging their interconnections.

#### A.5.1 Results of the Expert Interviews

(1) Endurance of Culture: According to several of the interviewed experts, in present-day Poland there are still some regional differences in culture. The attempts of germanization and russification by the German and Russian administrations had an impact on Polish culture in the respective partition. Culture in the western and southern parts of Poland is generally characterized by a higher degree of formality, anonymity, meritocracy, and adherence to written rules. These were values associated with the process of germanization as described in the historical background section. Accordingly, the Prussian bureaucracy was well known for conforming with the principles of the *Rechtsstaat* (Davies, 2005, 86).<sup>4</sup> The positive aspects of German culture were appreciated and imitated by the Poles (Davies, 2005, 90). Those traits also affect administrative culture, leading to greater efforts by public administrators to be efficient, transparent, and meritocratic, which is reflective of the historically stronger emphasis of these norms by the Prussian and Austrian public administrations.

Despite attempts by the Nazis and by the Communists to homogenize the country's culture, the remarkable differences produced by 123 years of foreign rule have a (small) influence on regional culture until the present day.

The assertion of long-lasting cultural differences between the partitions related to past imperial rule is in accordance with Hryniewicz (1996) and Grosfeld and Zhuravskaya (2015).

 $<sup>{}^{4}\</sup>mathrm{The \ term}\ Rechtsstaat$  is often understood as combining the principles of the rule of law with justness of the law.

The latter find evidence in favor of a lasting imperial impact on specific values, such as democratic capital. However, it is noteworthy that some experts also expressed skepticism about this mechanism.

(2) Attitudes towards the Bureaucracy: Given the very different levels of efficiency and performance of the three empires' public administrations, historically-formed views of bureaucracies that were transmitted across multiple generations could potentially still shape the views of the Polish public on the administration (Majcherkiewicz, 2008, 140). In particular, Russia was seen as a "backward, uncivilized regime," while many Poles recognized "the efficiency of German political and economic institutions" (Grosfeld and Zhuravskaya, 2015, 60).<sup>5</sup> The forceful attempts of russification and high levels of corruption in the Russian bureaucracy alienated the Poles and were rejected by them (Davies, 2005, 74-75, 78-81). Attitudes towards the public administration in Galicia were generally positive due to its high level of autonomy. Some of the interviewed experts agreed that historically-formed views of public administration could still play a role, while others disagreed.

More positive attitudes towards the public administration in the formerly Prussian and Austrian parts may have led to the self-selection of more qualified candidates into applying for bureaucratic positions and thus continuously reinforced a higher level of bureaucratic efficiency and performance (Dahlström, Lapuente and Teorell, 2012; Evans and Rauch, 1999).

The claim that attitudes towards public institutions could still differ across imperial borders is supported by Becker et al. (2016) whose overall results suggest that perceptions of public institutions, specifically courts and the police in the present day, may still be shaped by historical foreign rule—in this particular case of the Habsburg Empire. However, as stated above, several experts expressed doubt about this mechanism of transmission.

(3) Social Structures: As a number of experts confirmed during the interviews, social structures differ between Poland's east and west. According to the political economy literature, such differences in social structures could affect labor market outcomes, including

<sup>&</sup>lt;sup>5</sup>See also Majcherkiewicz (2008, 142) and Borodziej (2010, 26-28).

recruitment into private and public organizations (cf. Granovetter, 2005; Montgomery, 1991; Putnam, Leonardi and Nanetti, 1994). The repressive historical rule through Russia, including the most forceful suppression of Polish culture, the subordination of Polish citizens to the bureaucracy, and the widespread corruption and abuse of power by Russian authorities meant that, historically, the people in Poland's east could not rely on written rules or protection by a *Rechtsstaat* (Davies, 2005, 65-68, 70-74).<sup>6</sup> This led to (1) greater emphasis on informal, personal relationships within smaller communities (narrower social networks) and (2) greater distrust of outsiders. On the other hand, much greater adherence to formal rules by the administrations in the Prussian and Austrian parts had the opposite effect. Even though differences in social structures have become somewhat less pronounced over time, they still exist in present-day Poland.

This has important implications for public recruitment. In the east, recruitment outcomes could be more strongly influenced by friendship, acquaintance, and relatedness than in the west. According to the experts, there are ways to circumvent formal procedures and put preferred candidates at an advantage. Narrow social networks and an emphasis on personal connections can affect the number of public employees because favoritism in the distribution of positions could lead to bloated administrations.

However, as one of the experts also pointed out, patronage recruitment in local public administration is a problem that can be observed all across the country. The differences between the regions might therefore be *differences of degree* rather than categorical ones.

#### A.5.2 Summary of the Expert Interviews

Several mechanisms can potentially account for the observed differences. In particular, (1) the endurance of culture, (2) attitudes towards the public administration, and (3) social

<sup>&</sup>lt;sup>6</sup>For example, Davies (2005, 73) describes the system of imprisonment and prosecution: "Suspects had fewer known rights than condemned men. Deportation to Siberia could be ensured simply by withdrawing the victim's permission to continue at his place of residence. It was frequently applied to persons who could not be charged with a criminal offence, but whose temporary absence was desirable for official reasons. Surveillance and harassment could not be objected to, since every loyal citizen's duty was to co-operate with the authorities."

structures differed historically and might still differ in present-day Poland as a long-term result of historical imperial rule. However, considering the different views held by the experts, no single mechanism can be definitively confirmed or entirely ruled out. Identifying the most important mechanism is a possible avenue for future research in this area. Finally, in the section below, I discuss and rule out two more mechanisms.

#### A.6 Alternative Mechanisms of Transmission

**Persistence of Formal/Legal Institutions:** The persistence of formal institutions governing the public administration can be observed in many countries. Even though, for some time, the Second Polish Republic (1918-1939) was characterized by the parallel existence of multiple legal systems on its territory that were remainders of imperial rule (which can be seen as an extension of the treatment effect into the 1920s, as elaborated in the article's section on intertemporal transmission mechanisms), attempts to homogenize the legal framework were ultimately successful and the old laws were successively replaced by new Polish ones (Tarnowska, 2012; Tarnowska, 2013). For example, in 1922 a law was passed which provided "for the comprehensive regulation of the legal and social status of civil servants in the Second Republic of Poland" (Itrich-Drabarek, 2015, 37). More importantly, in presentday Poland there is complete homogeneity of formal and legal institutions with respect to public administration. As two experts confirmed during the interviews, the legal culture of Poland, too, is no longer distinguishable across different regions.

Continuity in Administrative Personnel: During the period of division and especially in the second half of the nineteenth century, the local administrations in the Russian and Prussian parts of Poland were dominated by nationals of the ruling powers. While some administrators remained in their positions (as elaborated in the article's section on intertemporal transmission mechanisms), after the founding of the Second Polish Republic, new administrators had to be recruited in addition to the remaining personnel (Roszkowski, 1992, 158, 174).<sup>7</sup> This means that there initially was some persistence in personnel. However, due to significant shifts in administrative personnel at multiple other points in history (including during communist rule after World War II), continuity in personnel is not a credible mechanism of persistence beyond the period of interwar Poland. This view was confirmed by multiple experts.

To summarize, while formal institutions might have prolonged the influence of the empires in the Second Polish Republic (1918-1939) (extending the quasi-experimental 'treatment' effect of distinct administrative systems), differences in formal institutions are nearly non-existent in the present day. Therefore, formal institutions can no longer explain systematic regional differences. Furthermore, despite some initial continuity in personnel, major disruptions in terms of personnel that first the Nazis and later the Soviets brought to the public administration mean that continuity in personnel can also be ruled out as a factor of *long-term* persistence (beyond the period of interwar Poland).

### A.7 Additional Information on the Expert Interviews

Expert interviews were conducted in May 2017 in six Polish cities: Warsaw, Gdańsk, Toruń, Poznań, Kraków, and Lublin. Additionally, one interview was conducted by email. Those semistructured interviews focused on administrative culture, recruitment into the local public administration, and the history of the public administration. In total, 13 scholars and 3 employees of local public administrations participated in them. The three key goals of the intervies were to (1) confirm the historical differences between the Prussian, Austrian, and Russian bureaucracies, (2) assess if regional differences still exist in the present day, and (3) identify the most likely mechanisms of intertemporal transmission. The results of the interviews were discussed in subsection A.5.

<sup>&</sup>lt;sup>7</sup>According to Borodziej (2010, 28), in the Russian parts of Poland, 57 percent of the employees of the public administration had been Catholic (of which the vast majority were Polish people).

#### A.7.1 List of Interview Partners:

- 1. Professor Hubert Izdebski (Warsaw)
- 2. Professor Jolanta Itrich-Drabarek (Warsaw)
- 3. Professor Adam Bosiacki (Warsaw)
- 4. Dr. Dawid Sześciło (Warsaw)
- 5. Michał Staniszewski (City Administration of Warsaw)
- 6. Two employees of the Gdańsk city administration (Gdańsk)
- 7. Dr. Anna Tarnowska (Toruń)
- 8. Dr. Marek Krzymkowski (Poznań)
- 9. Professor Stanisław Mazur (Kraków)
- 10. Professor Dorota Malec (Kraków)
- 11. Professor Andrzej Dziadzio (Kraków, by email)
- 12. Dr. Marcin Zawicki (Kraków)
- 13. Dr. Krzysztof Głuc (Kraków)
- 14. Professor Grzegorz Smyk (Lublin)
- 15. Professor Marek Pietraś (Lublin)

#### A.7.2 Expert Interviews: Topics

Depending on their primary field of expertise, the interviewees were asked questions from three areas of interest: (1) administrative culture, (2) recruitment into the local public administration, and (3) the history of the public administration. As the interviews were semistructured, the three topic areas were rough guidelines, but there was significant space for deviating from the original questions and asking more specific ones depending on both the given answers and the exact field of expertise of the respective interviewee. Following the first few interviews and based on the responses obtained through them, more detailed questions on intertemporal mechanisms of transmission were added in later interviews. Thus, the interview process had a significant exploratory component.

## A.7.3 Expert Interviews: Question Catalogue

#### **Topic 1: Administrative Culture**

- 1. Let us talk about the values and the culture of the local public administration.
- 2. How important is it for the public administration to be responsive to the needs of citizens?
- 3. Which measures are taken to ensure that requests by citizens are responded to comprehensively and in a professional manner? Such measures can include job training, seminars, or regulations put in place at the local administration.
- 4. How important is it for the public administration to ensure quick response times?
- 5. Which measures are taken to ensure that requests by citizens are responded to quickly?
- 6. How important is accountability to members of the local public administration? Who are members of the local public administration accountable to? Their superiors (career bureaucrats)? The law? Citizens? The political leadership of the commune?
- 7. Let me give you an academic definition of administrative culture. By administrative culture, we refer to "shared values and persistent patterns of interaction", i.e. goals, standards, patterns of behavior that are characteristics of the local public administration.
- 8. What are the main characteristics of the administrative culture in the local public administration?
- 9. Let me name a few administrative norms and values: (1) accountability (adherence to rules and regulations), (2) efficiency and speed, (3) loyalty to superiors (leading career bureaucrats), (4) political impartiality, (5) responsiveness to the needs of citizens. When it comes to values, which values are most important to the employees of this public administration? Which of those values are most important to the political leadership and why?
- 10. If there are any differences in the values that are important to the political leadership and the citizens, where do these differences come from?
- 11. Has the administrative culture changed much over the last 20 years? Have any reforms occurred that might have had an impact on the administrative culture?
- 12. If no, what contributes to the persistence of administrative culture?
- 13. If yes, what are the most important changes in the administrative culture?
- 14. Are employees of the local public administration generally satisfied with the administrative culture? Why or why not?

- 15. What do you think is the perception that local citizens have of the administration?
- 16. Do local citizens view the public administration as efficient or inefficient? Do they have positive or negative views of it?
- 17. Are there regional differences in terms of how the public administration is perceived? Do people in the west of Poland have views that differ from the views of people in the east or the south of the country?
- 18. If there is regional variation, do you have any explanation for why we observe these differences across different parts of Poland?
- 19. Are there any additional important aspects of administrative culture that we have not yet talked about? If yes, what are they and why are they important?

## Topic 2: Recruitment into the Local Public Administration

- 1. Let us talk about recruitment procedures in the local public administration.
- 2. How does the recruitment process look like in general? How are positions advertised? How are candidates chosen for tests and/or interviews? How are the tests and/or interviews conducted?
- 3. How many people are involved in the recruitment process of a single applicant? Who makes the final decision regarding who is hired?
- 4. How much emphasis do recruiters of the public administration put on experience in comparable jobs when it comes to recruitment?
- 5. How much emphasis do recruiters of the public administration put on academic or educational qualifications when it comes to recruitment?
- 6. How much emphasis do recruiters of the public administration put on tests or interviews that the candidates have to participate in?
- 7. Do people sometimes have a chance to be hired without the perfect educational background or related job experience? If yes, which factors might help them in terms of being hired?
- 8. How openly are job positions advertised? How many different channels of advertisement are used?
- 9. Which methods are used to ensure that the hiring process is fair and transparent?
- 10. Have there been any situations in the past where the fairness or transparency of the hiring process was called into question? If yes, which measures were taken to address this?

- 11. Which impact does the view that people have of the administration have on applicant numbers?
- 12. How attractive is the public administration to people as a working place? How does this affect the numbers of applicants?
- 13. Is the public administration aware of the importance of public attitudes toward local public administration for recruitment?
- 14. Have the attitudes towards the bureaucracy (that citizens and applicants have) changed in any way over the last 10, 20, or more years?
- 15. Are there any additional important aspects of the recruitment process that we have not yet talked about? If yes, what are they and why are they important?

### Topic 3: The History of the Public Administration

- 1. Let us talk about the history of the public administration.
- 2. Have there been any major reforms of the public administration since 1990 (including the break from socialism)? If yes, what was their goal? Were they effective at reaching that goal?
- 3. How did administrative reforms affect the central administration of the state?
- 4. How did administrative reforms affect the local public administration?
- 5. I would like to go ask about previous historical periods. Several scholars and historians argue that the period 1795 to 1918 was important for the views of the Polish public on the state and the public administration. In what ways has this period shaped the view of the Polish people on the state and on the public administration?
- 6. What are the long-term consequences of these historical experiences on the public view of the local bureaucracy?
- 7. What were the key differences between the public administrations of the powers that ruled Poland in the time period 1795 to 1918? How did this influence the parts that were under their control?
- 8. How has the unification of Poland in 1918 and the end of foreign rule changed the local public administration? How successful was the reform/reorganization of the public administration at the beginning of the Polish Second Republic? Which things did change and which things did not?
- 9. Were there any legacies from the period of foreign rule that persisted after 1918? If yes, what were they and how did this affect the new public administration?

- 10. How did the rule of the Nazis from 1939 to 1945 affect the public administration of Poland? Which aspects of Polish public administration survived this period, which aspects were lost?
- 11. How was the public administration organized during the period of socialism? How did the socialist rule affect the public administration? Which things were different back then and which things very similar? Which reforms occurred during the period of socialism?
- 12. What would you say how much history matters for the current state of the public administration? Have historical developments shaped the present-day public administration?
- 13. In places where the public administration is perceived as more efficient or prestigious, are people more likely to apply for jobs in it?
- 14. Are there any additional important aspects of the history of the public administration (both on the central and local level) that we have not yet talked about? If yes, what are they and why are they important?

## A.8 Additional Information on the Survey

In the article's section on the empirical test, I have already discussed some aspects of the survey, including its goals, distribution, and response rates. In this section of the supplementary material, I provide additional information on the survey.

#### A.8.1 Collection of the Email Addresses

The email addresses were extracted from a Polish government database that includes the contact information of all public offices in Poland, including those at the national, regional, and local level (Biuletyn Informacji Publicznej, 2016). Thus, the email addresses represent the public contact information of the respective local public administrations.

#### A.8.2 Introduction Email

The following email was sent to the local public administrations in Polish. Since the request was based on a very specific Polish law regarding public inquiries of administrative information, it was then typically forwarded internally to the person/s responsible for answering such public inquiries. In addition to the survey response itself, I have received a large number of acknowledgments from public administrations that they had received my questionnaire and were treating it as an official inquiry. In total, (with the help of a translator) I have corresponded with more than 150 officials from local public administrations. Furthermore, during the qualitative data collection efforts in Poland, I conducted interviews with employees who were responsible for responding to my survey. Accordingly, I have comprehensive information on the process and the data represent official information from the respective local administration.

#### "Dear Sir or Madam,

I am a researcher at Duke University (Durham, North Carolina, United States of America) and I conduct a research project on the "Political Economy of Public Bureaucracy". As a part of the project, I would like to request information concerning public administration on the range of subjects that are mentioned in the email below (based on the law on the access to public information [INSERT HERE: Polish reference to the law, included in the email literally: art.2 ust.1) z dnia 6 września 2001 r. /Dz. U. Nr 112, poz.1198, z późn.zm./]).

In addition to some general information about your local public administration (such as contact details, type of the commune, population size), I would like to request more specific information about job openings and applicants, vehicle certification requests, and the issuance of warehouse construction permits amongst others. To see the exact questions, please open the survey using the link below. Please note that the survey can be completed in multiple stages — your answers will be saved automatically and you can just close the survey at any time and return later to complete it.

This information will be used for a research project on the "Political Economy of Public Bureaucracy". The information you provide may be made available to the public. We ask you to provide an email address if there are any follow-up questions and you may provide a personal email address here (if you wish to do so). Please note that, if the data will be published in the future, there will be no email addresses included, so this piece of information will not be made available to the public. The following link provides some additional information on the research project:

#### [LINK TO THE INFORMATION SHEET]

If you have any questions on the research project or the survey, please contact Jan Vogler (jan.vogler@duke.edu). If possible, please use English when you contact him.

If you have any questions related to your participation in this survey, please contact Duke University's

institutional review board (campusirb@duke.edu, +1-919-684-3030).

Below you will find a link that allows you to submit your replies via an electronic form. Please use this electronic form to view the questions and to submit your answers. (If it is impossible for you to provide the answers via the electronic form, please send them by email. However, it would be strongly preferable if you can use the survey to provide the answers.) Many questions give you a choice to provide either the exact number or an approximation as your answer. Whenever you provide an approximation, please also indicate the range within which you think the true number is. The survey will ask you to give the lowest value of this range and the highest value of this range. This information helps us to understand the degree of uncertainty about the estimate.

For participating in the survey, please do not reply directly to this email, but submit your reply through the following link:

[LINK TO THE SURVEY]

Your participation will be very important for the success of the research project. Thank you very much in advance.

Best regards,

Jan Vogler

(Duke University, Durham, North Carolina, USA)"

#### A.8.3 Questions Used to Construct the Dependent Variables

The following survey questions were used to construct the dependent variables:

#### 1. Employees per 1,000 Inhabitants:

Question A: "What is the number of residents of your commune ('gmina') from the last known population count? Please only use numbers, no other symbols."

*Question B:* "How many employees ('urzednik') does your local public administration have in total? Please provide the exact number if you can. If you cannot provide the exact number, please provide an approximation."

#### 2. Applicants per Job:

*Question A:* "In the years 2014 and 2015, how many job openings at the level of the clerk ('urzednik') did your local public administration have? Please provide the exact number if

you can. If you cannot provide the exact number, please provide an approximation."

*Question B:* "How many applicants did your local public administration receive for these job openings at the level of the clerk ('urzednik') in the years 2014 and 2015? Please provide the exact number if you can. If you cannot provide the exact number, please provide an approximation."

#### 3. Channels of Advertisement:

*Question:* "In which form were the job openings at the level of the clerk ('urzednik') in the years 2014 and 2015 advertised? Multiple answers are possible. Please check all that apply."

(1) On the website of the local public administration; (2) On other websites; (3) Postings in local public administration buildings; (4) Postings in local stores; (5) Postings in other public locations; (6) Advertisements in local newspapers; (7) Advertisements in national newspapers; (8) Through private agencies for job searching; (9) Through public agencies for job searching; (10) Other/additional means of advertising; (11) They were not openly advertised.

# A.9 Additional Analysis: Simple Dummy Variables (at Optimal Bandwidths)

In addition to the analyses based on simple dummy variables that covered all three partitions simultaneously, I provide an additional set of analyses here that differ in three crucial ways. First, all of these analyses are direct comparisons of legacies, including Prussia-Russia, Austria-Russia, and finally Prussia-Austria. Second, in each case, the sample was restricted to the optimal bandwidth as obtained in the article's empirical section sections through Imbens and Kalyanaraman (2012). Third, in addition to a control variable for interwar Germany, the only covariate that I include is for cities that have the status of a county (*powiat*), since they have a different set of organizational tasks (or expected outputs) and need to be compared within their own category.

The results reveal some interesting patterns. First, in direct comparison with communes on the formerly Prussian territories, communes on the formerly Russian territories underperform in several dimensions. They have approximately 10 percent more employees per capita and 26 percent fewer applicants per job. Both of these results are statistically significant at  $\alpha < 0.01$ . Additionally, there is a negative effect on the number of advertisement channels, but this effect is not significant at  $\alpha < 0.05$ —it is only significant at  $\alpha < 0.1$ .

Similar results with respect to the number of employees are obtained in the comparison between Austria and Russia. The Russian communes have approximately 26 percent more employees per 1,000 inhabitants. This result is significant at  $\alpha < 0.01$ . However, results in terms of applicants per job are not significant. While we again observe a negative effect on advertisement, this effect is significant only at  $\alpha < 0.1$ .

Finally, in the third set of comparisons (Prussia-Austria), we see significant results in the number of employees per capita. Communes on the formerly Austrian territory have approximately 14 percent fewer employees (significant at  $\alpha < 0.05$ ), which means that, in terms of efficiency, they outperform communes from the other two partitions. Regarding applicants per job, we see an unexpected positive effect (at  $\alpha < 0.1$ ) but also do not reach the conventional threshold of  $\alpha < 0.05$ . This effect disappears in more comprehensive regressions below. Finally, in terms of advertisement channels, I do not obtain results that are significant at any conventional level.

				Depe	endent variabl	<i>e:</i>			
	Empl./Pop.	App./Job	Advert.	Empl./Pop.	App./Job	Advert.	Empl./Pop.	App./Job	Advert.
	OLS	OLS	Quasi- Poisson	OLS	OLS	Quasi- Poisson	OLS	OLS	Quasi- Poisson
	Prussia	-Russia (Reg.	1-3)	Austria	-Russia (Reg.	4-6)	Prussia-	Austria (Reg.	. 7-9)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Russia	$0.093^{***}$ (0.036)	$-0.300^{***}$ (0.086)	$-0.080^{*}$ (0.043)	$0.235^{***}$ (0.052)	-0.021 (0.112)	$-0.101^{*}$ (0.060)			
Austria	( )	( )	( )		( )	( )	$-0.147^{**}$ (0.066)	$-0.278^{*}$ (0.149)	-0.044 (0.075)
Interwar Germany	0.054 (0.043)	$-0.189^{*}$ (0.098)	-0.011 (0.046)				0.047 (0.069)	$-0.266^{*}$ (0.152)	-0.016 (0.077)
County-level city	-0.099 (0.071)	$0.901^{***}$ (0.161)	$0.173^{**}$ (0.075)	0.075 (0.120)	$1.297^{***}$ (0.253)	$0.377^{***}$ (0.111)	0.104 (0.090)	$1.032^{***}$ (0.201)	$0.220^{**}$ (0.087)
Constant	$1.352^{***}$ (0.028)	$1.623^{***}$ (0.068)	$0.885^{***}$ (0.034)	$1.196^{***}$ (0.038)	$1.388^{***}$ (0.091)	$0.790^{***}$ (0.044)	$1.372^{***}$ (0.057)	$1.684^{***}$ (0.119)	$0.859^{***}$ (0.064)
Observations	404	390	447	142	210	166	161	192	177
$\mathbb{R}^2$	0.023	0.110		0.129	0.115		0.090	0.153	
Adjusted R <sup>2</sup>	0.016	0.103		0.116	0.106		0.073	0.140	

Table 6: Direct Comparisons (Simple Dummy Variables) (at Optimal Bandwidths)

Note: OLS, quasi-Poisson,

opt. BWs

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

These results provide further limited evidence that there are imperial legacies in the organization of public administrations. In particular, there seem to be differences in terms of the number of employees per capita and the number of applicants per job. The results with respect to advertisement channels are less significant. Results of regressions that include the entire population can be found in the results section of the article.

# A.10 Additional Analysis: Correcting p-Values for Multiple Comparisons

Since I test six different hypotheses and H1-H3 are tested on two different sets of observations (Prussia-Russia and Austria-Russia), I provide additional results of the above regressions that correct the p-values of the legacy dummies for the fact that it is easier to obtain significant results when conducting multiple comparisons (Holm, 1979).<sup>8</sup> Even when applying this conservative approach to correcting p-values, two key results remain highly statistically significant: The number of applicants per job is significantly lower in the former Russian partition when compared to the Prussian partition. Furthermore, the efficiency of formerly Austrian communes is significantly higher when compared to Russian communes. The significance of the same comparison (in terms of *employees/population*) between Prussia and Russia is reduced to a level of  $\alpha < 0.1$ . Importantly, the key result that is not statistically significant in this more conservative framework is the comparison between Prussia and Austria in terms of efficiency. Detailed results are in the table below (Table 7).

<sup>&</sup>lt;sup>8</sup>The corrected p-values are reflected by the number of stars (\*).

	Dependent variable:									
	Empl./Pop.	App./Job	Advert.	Empl./Pop.	App./Job	Advert.	Empl./Pop.	App./Job	Advert.	
	OLS	OLS	Quasi- Poisson	OLS	OLS	Quasi- Poisson	OLS	OLS	Quasi- Poisson	
	Prussia	-Russia (Reg.	1-3)	Austria	-Russia (Reg.	4-6)	Prussia-	Austria (Reg	. 7-9)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	
Russia	$0.093^{*}$ (0.036)	$-0.300^{***}$ (0.086)	-0.080 (0.043)	$0.235^{***}$ (0.052)	-0.021 (0.112)	-0.101 (0.060)				
Austria	()	()	()	()		(1 1 1 1)	-0.147 (0.066)	-0.278 (0.149)	-0.044 (0.075)	
Interwar Germany	$0.054 \\ (0.043)$	$-0.189^{*}$ (0.098)	-0.011 (0.046)				0.047 (0.069)	$-0.266^{*}$ (0.152)	-0.016 (0.077)	
County-level city	-0.099 (0.071)	$0.901^{***}$ (0.161)	$0.173^{**}$ (0.075)	0.075 (0.120)	$1.297^{***}$ (0.253)	$0.377^{***}$ (0.111)	0.104 (0.090)	$1.032^{***}$ (0.201)	$0.220^{**}$ (0.087)	
Constant	$1.352^{***}$ (0.028)	$1.623^{***}$ (0.068)	$0.885^{***}$ (0.034)	$1.196^{***}$ (0.038)	$1.388^{***}$ (0.091)	$0.790^{***}$ (0.044)	$1.372^{***}$ (0.057)	$1.684^{***}$ (0.119)	$0.859^{***}$ (0.064)	
Observations	404	390	447	142	210	166	161	192	177	
$R^2$ Adjusted $R^2$	$\begin{array}{c} 0.023\\ 0.016\end{array}$	$0.110 \\ 0.103$		$0.129 \\ 0.116$	$0.115 \\ 0.106$		$0.090 \\ 0.073$	$0.153 \\ 0.140$		

Table 7: Direct Comparisons (Simple Dummy Variables) (at Optimal Bandwidths) (Holm-Corrected p-Values)

Note: OLS, quasi-Poisson,

opt. BWs,

Holm-corrected p-values

(for legacy dummies)

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

### A.11 Additional Analysis: Imperial Legacies in Other Dimensions

In the article, my theoretical contribution focuses on institutions of the public administration, and I do not provide arguments for imperial legacies in terms of development levels, population structures, or economic performance. However, the inclusion of covariates can potentially lead to posttreatment bias as indicated in the article's main body.

Considering the possibility of posttreatment bias, an assessment of legacies in other fields than the institutions of the public administration would be desirable. Table 8 provides such an assessment.

While there are no statistically significant differences between the partitions in terms of *tax revenues per capita*, we do observe such differences in terms of *population density* and the *unemployment average*. Together with other studies of imperial legacies in Poland, these results highlight that there likely are multiple treatment effects of past imperial rule. This indicates that the inclusion of covariates could cause posttreatment bias. As a response to this possibility (and the possibility of spillover in the immediate vicinity of the imperial borders), I have conducted an analysis based on matched observations. It can be found in the main body of the article.

		Dependent variable:	
	Revenue (Log)	Pop. Density (Log)	Unempl. Average
	(1)	(2)	(3)
Austria	-0.029	0.313**	$1.166^{*}$
	(0.027)	(0.145)	(0.651)
Russia	0.008	$-0.299^{***}$	1.777***
	(0.021)	(0.114)	(0.508)
Interwar Germany	0.036	$-0.365^{***}$	3.794***
	(0.024)	(0.127)	(0.566)
County-level city	0.305***	2.748***	$-3.699^{***}$
	(0.038)	(0.201)	(0.902)
Constant	8.050***	4.648***	11.863***
	(0.018)	(0.095)	(0.426)
Observations	673	673	682
$\mathbb{R}^2$	0.096	0.256	0.089
Adjusted R <sup>2</sup>	0.090	0.252	0.084
Note: OLS		*p<0.1; *	*p<0.05; ***p<0.01

Table 8: Imperial Legacies in Other Fields

## A.12 Prussia-Russia Comparison: Additional Analyses

### A.12.1 Channels of Advertisement

In the article's empricial results section, I discuss samples comparing formerly Prussian to formerly Russian communes. Some results were omitted from this discussion and are displayed here. In this respect, Table 9 shows the results for *channels of advertisement* as the dependent variable (for the full sample).

		Dependent variable:						
		Advertise	ement Channels	1				
	Simple 1	Distance	Lat./	Long.				
	(1)	(2)	(3)	(4)				
Russia	-0.087	-0.071	-0.110	-0.060				
	(0.059)	(0.060)	(0.073)	(0.073)				
Interwar Germany	-0.006	0.017	-0.040	0.017				
v	(0.054)	(0.054)	(0.064)	(0.063)				
Revenue (log)	· · · · ·	0.014	× ,	-0.017				
( 0)		(0.087)		(0.089)				
Pop. dens. (log)		$0.044^{**}$		0.050**				
		(0.022)		(0.023)				
County-level city		-0.035		0.010				
		(0.103)		(0.104)				
Avg. migr.		0.001		0.001				
		(0.003)		(0.003)				
Unempl. average		-0.002		-0.006				
		(0.004)		(0.004)				
Academ. app.		-0.065		-0.084				
		(0.097)		(0.097)				
Population (log)		0.033		0.023				
		(0.038)		(0.039)				
Distance	0.0003	0.0002	-0.003	-0.002				
	(0.0004)	(0.0004)	(0.002)	(0.002)				
Dist. * Russia	-0.001	-0.0002	0.003	0.002				
	(0.001)	(0.001)	(0.002)	(0.002)				
Constant	$0.912^{***}$	0.355	-1,031.856	-750.492				
	(0.041)	(0.804)	(1,857.684)	(1, 816.288)				
Observations	495	465	495	465				

Table 9: Prussia-Russia Comparison: Full Sample (Channels of Advertisement)

Note: Quasi-Poisson

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

#### A.12.2 Density Tests at the Threshold

If there is systematic sorting at the threshold (such as self-selection into survey response), it would pose problems for my analysis. Thus, I have conducted multiple density tests based on McCrary (2008). These density tests allow me to identify if there are significant differences in density at the regression discontinuity. All of these density tests have failed to reject the null hypothesis that the density is continuous around the threshold (at levels of  $\alpha = 0.1$ ). Accordingly, I do not have evidence for sorting around the threshold.

Figure 1, Figure 2, and Figure 3 show the density around the threshold for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively.





Figure 2: Prussia-Russia Comparison: Density Test (Applicants per Job)



Figure 3: Prussia-Russia Comparison: Density Test (Channels of Advertisement)



#### A.12.3 Sensitivity Tests

The properties of the regressions and the samples I use may have an impact on the results. Thus, I conduct multiple sensitivity tests, based on OLS regression, including second-order polynomials, to investigate the sensitivity to different bandwidths and specifications. The results indicate that most relationships I observe do not change substantially across different specifications, even though I cannot always reject the null hypothesis at  $\alpha = 0.1$ .

Figure 4, Figure 5, and Figure 6 show to what extent the results of my border sample analyses are sensitive to the bandwidth and specification I choose (for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively). These graphs include 90% confidence intervals.



Figure 4: Prussia-Russia Comparison: Sensitivity Test (Employees per 1,000 Inhabitants)

Figure 5: Prussia-Russia Comparison: Sensitivity Test (Applicants per Job)



Figure 6: Prussia-Russia Comparison: Sensitivity Test (Channels of Advertisement)



#### A.12.4 Placebo Tests

It is possible that regression discontinuity designs discover random differences across the threshold and mistakenly attribute them to the treatment. For instance, if within-country variation at multiple artificial boundaries is high, the risks for wrongly identifying systematic differences increase. Therefore, in order to check if arbitrarily placed thresholds would yield similar results, I conduct a large number of placebo tests based on linear models.

Figure 7, Figure 8, and Figure 9 show the results of randomly assigning placebo thresholds (for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively). The graphs show that most randomly assigned borders do not generate significant results when running regressions there. Thus, the confidence in the results is strengthened.

Figure 7: Prussia-Russia Comparison: Placebo Test (Employees per 1,000 Inhabitants)



Figure 8: Prussia-Russia Comparison: Placebo Test (Applicants per Job)



Figure 9: Prussia-Russia Comparison: Placebo Test (Channels of Advertisement)



#### A.12.5 Further Graphs

Figure 10, Figure 11, and Figure 12 show quadratic regressions at the optimal bandwidth. As in the previous graphs shown in the main body of the article, communes that historically belonged to interwar Germany were removed as they have to be treated separately. The graphs based on quadratic regressions show results that are similar to the linear models. However, some of the observed confidence intervals display higher levels of overlap.





Figure 11: Prussia-Russia Comparison: Applicants per Job (Log)





Figure 12: Prussia-Russia Comparison: Channels of Advertisement

## A.13 Austria-Russia Comparison: Additional Analyses

## A.13.1 Channels of Advertisement

In the section on the empirical test (section 5), I discuss samples comparing formerly Austrian to formerly Russian communes. Some results were omitted from this discussion and are shown here. In this respect, Table 10 shows the results for *channels of advertisement* as the dependent variable (for the full sample).

	Dependent variable:							
		Advertisement Channels						
	Simple	Distance	Lat./L	long.				
	(1)	(2)	(3)	(4)				
Russia	$-0.169^{*}$	-0.071	$-0.211^{**}$	-0.062				
	(0.098)	(0.095)	(0.107)	(0.105)				
Revenue (log)		0.002		-0.004				
		(0.096)		(0.097)				
Pop. dens. (log)		0.076**		0.072**				
- ( )		(0.030)		(0.030)				
County-level city		0.146		0.138				
		(0.137)		(0.138)				
Avg. migr.		0.003		0.003				
		(0.004)		(0.004)				
Unempl. average		$-0.016^{***}$		$-0.014^{**}$				
		(0.005)		(0.006)				
Academ. app.		0.366		0.372				
		(0.313)		(0.310)				
Population (log)		-0.035		-0.026				
		(0.049)		(0.049)				
Distance	0.001	0.0002	$0.010^{***}$	0.008**				
	(0.002)	(0.002)	(0.004)	(0.003)				
Dist. * Russia	-0.001	0.0004	$-0.008^{**}$	-0.005				
	(0.002)	(0.002)	(0.004)	(0.003)				
Constant	0.879***	0.595	11,801.900***	8,544.483**				
	(0.083)	(0.957)	(3, 946.198)	(3,901.156)				
Observations	312	292	312	292				

Table 10: Austria-Russia Comparison: Full Sample (Channels of Advertisement)

Note: Quasi-Poisson

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01
#### A.13.2 Density Tests at the Threshold

As for the Prussia-Russia comparison, I have conducted multiple density tests based on McCrary (2008). All of these density tests have failed to reject the null hypothesis that the density is continuous around the threshold (at levels of  $\alpha = 0.1$ ). Accordingly, I do not have evidence for sorting around the threshold.

Figure 13, Figure 14, and Figure 15 show the density around the threshold for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively.





Figure 14: Austria-Russia Comparison: Density Test (Applicants per Job)



Figure 15: Austria-Russia Comparison: Density Test (Channels of Advertisement)



#### A.13.3 Sensitivity Tests

As for the Prussia-Russia comparison, I conduct multiple sensitivity tests to investigate the sensitivity to different bandwidths and specifications. The results indicate that most relationships I observe do not change substantially across different specifications, even though I cannot always reject the null hypothesis at  $\alpha = 0.1$ .

Figure 16, Figure 17, and Figure 18 show to what extent the results of the border sample analysis are sensitive to the bandwidth and specification I choose (for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively). These graphs include 90% confidence intervals.

Figure 16: Austria-Russia Comparison: Sensitivity Test (Employees per 1,000 Inhabitants)





Figure 17: Austria-Russia Comparison: Sensitivity Test (Applicants per Job)

Figure 18: Austria-Russia Comparison: Sensitivity Test (Channels of Advertisement)



#### A.13.4 Placebo Tests

As for the Prussia-Russia comparison, in order to check if arbitrarily placed thresholds would yield similar results, I conduct a large number of placebo tests.

Figure 19, Figure 20, and Figure 21 show the results of randomly assigning placebo thresholds (for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively). The graphs show that most randomly assigned borders do not generate significant results when running the same type of regression there.

Figure 19: Austria-Russia Comparison: Placebo Test (Employees per 1,000 Inhabitants)



Figure 20: Austria-Russia Comparison: Placebo Test (Applicants per Job)



Figure 21: Austria-Russia Comparison: Placebo Test (Channels of Advertisement)



#### A.13.5 Further Graphs

Figure 22, Figure 23, Figure 24, and Figure 25 show the geographic discontinuities in terms of the relative number of applicants and the number of advertisement channels, respectively.

Furthermore, Figure 26, Figure 27, and Figure 28 show the geographic discontinuities when using a quadratic regression. These graphs indicate the possibility of convergence in bureaucratic organization in the immediate vicinity of the historical borders (especially with respect to employees/population), which may be caused by spillover effects. In the empirical results section of the article, I discuss this problem and matching as a possible alternative empirical test.



Figure 22: Austria-Russia Comparison: Applicants per Job (Log)



Figure 23: Austria-Russia Comparison: Applicants per Job (Log)

Figure 24: Austria-Russia Comparison: Channels of Advertisement





Figure 25: Austria-Russia Comparison: Channels of Advertisement

Figure 26: Austria-Russia Comparison: Employees per 1,000 Inhabitants (Log)





Figure 27: Austria-Russia Comparison: Applicants per Job (Log)

Figure 28: Austria-Russia Comparison: Channels of Advertisement



## A.14 Prussia-Austria Comparison: Additional Analyses

#### A.14.1 Channels of Advertisement

In the results section in the main body of the article, I discuss samples comparing formerly Prussian to formerly Austrian communes. Some results were omitted from this discussion and are shown here. In this respect, Table 11 shows the results for *channels of advertisement* as the dependent variable. No significant differences between formerly Prussian and formerly Austrian communes appear to exist in this dimension of bureaucratic organization.

	Dependent variable:					
		Advertise	ment Channels			
	Simple	Distance	Lat./	Long.		
	(1)	(2)	(3)	(4)		
Austria	0.026	0.024	0.115	0.127		
	(0.101)	(0.100)	(0.125)	(0.122)		
Interwar Germany	-0.025	-0.008	0.019	0.037		
	(0.049)	(0.050)	(0.064)	(0.066)		
Revenue (log)	· · · · ·	0.004	· · · ·	-0.003		
		(0.143)		(0.152)		
Pop. dens. (log)		0.039		0.028		
_		(0.026)		(0.027)		
County-level city		-0.005		-0.033		
• •		(0.125)		(0.128)		
Avg. migr.		-0.002		-0.0001		
0 0		(0.005)		(0.005)		
Unempl. average		0.0002		-0.001		
		(0.005)		(0.005)		
Academ. app.		-0.091		-0.115		
		(0.107)		(0.108)		
Population (log)		0.057		0.069		
1 ( 0)		(0.042)		(0.042)		
Distance	-0.0001	-0.0002	-0.001	-0.002		
	(0.0002)	(0.0002)	(0.002)	(0.002)		
Dist. * Austria	-0.0004	-0.00001	$-0.006^{*}$	-0.004		
	(0.001)	(0.001)	(0.003)	(0.003)		
Constant	0.874***	0.161	-2,943.163	-1,941.837		
	(0.056)	(1.272)	(2,078.871)	(2, 142.710)		
Observations	341	323	341	323		

Table 11: Prussia-Austria Comparison: Full Sample (Channels of Advertisement)

Note: Quasi-Poisson

## A.14.2 Border Samples

Table 12 and Table 13 show the border samples in terms of the relative number of applicants and the number of advertisement channels, respectively.

	Dependent variable:						
	Applicants/Job (Log)						
	< 100 km	$<125~{\rm km}$	$<150~{\rm km}$	< 175  km	< 200 km	$< 291~{\rm km}$	
	(1)	(2)	(3)	(4)	(5)	(6)	
Austria	0.168	-0.074	-0.085	-0.144	-0.253	-0.226	
	(0.319)	(0.298)	(0.287)	(0.274)	(0.276)	(0.250)	
Interwar Germany	$-0.963^{**}$	$-0.764^{**}$	$-0.816^{**}$	$-0.501^{*}$	$-0.708^{***}$	$-0.377^{**}$	
	(0.365)	(0.351)	(0.335)	(0.292)	(0.259)	(0.161)	
Distance	$-0.011^{*}$	-0.004	-0.005	-0.001	-0.003	-0.0002	
	(0.006)	(0.005)	(0.003)	(0.003)	(0.002)	(0.001)	
Dist. * Austria	0.003	-0.001	0.002	-0.001	0.002	-0.001	
	(0.008)	(0.006)	(0.004)	(0.003)	(0.003)	(0.002)	
Constant	$1.689^{***}$	$1.836^{***}$	1.811***	$1.832^{***}$	$1.857^{***}$	$1.830^{***}$	
	(0.202)	(0.190)	(0.183)	(0.177)	(0.181)	(0.166)	
Observations	74	86	105	123	140	192	
$\mathbf{R}^2$	0.125	0.093	0.078	0.048	0.057	0.038	

Table 12: Prussia-Austria Comparison: Border Sample RD (Applicants per Job)

Note: OLS

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 13: Prussia-Aus	stria Comparison:	Border Sample RD	(Channels of .	Advertisement)
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	Dependent variable:							
	< 100 km	$\label{eq:advertisement Channels} Advertisement Channels < 100 \ \rm km \ < 125 \ \rm km \ < 150 \ \rm km \ < 175 \ \rm km \ < 200 \ \rm km \ < 257 \ \rm km$						
	(1)	(2)	(3)	(4)	(5)	(6)		
Austria	0.058 (0.139)	0.074 (0.125)	0.094 (0.114)	0.076 (0.106)	0.099 (0.102)	-0.0003 (0.111)		
Interwar Germany	(0.162) (0.162)	(0.123) (0.151)	0.015 (0.123)	0.038 (0.109)	(0.000) (0.000)	(0.063) (0.082)		
Distance	-0.003 (0.003)	(0.002)	0.0004 (0.001)	0.001 (0.001)	-0.00001 (0.001)	-0.0002 (0.001)		
Dist. * Austria	0.003 (0.003)	(0.001) (0.002)	(0.002) (0.002)	$(0.001)^{*}$ $(0.001)^{*}$	$(0.001)^{*}$ $(0.001)^{*}$	-0.0003 (0.001)		
Constant	$0.856^{***}$ (0.090)	$(0.879^{***})$ (0.080)	$0.894^{***}$ (0.074)	$0.902^{***}$ (0.070)	$0.881^{***}$ (0.068)	$0.896^{***}$ (0.074)		
Observations	75	88	108	126	144	177		

Note: Quasi-Poisson

#### A.14.3 Density Tests at the Threshold

As for the previous two comparisons, I have conducted multiple density tests based on McCrary (2008). All of these density tests have failed to reject the null hypothesis that the density is continuous around the threshold (at levels of  $\alpha = 0.1$ ). Accordingly, I do not have evidence for sorting around the threshold.

Figure 29, Figure 30, and Figure 31 show the density around the threshold for the relative number of employees, the relative number of applicants, and the number of channels of advertisement respectively.

Figure 29: Prussia-Austria Comparison: Density Test (Employees per 1,000 Inhabitants)



Figure 30: Prussia-Austria Comparison: Density Test (Applicants per Job)



Figure 31: Prussia-Austria Comparison: Density Test (Channels of Advertisement)



#### A.14.4 Sensitivity Tests

As for the previous comparisons, I conduct multiple sensitivity tests to investigate the sensitivity to different bandwidths and specifications. The results indicate that the relationships I observe do not change substantially across different specifications, even though I cannot always reject the null hypothesis at  $\alpha = 0.1$ .

Figure 16, Figure 17, and Figure 18 show to what extent the results of the border sample analyses are sensitive to the bandwidth and specification I choose (for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively). These graphs include 90% confidence intervals.



Figure 32: Prussia-Austria Comparison: Sensitivity Test (Employees per 1,000 Inhabitants)



Figure 33: Prussia-Austria Comparison: Sensitivity Test (Applicants per Job)

Figure 34: Prussia-Austria Comparison: Sensitivity Test (Channels of Advertisement)



#### A.14.5 Placebo Tests

As for the Prussia-Russia comparison, in order to check if arbitrarily placed thresholds would yield similar results, I conduct a large number of placebo tests.

Figure 35, Figure 36, and Figure 37 show the results of randomly assigning placebo thresholds (for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively). The graphs show that most randomly assigned borders do not generate significant results when running the same type of regression there.

Figure 35: Prussia-Austria Comparison: Placebo Test (Employees per 1,000 Inhabitants)



Figure 36: Prussia-Austria Comparison: Placebo Test (Applicants per Job)



Figure 37: Prussia-Austria Comparison: Placebo Test (Channels of Advertisement)



#### A.14.6 Further Graphs

Figure 38, Figure 39, Figure 40, and Figure 41 show the geographic discontinuities in terms of the relative number of applicants and the number of advertisement channels, respectively.

Furthermore, Figure 42, Figure 43, and Figure 44 show the geographic discontinuities when using a quadratic regression. These graphs indicate the possibility of convergence in bureaucratic organization in the immediate vicinity of the historical borders, which may be caused by spillover effects. In the empirical results section of the article, I discuss this problem and matching as a possible alternative empirical test.



Figure 38: Prussia-Austria Comparison: Applicants per Job (Log)



Figure 39: Prussia-Austria Comparison: Applicants per Job (Log)

Figure 40: Prussia-Austria Comparison: Channels of Advertisement





Figure 41: Prussia-Austria Comparison: Channels of Advertisement

Figure 42: Prussia-Austria Comparison: Employees per 1,000 Inhabitants (Log)





Figure 43: Prussia-Austria Comparison: Applicants per Job (Log)

 $\mathbf{P}^{*}$  = 44  $\mathbf{D}$  =  $\mathbf{r}^{*}$  A =  $\mathbf{r}^{*}$   $\mathbf{C}$  =  $\mathbf{r}^{*}$   $\mathbf{C}$  =  $\mathbf{r}^{*}$   $\mathbf{C}$  =  $\mathbf{r}^{*}$   $\mathbf{r}^{*}$  =  $\mathbf{r}^{*}$ 



# A.15 Extension 1: Analysis of Variations Within Present-Day Provinces

It is possible that the differences observed across the imperial boundaries are partly driven by heterogeneity in administrative conditions among present-day provinces (voivodeships). In order to address this concern, I present a new set of analyses below. For the first set of regressions, I have restricted the data to three present-day provinces that are divided by past imperial boundaries between Russia and Prussia (Kujawsko-Pomorskie, Slaskie, and Wielkopolskie).<sup>9</sup> I include fixed effects for each province, limiting the analysis to comparisons within these administrative units. The analysis (Table 14) reveals that the same trends which can be observed more generally also apply *within* existing provinces that are crossed by historical imperial boundaries. These results significantly strengthen the claim that imperial legacies, and not heterogeneity in the administrative organization of present-day provinces, are behind the regional differences.

For completeness, I include similar comparisons between Austria and Russia (Malopolskie and Slaskie) and Prussia and Austria (Slaskie). While the direction of the effect generally is in the expected direction, the substantially smaller number of observations (which is < 50in some cases) makes it difficult to obtain statistically significant results in the respective regressions (see Table 15 and Table 16).

<sup>&</sup>lt;sup>9</sup>For a discussion of a similar approach, see Keele and Titiunik (2015).

		Dependent variable:	
	Empl./Pop. (Log)	App./Job (Log)	Advert. Channels
	OLS	OLS	Quasi- Poisson
	(1)	(2)	(3)
Russia	0.065	$-0.288^{**}$	$-0.165^{**}$
	(0.048)	(0.140)	(0.071)
Interwar Germany	0.070	$-0.592^{**}$	-0.034
	(0.090)	(0.245)	(0.119)
Kujawsko-Pomorskie	1.369***	1.580***	0.888***
	(0.040)	(0.109)	(0.053)
Slaskie	$1.427^{***}$	$1.774^{***}$	$0.871^{***}$
	(0.044)	(0.126)	(0.062)
Wielkopolskie	1.250***	1.840***	0.922***
-	(0.038)	(0.110)	(0.052)
Observations	170	155	157
$\mathbb{R}^2$	0.962	0.828	
Adjusted $\mathbb{R}^2$	0.961	0.822	
Note: OLS,		*n<0.1.*	*n<0.05· ***n<0.01

Table 14: Imperial Legacies Within Present-Day Provinces (Prussia-Russia)

quasi-Poisson

p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 15: Imperial Legacies Within Present-Day Provinces (Austria-Russi	a)
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	Dependent variable:					
	Empl./Pop. (Log)	App./Job (Log)	Advert. Channels			
	OLS	OLS	Quasi- Poisson			
	(1)	(2)	(3)			
Russia	0.121 (0.093)	-0.330 (0.271)	$-0.209^{**}$ (0.104)			
Malopolskie	(0.000) $1.215^{***}$ (0.048)	(0.211) $1.528^{***}$ (0.149)	(0.101) $0.872^{***}$ (0.052)			
Slaskie	(0.010) $1.334^{***}$ (0.085)	(0.110) $1.577^{***}$ (0.248)	(0.002) $0.880^{***}$ (0.090)			
Observations $\mathbf{P}^2$	75	64 0 733	64			
Adjusted $\mathbb{R}^2$	0.940 0.944	0.720				

Note: OLS, quasi-Poisson

		Dependent variable:	
	Empl./Pop. (Log)	App./Job (Log)	Advert. Channels
	OLS	OLS	Quasi- Poisson
	(1)	(2)	(3)
Austria	-0.106	-0.274	0.010
	(0.093)	(0.328)	(0.142)
Constant	$1.470^{***}$	$1.755^{***}$	$0.884^{***}$
	(0.044)	(0.156)	(0.068)
Observations	44	40	40
$\mathbb{R}^2$	0.031	0.018	
Adjusted R <sup>2</sup>	0.007	-0.008	
Note: OLS,		*p<0.1; *	*p<0.05; ***p<0.01

Table 16: Imperial Legacies Within Present-Day Provinces (Prussia-Austria)

## Extension 2: Considering Mayoral Political Affiliation and A.16 **Regional GDP**

quasi-Poisson

It is possible that my results are an indirect outcome of political or economic legacies. For instance, variation in mayoral political affiliation or levels of development (because more industrialized areas are likely to have greater GDP) could contribute to divergence in bureaucratic organization. Therefore, I extend the analysis across all partitions from the main body of the article by considering mayoral political affiliation (2014) (obtained from the National Electoral Commission, Państwowa Komisja Wyborcza) (Charasz and Vogler, 2019) and regional GDP per capita (log, 2013) (Eurostat, 2017b). Mayoral political affiliation was assigned based on (1) party membership or (2) association with the electoral committee of one of the four major parties (SLD, PO, PSL, and PIS). The results (Table 17) show that, even when controlling for both factors, I still observe several legacy effects, particularly with respect to the number of applicants. Simultaneously, the concerns about possible posttreatment bias in specifications with covariates—as touched upon earlier—remain.

		Dependent variable:	
	Empl./Pop. (Log)	App./Job (Log)	Advert. Channels
	OLS	OLS	Quasi- Poisson
	(1)	(2)	(3)
Austria	-0.005	$-0.280^{**}$	-0.060
	(0.043)	(0.108)	(0.056)
Russia	0.042	$-0.190^{**}$	$-0.086^{*}$
	(0.033)	(0.085)	(0.045)
Interwar Germany	0.061*	-0.154	0.023
	(0.037)	(0.094)	(0.048)
Revenue (log)	0.508***	$0.281^{*}$	0.030
( 0)	(0.061)	(0.158)	(0.082)
Pop. dens. (log)	$-0.099^{***}$	$0.081^{*}$	$0.037^{*}$
1 (0)	(0.021)	(0.042)	(0.021)
County-level city	-0.087	-0.001	0.072
	(0.070)	(0.199)	(0.096)
Avg migr	-0.001	-0.005	0.001
	(0,003)	(0,006)	(0.003)
Inempl average	(0.000) -0.001	(0.000) -0.003	(0.000) -0.002
Shempi. average	(0.001)	(0.003)	(0.002)
Acadom ann	-0.230***	(0.001)	(0.004)
readem. app.	(0.078)	(0.201)	(0.107)
Morron CLD	(0.078)	(0.204)	(0.107)
Mayor SLD	-0.129	(0.410)	(0.100)4
M	(0.074)	(0.194)	(0.100)
Mayor PO	-0.049	(0.018)	0.028
	(0.039)	(0.103)	(0.052)
Mayor PSL	-0.005	0.073	0.044
	(0.035)	(0.091)	(0.048)
Mayor PIS	0.085	0.057	0.101
	(0.054)	(0.141)	(0.073)
GDP (log)	$0.131^{**}$	-0.134	0.106
	(0.054)	(0.140)	(0.074)
Rural commune	$-0.200^{***}$		
	(0.067)		
Urban-rural commune	$-0.280^{***}$		
	(0.060)		
Population (log)		$0.259^{***}$	0.034
		(0.067)	(0.035)
Constant	$-3.136^{***}$	-1.903	-0.844
	(0.732)	(1.999)	(1.047)
Observations	532	533	533
$\mathbb{R}^2$	0.293	0.194	
Adjusted $\mathbf{R}^2$	0.271	0.171	

Table 17: Imperial Legacies: Comparison of All Partitions (Accounting for Mayoral Political Affiliation and GDP)

## A.17 Extension 3: Weighing Distance to Border

In addition to the analyses discussed in the main body of the article, I consider a geographic regression discontinuity analysis with weighted observations. In the following regressions, observations closer to the border receive the maximum weight, and there is a continuous decline in weight as observations are further away from the historical geographic discontinuities. The results (presented in Table 18, Table 19, Table 21, Table 20, Table 22, and Table 23) generally confirm the findings shown in the article's main result section with some smaller changes to magnitude and statistical significance of key variables. However, overall, these additional results are in line with my hypotheses.

	Dependent variable:								
		Employees/1	Population (Log	)		Applicants/Job (Log)			
	Simple	Distance	Lat./	Long.	Simple I	Distance	Lat./	Long.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
Russia	$0.132^{***}$	0.066	0.079	0.010	$-0.375^{***}$	$-0.245^{**}$	$-0.320^{**}$	-0.171	
	(0.045)	(0.043)	(0.053)	(0.051)	(0.116)	(0.111)	(0.140)	(0.135)	
Interwar Germany	0.067	0.065	0.039	0.030	$-0.230^{**}$	-0.169	$-0.320^{**}$	$-0.209^{*}$	
-	(0.042)	(0.040)	(0.049)	(0.046)	(0.108)	(0.103)	(0.126)	(0.121)	
Revenue (log)		0.493***	· · ·	0.477***	. ,	$0.280^{*}$		0.256	
		(0.062)		(0.061)		(0.161)		(0.162)	
Pop. dens. (log)		$-0.089^{***}$		$-0.124^{***}$		0.066		0.067	
		(0.022)		(0.022)		(0.042)		(0.045)	
County-level city		$-0.131^{*}$		$-0.124^{*}$		-0.032		-0.023	
5 5		(0.072)		(0.071)		(0.204)		(0.204)	
Avg. migr.		-0.001		-0.001		-0.009		-0.006	
8 8		(0.003)		(0.003)		(0.006)		(0.006)	
Unempl. average		-0.002		0.0001		-0.002		-0.003	
r root		(0.003)		(0.003)		(0.007)		(0.007)	
Academ. app.		$-0.149^{**}$		$-0.145^{**}$		-0.043		-0.088	
		(0.071)		(0.069)		(0.183)		(0.183)	
Rural Commune		$-0.155^{**}$		-0.218***		(01200)		(01200)	
		(0.073)		(0.072)					
Urban-rural commune		$-0.277^{***}$		-0.330***					
		(0.066)		(0.066)					
Population (log)		(0.000)		(0.000)		$0.278^{***}$		$0.286^{***}$	
F (8)						(0.071)		(0.073)	
Distance	-0.0005	0.0001	0.002	0.002	-0.0003	-0.0004	-0.001	-0.002	
	(0.0003)	(0.0003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.005)	(0.004)	
Dist. * Russia	0.0003	-0.0003	-0.002	-0.002	0.001	0.001	-0.0003	-0.0002	
	(0.0004)	(0.0004)	(0.001)	(0.001)	(0.001)	(0.001)	(0.004)	(0.004)	
Constant	1.322***	$-1.867^{***}$	288.362	1.663.944	1.681***	$-3.474^{**}$	$-6.338.082^{*}$	$-6.205.916^{*}$	
	(0.033)	(0.546)	(1, 420.318)	(1,291.224)	(0.082)	(1.499)	(3,630.802)	(3,400.283)	
Observations	569	464	569	464	487	465	487	465	
$\mathbb{R}^2$	0.020	0.270	0.046	0.328	0.032	0.194	0.062	0.224	
Adjusted $\mathbb{R}^2$	0.013	0.250	0.024	0.297	0.024	0.175	0.036	0.189	

Table 18: Prussia-Russia	Comparison:	Full Sample	(Distance	Weights)
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Note: OLS, weights (dist.)

		Dependent variable:				
		Advertise	ement Channels	1		
	Simple 1	Distance	Lat./	Long.		
	(1)	(2)	(3)	(4)		
Russia	-0.087	-0.071	-0.110	-0.060		
	(0.059)	(0.060)	(0.073)	(0.073)		
Interwar Germany	-0.006	0.017	-0.040	0.017		
	(0.054)	(0.054)	(0.064)	(0.063)		
Revenue (log)		0.014		-0.017		
		(0.087)		(0.089)		
Pop. dens. (log)		$0.044^{**}$		$0.050^{**}$		
		(0.022)		(0.023)		
County-level city		-0.035		0.010		
		(0.103)		(0.104)		
Avg. migr.		0.001		0.001		
		(0.003)		(0.003)		
Unempl. average		-0.002		-0.006		
		(0.004)		(0.004)		
Academ. app.		-0.065		-0.084		
		(0.097)		(0.097)		
Population (log)		0.033		0.023		
		(0.038)		(0.039)		
Distance	0.0003	0.0002	-0.003	-0.002		
	(0.0004)	(0.0004)	(0.002)	(0.002)		
Dist. * Russia	-0.001	-0.0002	0.003	0.002		
	(0.001)	(0.001)	(0.002)	(0.002)		
Constant	$0.912^{***}$	0.355	-1,031.856	-750.492		
	(0.041)	(0.804)	(1,857.684)	(1, 816.288)		
Observations	495	465	495	465		

Table 19: Prussia-Russia Comparison: Full Sample (Distance Weights)

Note: Quasi-Poisson,

weights (dist.)

	Dependent variable:							
	Employees/Population (Log)			Applicants/Job (Log)				
	Simple I	Distance	Lat./	Long.	Simple 1	Distance	Lat./	Long.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Russia	$0.335^{***}$	$0.195^{**}$	0.304***	$0.178^{**}$	-0.080	0.220	-0.215	0.127
	(0.075)	(0.080)	(0.083)	(0.089)	(0.203)	(0.197)	(0.223)	(0.217)
Revenue (log)		$0.448^{***}$		$0.438^{***}$		0.004		0.034
		(0.081)		(0.082)		(0.203)		(0.202)
Pop. dens. (log)		$-0.107^{***}$		$-0.120^{***}$		-0.008		-0.014
		(0.031)		(0.033)		(0.065)		(0.066)
County-level city		-0.070		-0.055		0.385		0.281
		(0.112)		(0.112)		(0.310)		(0.311)
Avg. migr.		0.002		0.0001		-0.003		0.003
		(0.004)		(0.004)		(0.009)		(0.009)
Unempl. average		-0.006		-0.005		-0.016		-0.019
		(0.004)		(0.005)		(0.011)		(0.012)
Academ. app.		-0.323		-0.330		0.401		0.330
11		(0.210)		(0.210)		(0.532)		(0.529)
Rural Commune		$-0.165^{*}$		$-0.184^{*}$		· /		( /
		(0.097)		(0.102)				
Urban-rural commune		$-0.230^{***}$		$-0.256^{***}$				
		(0.088)		(0.093)				
Population (log)		()		()		$0.291^{***}$		0.320***
( '8)						(0.104)		(0.104)
Distance	$-0.004^{***}$	-0.002	-0.002	0.001	-0.001	-0.005	-0.001	-0.006
	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)	(0.007)	(0.007)
Dist. * Russia	0.004***	0.002	0.002	-0.001	0.0005	0.005	0.004	$0.012^{*}$
	(0.001)	(0.001)	(0.003)	(0.003)	(0.003)	(0.003)	(0.007)	(0.007)
Constant	1.093***	$-1.315^{*}$	2,301.790	3,989.324	$1.462^{***}$	-1.717	2,589.401	-2,514.582
	(0.065)	(0.776)	(3,078.832)	(3, 194.700)	(0.176)	(1.982)	(8, 106.583)	(7,901.753)
Observations	377	292	377	292	306	292	306	292
$\mathbb{R}^2$	0.069	0.268	0.085	0.296	0.005	0.149	0.042	0.195
Adjusted R <sup>2</sup>	0.061	0.239	0.054	0.244	-0.005	0.119	0.003	0.139

	Table 20:	Austria-Russia	Comparison:	Full Sample	(Distance	Weights)	
							_

Note: OLS, weights (dist.)

		Dependent variable:				
		Advertisement Channels				
	Simple	Distance	Lat./I	Long.		
	(1)	(2)	(3)	(4)		
Russia	$-0.169^{*}$	-0.071	$-0.211^{**}$	-0.062		
	(0.098)	(0.095)	(0.107)	(0.105)		
Revenue (log)	× ,	0.002		-0.004		
		(0.096)		(0.097)		
Pop. dens. (log)		$0.076^{**}$		$0.072^{**}$		
		(0.030)		(0.030)		
County-level city		0.146		0.138		
		(0.137)		(0.138)		
Avg. migr.		0.003		0.003		
		(0.004)		(0.004)		
Unempl. average		$-0.016^{***}$		$-0.014^{**}$		
		(0.005)		(0.006)		
Academ. app.		0.366		0.372		
		(0.313)		(0.310)		
Population (log)		-0.035		-0.026		
		(0.049)		(0.049)		
Distance	0.001	0.0002	$0.010^{***}$	0.008**		
	(0.002)	(0.002)	(0.004)	(0.003)		
Dist. * Russia	-0.001	0.0004	$-0.008^{**}$	-0.005		
	(0.002)	(0.002)	(0.004)	(0.003)		
Constant	$0.879^{***}$	0.595	11,801.900***	8,544.483**		
	(0.083)	(0.957)	(3, 946.198)	(3, 901.156)		
Observations	312	292	312	292		

Table 21: Austria-Russia Comparison: Full Sample (Distance Weights)

Note: Quasi-Poisson, weights (dist.)

	Dependent variable:							
	Employees/Population (Log)			Applicants/Job (Log)				
	Simple	Distance	Lat./	Lat./Long.		Simple Distance		Long.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Austria	$-0.176^{**}$	-0.056	$-0.266^{***}$	-0.098	-0.175	$-0.324^{*}$	-0.010	-0.131
	(0.074)	(0.071)	(0.094)	(0.087)	(0.203)	(0.186)	(0.258)	(0.235)
Interwar Germany	$0.097^{***}$	0.038	0.050	0.018	$-0.206^{**}$	-0.153	$-0.301^{**}$	-0.142
·	(0.036)	(0.034)	(0.047)	(0.045)	(0.099)	(0.093)	(0.132)	(0.127)
Revenue (log)	,	0.651***	· · ·	0.574***	· · · ·	$0.548^{**}$	· · · ·	$0.540^{*}$
		(0.096)		(0.101)		(0.266)		(0.285)
Pop. dens. (log)		$-0.138^{***}$		$-0.148^{***}$		0.113**		0.109* <sup>*</sup>
1 ( 0)		(0.026)		(0.026)		(0.050)		(0.053)
County-level city		$-0.176^{**}$		$-0.159^{**}$		-0.044		-0.056
5 5		(0.077)		(0.080)		(0.241)		(0.250)
Avg. migr.		-0.002		-0.002		0.001		0.004
0 0		(0.003)		(0.003)		(0.009)		(0.009)
Unempl. average		0.002		0.0004		0.004		0.004
r		(0.003)		(0.003)		(0.009)		(0.010)
Academ. app.		$-0.138^{*}$		$-0.130^{*}$		-0.108		-0.161
		(0.074)		(0.074)		(0.203)		(0.206)
Rural Commune		$-0.368^{***}$		$-0.362^{***}$		(01200)		(0.200)
		(0.085)		(0.085)				
Urban-rural commune		-0.393***		-0.386***				
		(0.076)		(0.075)				
Population (log)		(01010)		(0.010)		0.291***		0.301***
F (8)						(0.079)		(0.080)
Distance	0.00000	0.0005***	0.0001	0.002	0.0003	-0.0002	-0.002	-0.001
	(0.0001)	(0.0001)	(0.002)	(0.002)	(0.0003)	(0.0004)	(0.005)	(0.004)
Dist. * Austria	0.001*	$-0.001^{**}$	$-0.004^{*}$	$-0.007^{***}$	-0.001	0.001	-0.008	-0.001
	(0.0004)	(0.0004)	(0.002)	(0.002)	(0.001)	(0.001)	(0.006)	(0.006)
Constant	1.349***	$-2.692^{***}$	$2.620.569^{*}$	871.582	1.770***	$-6.027^{**}$	-6.848.151	-1.985.407
	(0.042)	(0.833)	(1,531.036)	(1, 425.861)	(0.114)	(2.367)	(4,303.525)	(3,980.844)
Observations	376	322	376	322	335	323	335	323
$\mathbb{R}^2$	0.060	0.342	0.136	0.383	0.020	0.255	0.054	0.273
Adjusted R <sup>2</sup>	0.050	0.316	0.105	0.339	0.008	0.229	0.016	0.224

Table 22: Prussia	a-Austria (	Comparison:	Full Sample	e (Distance	Weights)
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Note: OLS, weights (dist.)

		Depend	ent variable:	
		Advertise	ment Channels	
	Simple	Distance	Lat./	Long.
	(1)	(2)	(3)	(4)
Austria	0.026	0.024	0.115	0.127
	(0.101)	(0.100)	(0.125)	(0.122)
Interwar Germany	-0.025	-0.008	0.019	0.037
•	(0.049)	(0.050)	(0.064)	(0.066)
Revenue (log)		0.004	· · · ·	-0.003
( )		(0.143)		(0.152)
Pop. dens. (log)		0.039		0.028
1 ( 0)		(0.026)		(0.027)
County-level city		-0.005		-0.033
v v		(0.125)		(0.128)
Avg. migr.		-0.002		-0.0001
0 0		(0.005)		(0.005)
Unempl. average		0.0002		-0.001
1 0		(0.005)		(0.005)
Academ, app.		-0.091		-0.115
		(0.107)		(0.108)
Population (log)		0.057		0.069
- •F (9)		(0.042)		(0.042)
Distance	-0.0001	-0.0002	-0.001	-0.002
	(0.0002)	(0.0002)	(0.002)	(0.002)
Dist. * Austria	-0.0004	-0.00001	$-0.006^{*}$	-0.004
	(0.001)	(0.001)	(0.003)	(0.003)
Constant	0.874***	0.161	-2.943.163	-1.941.837
	(0.056)	(1.272)	(2,078.871)	(2,142.710)
Observations	341	323	341	323

Table 23: Prussia-Austria Comparison: Full Sample (Distance Weights)

Note: Quasi-Poisson,

weights (dist.)

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

## A.18 Matching: Additional Information

In the article's main empirical results section, I have presented the results of regressions based on genetic matching. Below, I show several figures, which include detailed visual information on the distribution of propensity scores before and after matching. These graphs show to what extent the matching procedure has led to a more balanced comparison between treatment and control units.

Figure 45 shows the results for all three variables in the Prussia-Russia comparison.

Figure 46, Figure 47, and Figure 48 provide further histograms for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively.

Figure 49 shows the results for all three variables in the Austria-Russia comparison. Figure 50, Figure 51, and Figure 52 provide further histograms for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively.

Figure 53 shows the results for all three variables in the Prussia-Austria comparison. Figure 54, Figure 55, and Figure 56 provide further histograms for the relative number of employees, the relative number of applicants, and the number of channels of advertisement, respectively. Figure 45: Prussia-Russia Comparison: Distribution of Propensity Scores (Employees per 1,000 Inhabitants, Applicants per Job, Channels of Advertisement)





Distribution of Propensity Scores







Figure 46: Prussia-Russia Comparison: Histogram of Propensity Scores (Employees per 1,000 Inhabitants)



Figure 47: Prussia-Russia Comparison: Histogram of Propensity Scores (Applicants per Job)



Figure 48: Prussia-Russia Comparison: Histogram of Propensity Scores (Channels of Advertisement)



Figure 49: Austria-Russia Comparison: Distribution of Propensity Scores (Employees per 1,000 Inhabitants, Applicants per Job, Channels of Advertisement)





Distribution of Propensity Scores









Figure 50: Austria-Russia Comparison: Histogram of Propensity Scores (Employees per 1,000 Inhabitants)



Figure 51: Austria-Russia Comparison: Histogram of Propensity Scores (Applicants per Job)



Figure 52: Austria-Russia Comparison: Histogram of Propensity Scores (Channels of Advertisement)


Figure 53: Prussia-Austria Comparison: Distribution of Propensity Scores (Employees per 1,000 Inhabitants, Applicants per Job, Channels of Advertisement)



Distribution of Propensity Scores







Figure 54: Prussia-Austria Comparison: Histogram of Propensity Scores (Employees per 1,000 Inhabitants)



Figure 55: Prussia-Austria Comparison: Histogram of Propensity Scores (Applicants per Job)



Propensity Score



Propensity Score

Figure 56: Prussia-Austria Comparison: Histogram of Propensity Scores (Channels of Advertisement)

