Pogroms, Networks, and Migration

The Jewish Migration from the Russian Empire to the United States 1881–1914*

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Abstract

The migration of one and a half million Jews from the Russian Empire to the United States during the years 1881–1914 is commonly linked to the occurrence of *pogroms*, eruptions of anti-Jewish mob violence, that took place mainly in two waves in 1881–1882 and in 1903–1906. Although the common perception that pogroms were a major cause for Jewish migration is now questioned by historians, little quantitative evidence exists to support or refute this view. I construct a new data set that matches hundreds of thousands of Jewish immigrants to their respective hometowns in the Russian Empire over the years 1900–1914, and traces the evolution of migration over the years 1861–1920 using incorporation records of 1,476 Jewish hometown-based associations in New York. Additionally, the locations of hundreds of pogroms that occurred during the two waves are identified. Mapping the pogroms, as well as the yearly migration flows from more than 200 districts provides a first close look into the geographic evolution of the Jewish migration and the way it was affected by pogroms. I find no evidence that migration in its earliest stages was caused by the 1881–1882 pogroms; instead, migration after these pogroms continued along a pre-existing spatial trend of migration, and took place in districts that did not experience any violence. The second wave of pogroms, however, increased the rate of migration from the affected districts by at least 10–20 percent. Above all, there was a dominant pattern of convergence in rates of migration across districts driven by a process of spatial diffusion. I interpret these findings as an indication that neither pogroms nor economic or demographic conditions determined the timing of the beginning of mass migration from each district; instead, migration was chiefly ignited by the arrival of chain-migration networks. Pogroms increased the demand for migration, but victims of the first wave of pogroms could not respond to the greater incentive to migrate because they were not yet personally linked to previous migrants. These patterns support the diffusionist view of European migration patterns, relating the late arrival of mass migration from southern- and eastern-Europe to slow spatial diffusion of migration networks. The general lesson for the economics of mass migration is that links to friends and relatives do not merely reduce the costs of migration; in certain circumstances they are a necessary condition for migration, their absence creating a bottle-neck delaying the evolution of mass migration by many years and even decades.

1 Introduction

Jewish migration from the Russian Empire to the United States in the years 1881–1914 was one of the most massive population movements in history. Over a single generation, more than a third of the Jewish-Russian population of 5.3 million (as of 1897) was resettled overseas. An overwhelming majority, 1.5 million, arrived in the United States (see yearly rates of migration in Figure 1). The timing of this migration, as well as its unique demographic composition—of very high dependency ratio—have commonly been thought to be linked to two waves of *pogroms* (outbreaks of anti-Jewish mob violence),[1] that took place during 1881–1882 and 1903–1906. Historians now doubt the existence of such a link (Klier 1996, for a representative example), and quantitative evidence to bolster their suspicion has recently emerged (Kuznets 1975; Stampfer 1986; Perlmann 2006; Boustan 2007). This purpose of this paper is to provide systematic evidence regarding the local effects of pogroms on migration using very large and informative data sets generated from several sources that have not fully been exploited to date.

[1] On the meaning of the term pogrom in Russia see Klier (1992).

This paper also provides indirect, yet new and illuminating evidence about one of the most important questions in the economics of migration: Do networks of chain migration advance over time and space in a process of spatial diffusion? Scholars are divided as to why mass transatlantic migration from the poorer east- and south-European periphery began several decades after that from the wealthier west- and north-European countries. The diffusionist view, mainly expounded by Gould (1980b) and Baines (1995), argues that this pattern is partly explained by a slow spatial diffusion of chain-migration networks over the continent. In contrast, Hatton and Williamson (1998) doubt that this could have significantly affected the timing of the beginning of mass migration. Instead, the delayed mass migration from the periphery is explained by internal economic and demographic conditions, such as late industrialization and urbanization, increasing demographic pressures, and the need to reach a threshold level of income in order to overcome the liquidity problem of financing migration. This question has been hard to answer conclusively, in part because it requires fine and uniform migration data over a long span and a large territory. By examining the patterns of development of mass migration of a fairly uniform population, across more than five decades, over a very large geographic range (greater than the combined area of Germany, France, and Britain), with a high spatial resolution, and within a single polity, this paper also makes a unique contribution to the understanding of the economics of mass migration. The analysis provides novel evidence demonstrating that large-scale patterns of mass migration cannot be understood without reference to spatial diffusion of migration networks.

I use a new panel data set combining a number of sources. First, I compiled individual-level data on migration through Ellis Island, covering 2.33 million Russian immigrants, of whom more than 40 percent were Jews, the vast majority of the population of interest. I matched these records to the towns from which the immigrants had come, yielding a unique panel covering yearly migration from more than 200 districts over the period 1900–1914.[2] Second, I assembled a complementary data base on the local origins of Russian-Jews migration during the years 1861–1920, based on records on the incorporation of 1,476 *landsmanshaftn*—Jewish hometown-based associations founded in New York. The data on these associations enables a mapping of the evolution over time of the geographic sources of early Jewish migration, through the four decades prior to the period covered by direct migration data from Ellis Island. Third, I collected and geo-coded lists of pogroms that cover most of the events that occurred during the two waves. Finally, I coded comprehensive town- and district-level data from the 1897 Russian census, on the local demographic and economic conditions of both the overall population and the Jewish population in particular. I test the hypothesis that the pogroms were a major cause of the Jewish mass migration by providing evidence on the following questions: (a) Did the 1881 pogroms start the Jewish mass migration? (b) Did the second wave of pogroms increase its magnitude? And (c) did the second wave of pogroms affect its demographic composition and made it look more "permanent", with a greater share of

[2] A district (*uezd*, in Russian) was an administrative sub-division of a province (*guberniia*), with an average area roughly 50 percent greater than an average U.S. county. The Pale of Settlement comprised 25 provinces with 236 districts.

non-labor-force participants?

For the first wave, for which no direct information on immigrant origins is available, I use the landsmanshaftn data as a proxy for the geographic origins of recent immigration, which I show to be a sufficiently accurate measure at an aggregate level. The evidence for the relation between the early wave and the pogroms reveals very sharp patterns, and it is best presented by a series of maps rather than by regression analysis. The benchmark assessments of the effects of the second-wave pogroms on migration are estimated using year-district-level difference-in-difference OLS regressions, testing whether the flow of migration from pogrom-districts in the 9 years after the pogroms (FY 1906–1914) increased since the 6 years prior to the pogroms (FY 1900–1905) more than in similar districts that did not experience a pogrom.

The empirical analysis reveals previously unknown, sometimes surprising patterns; above all, that the geographic evolution of Jewish migration followed a gradual spatial pattern, and at times was at odds with what one might predict based on the distribution of pogroms or economic push factors. The onset of Jewish mass migration was geographically unrelated to the 1881 pogroms; rather, post-1881 migration originated from areas not subject to pogroms and was a continuation of pre-1881 trends. Moreover, while the accepted view among historians was that migration was led and pioneered by Lithuanian Jews (in particular Lestschinsky 1961), whose living standards were probably the lowest, the pioneering areas of Jewish-Russian emigration during the 1860s and 1870s were clustered further to the west in Congress Poland along the border with Germany.[3] Only during the 1880s did this emigration belt thicken and reach the Lithuanian provinces of Kovno, Vilna, Minsk, and Grodno. It took about a decade longer for mass migration to reach any of the pogrom regions. First were the southwestern provinces of Volhinia, Podolia, and Kiev, where some of the pogroms took place. Last to contract significant emigration were the southern provinces in the New-Russia region, hit worse by the first wave of pogroms, and these provinces never caught up with the levels of migration seen in the pogrom-free north.

The second wave of pogroms, however, did induce more emigrants to leave affected districts. A district that had experienced at least one pogrom in 1903–1906 had 10-20 percent more migrants arriving at Ellis Island during the years 1906–1914 compared to a similar district that did not experience a pogrom. The estimates are robust to changes in the definition of the treatment and to the specification of the estimating equation. Considering that regional spill-over effects of pogroms may have played a role in pushing residents of the entire region to migrate, these estimates should be regarded as a lower bound to the actual marginal effect of the pogrom experience. Attempts to identify heterogeneity in the effects of the pogroms fail to find consistent patterns. It was pointed out that the extraordinarily high dependency ratio among Jewish immigrants is consistent with the characterization the Jewish migration as a flight of refugees, but I find no statistically

[3] Congress Poland (officially known as the *Kingdom of Poland*, later the *Vistula Land*), was a predominantly Polish, previously semi-independent region that comprised the ten western provinces of the Russian Empire. The six provinces of the region of Lithuania in the northwest of the Russian Empire roughly corresponded to the current territories of Lithuania and Belarus; see the map on Figure 3.

significant evidence that the demographic composition of migration changed due to the pogroms toward greater share of non-labor-force participants. The key process governing the evolution of migration during the years 1900–1914 was convergence: emigration from districts that were late to send mass migration was growing fastest, and by a very wide margin. This poses the most concrete threat to identification, but despite the fact that more pogroms took place in areas that started sending migration in late, I show that the pogrom effect was not driven by the convergence dynamics.

Thus, there are five previously unknown central findings that require an explanation: (a) Jewish migration started from a narrow area along the German border; (b) there was a strong spatial aspect to its expansion; (c) the first wave of pogroms did not create migration from affected areas; but (d) the second wave of pogroms did increase migration from affected areas; and (e) there was a dominant pattern of convergence in rates of migration. I argue that these findings can not be solely explained within a traditional push-pull framework of the economics of migration.

On the other hand, these findings are consistent with the diffusionist view. The argument is that chain migration, or personal relations with friends and relatives who had already migrated, is not only a factor facilitating migration, as shown by Hatton and Williamson (1998), Wegge (1998), Munshi (2003), and McKenzie and Rapoport (2010); it is rather a necessary condition for migration. Individuals who did not have a forward link in the country of destination were generally unable to migrate even if they were fully incentivized to do so. Indeed, in the case of Russian-Jews, statistics and anecdotal evidence confirm that almost all cases of migration involved such personal connections. In fact, pioneers were almost nowhere to be found. Thus, the central role of personal links to friends and relatives generated a spatial pattern. While the non-diffusionist view would argue that pioneer migrants would spontaneously start a chain of migration in an unlinked region when the demand for migration becomes sufficiently high, it appears that at least in some cases this did not happen. The onset of mass migration within a given district was triggered by, and dependent on, neighboring districts having previously gone into mass migration. In this manner a geographic pattern of spatial diffusion from the northwest toward the east and the south was generated.

This can explain why certain regions that were later revealed to be strongly prone to produce mass migration started doing so only a decade or two after the pioneering regions that were near the border. Since the regions in which the first wave of pogroms took place were very far from the early sources of migration, this also makes clear why the first wave of pogroms had no effect on migration from affected districts, whereas the second wave, that took place when affected regions were at least partly linked, did have an effect on migration. Thus, the question of the effects of pogroms on migration is given a complex answer, depending on time and place: migration can be related to pogroms, but only in areas where chain migration had already existed by the time the violence struck.

I consider other explanations for the geographic patterns of the Jewish migration that do not

include spatial diffusion of migration networks. Some of them are inconsistent with certain pieces of evidence: There were no local economic shocks that could provide a crucial difference between the early migration region and other regions of similar or worse living standards. Nor is it the case that the first Jewish-Russian migrants were mainly coming from towns that took part in the early Polish and Russian industrialization. Other alternative explanations are likely: Proximity to the German border, through which almost all Jewish migrants had to cross before reaching their ports of embarkation, as well as the costs of internal travel within the Pale to the German border, could have affected the geographic patterns of migration on the margin. Similarly, the evolution of the Russian railway system was partly correlated with the spread of emigration centers. But alone these are yet incomplete explanations, and they leave too many patterns unexplained.

Based on the findings, I propose a new hypothesis on the evolution of the Jewish migration from Russia. The incentives and the potential for mass migration may have existed decades before they materialized, and one need not look for concurrent changes in internal circumstances that increased incentives for migration during the time of its acceleration. Instead, the beginning of mass migration in each region within the Pale of Settlement depended strongly on the time in which migration networks reached its vicinity. However, once contracted with the "migration epidemics", districts were catching up with their migration potential, whose magnitude, as opposed to the time in which it began, did depend on local circumstances such as standards of living or pogroms. This paper does not deal directly with the effects of the general administrative, legal and popular persecution of Jews, other than through pogroms, on the overall magnitude of the Jewish-Russian migration. Nevertheless, the explanation I provide for why the Jewish migration started en masse only during the last decades of the nineteenth century can complement, or even stand as an alternative to the view that this timing was a result of either the pogroms or the subsequent intensification of persecution.

The insights on the economics of migration motivate a new structural dynamic estimation model of migration that I explore in Spitzer (2013). The process of spatial evolution of networks is modeled as a diffusion of migration "options", that prospective migrants receive in a random process that depends on their proximity to exiting networks. Without a migration option, prospective migrants cannot migrate (although pioneers are allowed, in the sense that some options can be generated regardless of proximity to networks). Once a migration option is received, a prospective migrant solves the dynamic problem and decides whether to migrate or delay the decision until the next period, depending on the state of the economy and time-varying idiosyncratic shocks and preferences. Before neighboring districts start sending migrants, few prospective migrants are linked and migration from the district will be muted, regardless of the incentives for migration. As networks get thicker, districts approach saturation, in the sense that almost every prospective migrant has already received the option to migrate. From this point on, the levels of migration are mainly determined by demographic and economic conditions, as in traditional migration models.

The paper proceeds as follows. Section 2 covers the historical background of the Jews in Russia

and of the Jewish migration. Section 3 describes the data sources used in this paper. Section 4 discusses pre-1881 migration and the relation between the first wave of pogroms and the emergence of Jewish mass migration from Russia. Section 5 explores the period 1900–1914 and estimates the effect of the second wave of pogroms. Extensions and robustness checks are reported in section 6, and section 7 concludes.

2 Background

2.1 Jews in Late Imperial Russia: A Brief Overview

The Russian Empire was home to some 5.3 million Jews in 1897, more than half of world Jewry. Almost all of them, 94 percent, resided in a restricted territory known as the Pale of Settlement, comprising the 25 western provinces of the Russian Empire. Residence of Jews beyond the Pale was severely restricted by a set of laws and statutes (Klier 1986). Within the Pale, the Jewish population was typically concentrated in small provincial market towns, known as *shtetl* (a townlet; plural, *shtetlach*).[4] Jews specialized in certain occupational sectors: almost none were farmers, and about a third were employed in manufacturing. Another third were employed in trade and commerce, an occupational niche Jews dominated in absolute numbers, despite comprising only 9 percent of the Pale's population.[5]

Under the Tsars the Jewish population experienced very rapid population growth, as much as five-fold during the nineteenth century (Stampfer 1989).[6] By the end of the century it is commonly described as being poverty-stricken, and for the most part adversely affected the transformations brought about by the advent of Russian and Polish industrialization, particularly in the north-western region of Lithuania and in Congress Poland to the west.[7] The southwest region and the southern region of New-Russia probably had somewhat improved standards of living. The relations between the Jewish population and the Russian Tsars, the bureaucracy, the Intelligentsia, and the

[4] On the definition of *shtetl* see Klier (2000). For a social-economic history of the shtetl in the early nineteenth century see Petrovsky-Shtern (2014).

[5] For classical studies see Rubinow (1907) and Kahan (1986). On the preference of Jews for commerce, manufacturing, and services, see Botticini and Eckstein (2012). More on the occupational distribution see yannayspitzer.net/2012/09/30/jewish-occupations-in-the-pale-of-settlement/.

[6] The convention is that this rapid increase was largely responsible for a deterioration of the standards of living. How the Jews were at all able to transcend so far beyond the Malthusian pressures is a question that requires further study. The most advanced attempt to address it is Kahan (1986).

[7] On the effects of industrialization see Kahan (1986) and Peled and Shafir (1987). The standard claim on the negative effect of industrialization is that mass production, market modernization, and more efficient modes of transportation and services obliterated much of the traditional Jewish roles as local middlemen, small artisans, and providers of services that rely on traditional pre-modern institutions, such as leasers of nobles estate privileges (milling, tavern-keeping, etc.) or money-lending. According to Lederhendler (2008), by the end of the nineteenth century, Jews were pressed down to an almost uniformly impoverished proletariat cast. Anthropometric evidence on army recruits finds that Polish Jewish conscripts were shorter than non-Jews, and that the gap between the two groups increased from 2.5 to 4 centimeters between the 1840s and the 1890s birth cohorts (**Kopczynski2011**).

people, were complex and at times tumultuous.[8] The ever-pending Jewish Question remained a bone of contention by the end of the Imperial period.[9] Never able to achieve the goal of equal rights, above all the abolition of the restrictions of the Pale, many Jews felt threatened by constant attempts of a repressive monarchy to discriminate against them and to encroach upon their communal autonomy and their traditional ways of life.

The 1881 crisis that followed the assassination of the relatively liberal-minded Tsar Alexander II, and the ascendance to throne of his reactionary son Tsar Alexander III, is often considered a "turning point" in Jewish History.[10] It marked the emergence of new political ideologies, such as Zionism and revolutionary socialism, and not least, the beginning of mass overseas emigration. A wave of pogroms, anti-Jewish mob violence, broke out that year in the southern city of Elizavetgrad and spread out to many other towns in New-Russia and the southwest. It was followed by the notorious *May Laws* of 1882 and a series of anti-Jewish legislations that further restricted the rights of residence, education, occupation, and political representation of Russian Jews. The prevalent view that there was some orchestration of these pogroms from the top or behind the scenes has been dismissed in a number of revisionist studies from the past generation.[11] Nevertheless, there is little question that the pogroms and the anti-Jewish legislative surge contributed to the sense prevalent among Jews and other observers that the conditions of the Jews in Russia had become intolerable. Mass emigration was increasingly perceived as a possible systemic solution.

Two decades later, anti-Jewish violence broke out again throughout the Pale with increased ferocity. First came the atrocities of the 1903 Kishinev Pogrom, where dozens of Jews were brutally massacred and thousands affected. Then followed a massive wave of hundreds of pogroms, mostly concentrated in a single week in October (o.s.), 1905. This time, the casualties and the damage were far greater, and it became clear that the Russian state was at best reluctant to take up the duty of defending its Jewish subjects.[12] A few more events took place in 1906, and while no more pogroms broke until WWI, Russian Jews remained in a precarious and uncertain political condition.

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[8] Dubnow (1916) is the fundamental study of this topic, notwithstanding many revisions of views since its publication. See also Baron (1976) for a general overview.

[9] Klier (1995) is a comprehensive coverage of the period 1855–1881. For the late-imperial period see Rogger (1986).

[10] A thesis expounded by Frankel (1981). For a contrary gradualist view see Nathans (2002). Recently, Bartal (2006, p. 5), concurred with a few reservations regarding Frankel's thesis but reaffirmed 1881 as a "significant milestone". On the other hand, Klier (2011) forcefully rejected any notion that the 1881 crisis was a real turning point with lasting effects.

[11] Rogger (1986), Aronson (1990), Rogger (1992), and most comprehensively Klier (2011).

[12] On the second wave of pogroms see Lambroza (1981) and Lambroza (1992).

2.2 Pogrom-Driven Migration?

Between 1881 and 1914, 1.5 million Jewish immigrants migrated to the United States from the Pale of Settlement.[13] It is commonly held that this mass migration was directly linked to the pogroms.[14] The time pattern of Jewish-Russian migration, seen in Figure 1, appears consistent with it: 1881, the year pogroms erupted as a wide-spread movement, is commonly seen as its starting point; the year 1906, after the second wave of pogroms, saw the greatest flow, with 125 thousand U.S.-bound Jewish Russian migrants.[15] Moreover the demographic composition of Jewish migrants was much different than other ethnicities, with a far greater dependency ratio, supposedly an indication for migration motivated by non-economic conditions.

The Brody Episode was a case in point and an example for a direct link between pogroms and early emigration. The 1881 pogroms generated a flight of refugees that flocked across the Austrian border and remained stranded in the Galician town of Brody. International Jewish organizations arranged to provide relief for pogrom victims and erected a refugee camp. Rumors that refugees would be supported in emigration to America unintentionally attracted thousands of additional border-crossers during 1881 and 1882. The true numbers are unknown, but some of them were indeed assisted in migration to America, but the most were resettled in Russia or found their way to other European countries until the camp was finally dispersed in 1883.[16]

"It is hard to find a textbook which does not attribute this mass movement to the pogroms, physical and legislative, which befell the Jewish subjects of the Tsar," wrote the prominent scholar John D. Klier (1996, p. 22), "[t]here is just one problem for the historian: it does not work." This view reflects what is, arguably, the current consensus among historians, differing from the conception of pogrom-driven migration. One of the main reasons to believe that pogroms did not play a major role in inducing the migration is the perception that Jewish immigrants from pogrom-free Lithuania were over-represented, while relatively fewer came from the southern provinces where most of the violence took place.[17] Indeed, a number of recent studies have provided quantitative

[13] The most comprehensive quantitative study of the Jewish migration is Kuznets's (1975) seminal work. Godley (2001, Table 5.4) revised Kuznets's estimates for the years 1881–1898.

[14] The section of the Dillingham (1911, part III) Report dealing with the Jewish immigration from Russia rejected the idea that it was mainly driven by economic motives; instead, "Let but the pogroms cease and the emigration of the Jews will immediately and considerably diminish and will resume those insignificant proportions which it displayed until the pogrom of Kishinef [sic]" (p. 281). Other prominent examples are Wischnitzer (1948), and recently Hoerder (2002, p. 341).

[15] Additionally, the temporary sharp increase in migration in FY 1892 is associated with a wave of deportation of Jews from large cities outside the Pale.

[16] Szajkowski (1942) and Klier (2011, Ch. 11). Szajkowski's widely cited article carried the title "How the Mass Migration to America Began," and stated that following the liquidation of the camp "The stream had begun to move and continued to flow of itself toward America" (p. 304).

[17] This geographic pattern was already speculated by Rubinow (1907), a speculation reiterated by Kuznets (1975), although "firm data to test the hypothesis of differential propensity toward emigration among the regions of the Pale are lacking" (p. 117). In this ground-breaking paper, for which the adjective "comprehensive" would be a gross under-statement, the question of the geographic origins of the Jewish-Russian migration was the only stone left unturned.

evidence affirming this geographic pattern.[18]

Following Kuznets (1975), most historians now believe that economic and demographic conditions were the main causes for the Jewish migration. He argued that endemic poverty in the Pale, particularly in Lithuania, exacerbated by demographic pressures and harmful effects of industrialization explain why and when the Jews migrated. Viewed against the backdrop of the rising number of other east- and south-European immigrants, pogroms need not be the primary explanation for the migration of Russian Jews. Moreover, both non-Jewish minorities from the Russian Empire, particularly Poles, and Jews from Austrian Galicia who had been granted equal of rights and did not suffer pogroms, migrated in great numbers as well. Indeed, Boustan (2007) demonstrated in a time series study that the variation in the scale of the Jewish-Russian migration is largely explained by business cycle fluctuations, and that the effect of the pogrom years on the total number of migrants was a modest one.

However, previous evidence is quite coarse. While the broad pattern of over-representation of Polish and Lithuanian provinces appears to be rather robust,[19] the insight it provides into the link between pogroms and migration is rather limited: the variation in the occurrence of pogroms was not only across regions, but also within regions, even provinces. Understanding this link requires higher resolution of data, both temporal and geographical, in order to separately identify the effects of the pogroms from both the effects of business cycles and other time-varying factors, as well from local characteristics or regional trends that originate from sources other than pogroms. This paper contributes to the literature by utilizing the new district-year panel data of pogroms and migrations, enabling for the first time to identify the local effects of pogroms based on variations across districts.

2.3 Migration and Diffusion

Previous studies assumed that the leading role played by the northern provinces was a result of their comparatively disadvantageous standards of living. I argue that an alternative explanation must be considered, one relating this lead partly to these provinces' position along the path through which migration networks had spread across space. An explanation of this sort was brought forward by Gould (1980b) and Baines (1995) for the late advent of transatlantic mass migration from the eastern and southern periphery of Europe.

According to this hypothesis, gradual diffusion of migration networks across space was an important

[18] Stampfer (1986), based on the distribution of hometown-based associations; Godley (2001, Ch. 5), based on marriage records of Jewish immigrants in London; and Perlmann (2006), based on two cross-sectional samples from the Ellis Island records. However, Alroey (2008, Table 4, p. 51), reported a rather proportional representation across the Pale's regions, based on lists of applicants for support in emigration.

[19] The discrepancy between Alroey's (2008) finding with that of other studies, cited above, may be due to the nature of the data he collected and to the period it covers. Support in emigration were needed more in areas in which chains of migration were weaker; moreover, the applications data are from the later years of the migration, when, as we shall see, the geographic distribution of migrants had become more balanced.

reason for why countries such as Italy and Russia generated almost no transatlantic migration prior to the 1880s, despite being significantly poorer than Britain, Germany, Ireland, and Scandinavia, where the relative rates of pre-1880s emigration was the strongest (Figure 2). It is possible that the internal conditions in the European periphery were ripe decades earlier, but that mass migration was delayed simply because these countries were further away from early regions of emigration. On the other hand, according to the view of Easterlin (1961) and Hatton and Williamson (1998), and as argued in regards to the Jewish migration by Kuznets (1975), the time in which European countries had begun to send large numbers of migrants across the Atlantic was determined primarily by internal conditions, such as the advent of industrialization, urbanization, and demographic pressures. The southern and eastern European periphery took decades longer to produce mass emigration because industrialization and other transformative processes arrived there late.

I propose to apply the diffusionist hypothesis to the case of the Russian-Jewish migration. Accounting for the diffusion of migration options is crucial in identifying the effect of pogroms on migration, as well as the relation between living standards and migration. If pogroms occurred before the affected region had experienced prior emigration, it could be the case that the pogroms increased the demand for migration, yet the increased demand would not materialize into migration because the pogrom victims do not have an option to migrate. This would support a spurious conclusion that pogroms do not affect migration. Furthermore, if regions farther from existing networks had better standards of living, as was the case within the Pale of Settlement, the correlation between standards of living and migration would appear spuriously stronger than the actual causal effect. Kuznets (1975) and other scholars interpreted the over-representation of migration from the northwestern provinces of the Pale and the under-representation of the south as an indication that economic motivation was dominant in the decision to migrate, and that the pogroms had a relatively minor role. But if this pattern was generated to a large extent by spatial diffusion of networks, then this conclusion should be toned down, and the notion that pogroms could significantly increase migration should be favorably reconsidered.

3 Data

3.1 Sources

I collected data from several sources to produce the panel data base on the Jewish migration used in this paper. Individual-level data from the Ellis Island arrival records were used to create direct migration data at the level of the year-district over the 15 years FY 1900–1914. Town-level data on hometown-based associations of immigrants provide indirect indication for the geographic origins of migration at the level of the year-town and the year-district over the period 1861–1920. Economic and demographic cross-section data on the districts of the Pale was coded from the 1897 Russian census; and locality-level data on pogroms were collected and geo-coded from available lists of

pogroms. The following discussion describes these sources, as well as the main challenges and problems associated with the data produced from them.

3.1.1 Ellis Island Ship Manifests

Direct data on immigration are based on the passenger lists submitted by shipping companies to the Bureau of Immigration at Ellis Island, in which the personal details of all immigrants arriving in the facility after 1892 were recorded. Since FY 1900 the last place of residence was included among the required details, and thus the towns and districts of origin of immigrants arriving since that time could potentially be identified. While passenger ships manifests have long been used as a source in the study of immigration, the records were only recently coded into a machine readable file.[20] The basic sample includes all east-European passengers between 1892 and 1924, more than 5.7 million individual records of arrival. Among them were 2.33 million passengers coming from the Russian Empire (or in later years, from the Soviet Union, Poland, and the Baltic states).

The first challenge pertaining to these data is to identify which of the passengers were Jewish. The identification of Jews as a distinct ethnic group ("Hebrew") was required by law,[21] but the assignment to the Hebrew category was not coded systematically from the manifests, and many Jews in the data are unrecorded as such. Fortunately, I find that poor identification was rare—coders of ship manifests either transcribed the identification of Jews, or they did not code this at all for the entire ship. Moreover, I find that when the Hebrew ethnicity was coded for the entire ship, this identification was remarkably accurate: around 95 percent of Jews were correctly tagged, whereas no more than 0.5 percent of non-Jews were mistakenly coded under "Hebrew".[22]

Coded manifests of ships that do identify Jews provide an Archimedean point to identify Jews systematically. I developed an algorithm predicting whether each passenger was Jewish or not based on his or her first and last names. As a first stage, it uses the manifests of ships that identified Jews to assign a measure of Jewishness to each first name and last name, as well as to their first- and last-name soundex groups. At the second stage, it predicts whether each passenger was likely to be Jewish based on his or her first and last name. This algorithm yields very few false positives (i.e., cases in which a non-Jew is mistakenly identified as a Jew), while tagging almost all Jewish passengers as Jews.[23]

The second challenge is to determine the last place of residence reported by each passenger and to link it to an actual town in the Pale of Settlement. At several steps along the way the name of the

[20] The only other studies that make use of the coded Ellis Island data are Bandiera, Rasul, and Viarengo (2013), Spitzer (2013), and Spitzer and Zimran (2013).

[21] It became practice to record immigrants' ethnicities since mid-1899, and mandatory since 1903. See Weil (2000) and Perlmann (2001). "Hebrew" was an official category, along side dozens of other ethnicities defined by the U.S Bureau of Immigration.

[22] For details see yannayspitzer.net/2012/07/24/most-common-jewish-names.

[23] For more details on this algorithm see yannayspitzer.net/2012/11/24/who-is-a-jew-algorithm.

locality could have accumulated errors: the towns typically had Slavic names, but were reported by Yiddish-speaking passengers, and hand-written by a German, British, or Dutch shipping company clerks. Finally, a century later, the writings were deciphered and transcribed by a volunteer ignorant of the geography of the Pale. The strategy to address this problem is to tailor-fit a text condition for each and every town, matching each passenger based on the text of the "last place of residence" field, while taking into account the following difficulties: (a) phonetic variations and errors; (b) graphic errors (such as transcribing H instead of K); (c) different towns with similar names; and (d) towns with multiple names or various pronunciation of the same name.[24]

At this point, the procedure has identified immigrants coming from the 426 largest Jewish communities, covering more than 3 million Jewish residents as of 1897, out of a total of 5 million Jews in the Pale (and 5.3 million in the Empire as a whole). The effective coverage is surely higher than that, since many Jews coming from very small shtetls tended to report a nearby larger town. Of the 2.33 million Russian immigrants in the file, 1.9 million reported a potentially informative last place of residence; 779,286 of which I identify as Jews; 602,144 of which arrived during the fiscal years 1900–1914; and to 295,626 of whom I was able to link a particular town in the Russian Empire.

The town-based identified migrations are aggregated at the district level by year of migration, to form yearly-district measures of total migration.[25] To account for time-varying coverage levels, these measures are adjusted by multiplying across the board the migration counts of each year such that the yearly total across all identified towns will equal the yearly Jewish-Russian immigration.[26] The adjusted measures must, on average, be upward-biased, since not all districts contained towns that were among the largest 426 Jewish communities. Furthermore, as the effective coverage rate certainly varied across districts, there is an additional upward or downward bias for each district. To the extent that these biases did not vary over the duration of the sample period, the main empirical results will not be affected, as the benchmark specifications control for district fixed-effects—any district-specific bias that is constant over time will be captured by them. These biases will distort the identification if they changed over time and the changes were correlated with the distribution of pogroms. Since the same method was used to identify migration flows in each of the

[24] Previously, Godley (2001) and Perlmann (2006) faced similar tasks of identifying the last place of residence of London brides and grooms, and of immigrants from an Ellis Island sample. Both of them identified the last place of residence observation-by-observation, which was challenging yet feasible when the size of the sample was on the order of a few thousand. Unfortunately, this is not feasible in the current case where the size of the sample is on the order of hundreds of thousands, and some sort of an automated script is indispensable.

[25] There are two reasons for the district-level aggregation of the town-level data. First, the potential tendency to report the name of the next largest town, or the name of the district (which is the typically the name of the district's largest town). Second, that the census data is uniformly available only at the district level, not at the town level; this includes the data on age composition of the Jewish population, as well as the occupational distribution.

[26] For the yearly Jewish-Russian immigration to the U.S. I use the measures corrected by Godley (2001, p. 73). Since the explanatory variable in the benchmark specification is log-migration rates, this adjustment does not affect the difference-in-differences estimators; the adjustment amounts to adding a year-specific constant when year-fixed effects are present anyway.

sample years, there is little reason to suspect that there are any time trends in these biases.

3.1.2 Hometown Based Associations (Landsmanshaftn)

For the years prior to FY 1900, the last place of residence was not recorded systematically on the ship manifests. Instead I follow Stampfer (1986) and use a complementary source, the *landsmanshaftn* data, in order to map the evolution of geographic origins of the Jewish migrants prior to 1900. A *landsmanshaft* is a generic name for hometown-based associations, prevalent in New York and other large cities in the U.S. since the time of the migration and active well into the second half of the twentieth century. While in many historical cases of mass migration it was customary for immigrants who came from a particular region to form associations of mutual benefit or other purposes in the new country, the extent to which that was done by east-European Jewish immigrants in New York was unprecedented.[27] A survey conducted for the 1919–1920 American Jewish Year Book counted over five thousand Jewish organizations, their total membership exceeding one million, of which 2,421 were "fraternal orders and mutual benefit associations" with 574,163 memberships (See Schneiderman 1919, p. 303).

The proliferation of the *landsmanshaftn* testified to an extraordinary success of this grass-root institution with which almost every household was affiliated. It provided a way for Jewish immigrants to continue the operation of some of the age-old traditional social and economic roles previously assumed by the old-country close-knitted *kehilah* (a corporate Jewish community encompassing all the Jewish population in a town and its vicinity), as well as by more recent institutions that had developed during the nineteenth century (Löwe 1997). At the same time it was a new adaptation, designed to provide welfare services in the modern environment of the new country.[28] One of their most important roles was to provide social and material support for recent immigrants from the same town.

I use a list of 3,014 hometown-based associations that were incorporated in the New York County court during the period 1848–1920.[29] As a general rule, the name of the hometown appears as a part of the name of the association, such that in most cases deciphering the name of the association enables a straightforward linkage to the town. The court records also note the year of incorporation. When immigrants from a particular town had incorporated an association in a particular year, I take it as an indication that around that time the network supporting immigrants from the respective town had thickened.[30]

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[27] So much so, that the term *landsmanshaft* became an accepted synonym for hometown-based associations in the historical literature (Moya 2005).

[28] See Soyer (1997). For a case study on the associations formed by the town of Proskurov see Milamed (1986).

[29] I am thankful to Ada Green, a volunteer genealogist who created the online version of this list and was helpful and forthcoming in answering my questions. The list is available online on www.jgsnydb.org/landsmanshaft/ajhs.htm. Details on its origins are on www.jgsnydb.org/landsmanshaft/ajhsintro.htm.

[30] Stampfer (1986) used a similar shorter list from Rontch's (1938) directory to learn about the geographic origins

The *landsmanshaftn* list is not comprehensive. Associations that were never incorporated, or were incorporated outside New York County, would not show up in it.[31] Additionally, it is impossible to differentiate within the list an act of association from an act of changing the name of an association. Also, it appears that on occasion, the same group of recent immigrants registered two separate associations around the same time, such as a religious congregation and a mutual benefit association. In such cases, the data record two separate associations whereas in practice there was only one. The names of some associations appear in two separate entries, once under a Yiddish, Hebrew, or German name, and again in an English name that was typically, but not always, a literal translation of the former. I made every effort to avoid double-counting. In particular I used the file number that is available on the list as an indicator for whether two entries are in fact one, as well as a comparison of the literal sense of the associations' names in the four languages to spot repeated entries. The task of linking the associations to their respective towns brought similar challenges as with the Ellis Island records, but this list is of a finite size and enables an observation-by-observation treatment. Moreover, these associations left an extensive off- and on-line paper-trail that facilitated identification.[32] While the problems of incorrect enumeration can not be completely eliminated, there is little reason to suspect that these potential biases are strongly correlated with the characteristics of the districts. In particular, I discuss in the next section the potential danger of variation in the tendency of different regions to incorporate associations, and I show that even if such biases and mis-measurements exist they are unlikely to qualitatively affect the patterns and the results that I find.

3.1.3 The 1897 Russian Census

The 1897 Russian Census was the only general census conducted prior to the Russian Revolution, and is renowned for its relatively high quality (Clem 1986). While summary tables and individual figures were often cited from it, there remain thousands of detailed tabulations, mostly at the district level, that have not been coded or utilized in economic studies as of yet. Since many of these were cross-tabulated by ethnicities and religions, this census is the best available data on any Jewish population prior to the formation of the State of Israel in 1948, capturing as much as half of world Jewry at that time.

First, a special volume within the census publications enabled me to map more than 85 percent of the Jewish population down to the level of the locality (Tsentral'nyi Statisticheskii Komitet 1905). It lists each and every locality in the Russian Empire in which there were more than 500 inhabitants, and for each recorded locality it lists the populations of the religious minorities that

of the Jewish Russian immigrants, although his analysis did not include a time dimension.

[31] New York County overlapped with the borough of Manhattan; it did not include New York's other boroughs.

[32] In particular, I found the various databases and community pages on www.jewishgen.org immensely helpful, and I also relied on Schwartz and Milamed (1986).

comprised more than 10 percent of the total population.[33] Since Jews typically lived in small provincial market towns, in which they formed a majority of the population,[34] this volume enables a fine mapping of the Jewish population in the Pale down to the level of the locality, refining the nearly complete district-level mapping provided by the provincial volumes described below. A graphic representation of these data can be seen in the map in Figure 4.

The *shtetlach* data set was generated from this volume by coding each and every town in European Russia in which a Jewish community was listed; a graphic representation of these data is plotted on the map in Figure 4.[35] It is used to identify the towns that were linked to the Ellis Island arrival records, and it also links each town to its district, enabling the district-level aggregation of the immigration measures.

The census publications contain a series of *guberniia*- (province) level volumes, one for each of the empire's provinces. For each of the 60 provinces of European Russia and the Kingdom of Poland, which comprise the 25 provinces of the Pale, I coded cross-tabulations of ethnicities, age groups, literacy rates, and occupations. I use the tabulations of age groups for the Jewish population in each district to interpolate the size of each cohort in each district as of 1897.[36] I use occupational data, enumerating the number of Jews employed in each trade of a list of 65 different occupations, to calculate a district-level measure of the ratio of Jews employed in commerce and trade to the number of Jews employed in manufacturing.[37] Since no systematic wage data exist, the commerce-manufacturing ratio uses as a proxy for the level of income of the Jewish population in each district.[38]

3.1.4 Pogroms

Data on the 1881 pogroms were geocoded using the list created by Aronson (1990, pp. 50–56), and the partial mapping of Aronson's list with a few additional cases by Klier (2011, pp. 22–24). The sporadic pogroms of 1882–1884 were not available as a comprehensive list, but they were fewer in number and they did not occur in provinces that were pogrom-free in 1881. Data on the location

[33] Jews were identified in the census using two different fields in the questionnaire, mother tongue and religion. The localities volume counts Jews based on religion, but other tabulations that I coded used mother-tongue. The correlation between the two is nearly perfect, as 98 percent of Russian Jews reported Yiddish as their mother tongue. In the largest urban centers, such as Warsaw and Odessa, there was a significant share of native speakers of Polish and Russian.

[34] On the patterns of Jewish settlement in the Pale see Rowland (1986).

[35] See a discussion of this map on yannayspitzer.net/2012/07/22/a-new-map-of-jewish-communities-in-the-russian-empire.

[36] The interpolation uses polynomial splines to back out yearly cohorts from the 10-years age groups.

[37] I use Rubinow's (1907, p. 500) grouping of the 65 occupations to agricultural, professional services, personal services, manufacturing and mechanical, transportation, and commercial pursuits.

[38] On the correlation between this ratio and the standards of living of the Jews in the Pale see Rubinow (1907), Kuznets (1975), and Kahan (1986). On the relation between employment in commerce and manufacturing and migration to the U.S., see the critical view of Perlmann (2000);

and the severity of pogroms during the second wave of 1903–1906 were collected from two sources. The report compiled by Motzkin (1910) includes chronologies of dozens of major events, alongside lists of hundreds of relatively minor pogroms. It was based on an extensive field work by surveyors sent by the office of the Zionist Organization in Berlin, under the leadership of the prominent Russian Zionist activist Leo Motzkin. Since the report was partly based on data that were meant to asses the damage caused by the pogroms to facilitate the funneling of relief funds to the victims, each pogrom entry included comparable measures that enable an assessment of pogroms' severity: numbers of deaths, persons severely and lightly wounded, families affected, houses destroyed, shops destroyed, and total damage assessment in Rubles.

Motzkin's report, a highly reliable source, was complemented by another less detailed list published in the 1906/7 *American Jewish Year Book* (Szold 1906), also including some measures of damage caused by the pogroms. It is less accurate, but is nevertheless an important complementary source as it contains a few cases in regions that were not covered by Motzkin's surveyors. Altogether the pogroms data include 388 individual towns whose Jewish communities were known to have been hit at least once. According to Lambroza (1981), who collected information from additional archival sources, Motzkin's report is nearly comprehensive and is largely overlapping with additional archival sources.[39]

3.2 Descriptive Statistics

The descriptive statistics of the sample of identified immigrants are reported in Table 2. Panel A reports district-level statistics. The sample covers 215 districts, among them 208 out of the 236 district of the Pale of Settlement, and 7 districts beyond the Pale. These districts had 426 towns with migrants who were identified from the Ellis Island records of the period FY 1900–1914.[40] This means that on average each district is represented by almost two towns. The Jewish population in these towns covered, on average, 59 percent of the Jewish population of their districts. To the extent that Jewish migrants who came from smaller localities tended to report the nearest large town, the effective coverage rate is greater than the share of Jews living in identified towns. In the region of New-Russia, the coverage rate was the greatest, 77 percent, due to the fact that on average Jews in the south lived in larger localities. This greater coverage rate may bias upwards the measurement of Jewish migration from this region, but as discussed above, as long as the extent

[39] Unfortunately, I was told in personal communication with Shlomo Lambroza that the file generated for his doctoral dissertation and was coded on punch-cards had been lost. Lambroza found that more than 650 pogroms took place. The difference between this figure and the number of towns that I linked to pogroms is due to two reasons. First, Motzkin's report bundled together in quite a few cases a report on several minor pogroms that occurred in a certain district, without naming the location. In such cases I tagged the district as a pogrom district, but these events were not included in measures that require an identification of a specific locality.

[40] The few districts beyond the Pale are mainly in the province of Courland, bordering the Lithuanian province of Kovno on the north. This province had formerly been part of the Pale but was officially removed, and many Jewish communities continued to exist there.

of this bias did not change over the sample period, the results presented in the next section should not be affected.

According to the census, an average district in the sample had just over 180 thousand residents, and the average share of Jews among them, identified by their mother tongue, was 12 percent. Although within districts there were many small towns in which Jews comprised the majority of the population, their distribution across districts was more even. There were no districts in which the share of the Jewish population exceeded 29 percent, and even in the district with the lowest share Jews were still 2.5 percent of the total population. The share of Jews employed in commerce to those employed in manufacturing, which stands as a rough proxy for the local standards of living, was lowest in Lithuania and highest in the southern regions; this is consistent with the

The uneven distribution of pogroms is evident. While 13 percent of the districts had at least one pogrom reported in 1881, Lithuania had none, and, with the exception of the 1881 Christmas pogrom in Warsaw, neither did Poland. The clustered pattern of the first wave can be seen on the map in Figure 5, where pogroms typically spread from cities to the near countryside (Aronson 1990, Ch. 7). In the second wave of 1903–1906, half of the districts had at least one pogrom reported, and a major pogrom was recorded in 30 percent of them.[41] This time, however, Polish and Lithuanian districts did experience violence, albeit to a lesser degree than southern provinces (see also the map in Figure 6).[42] Interestingly, the Lithuanian pogroms mainly took place in the western Belorussian provinces of Mogilev and Vitebsk. As we shall see, these provinces in fact had less migration than other provinces in Lithuania, so in this case, the intra-regional pattern of negative correlation between pogroms and migration is echoed by a similar inter-regional pattern.

The bottom rows of Panel A in Table 2 report the direct and indirect measures of migration. The indirect measure is generated from data on associations in the years 1861–1920, counting the number of incorporated *landsmanshaftn* linked to each district per year, divided by the district's Jewish population. The direct measure of migration covers the period FY 1900–1914; it is the count of Jewish immigrants aged 16-50 in each year, adjusted for the ratio of total-to-observed migration, divided by the size of their respective cohorts as of 1897. The average yearly-district rate of migration was 13.4 in the first part of the period, before the second wave of pogroms (FY 1900–1905), and 14.4 per thousand in its second part after the pogroms (FY 1906–1914), but behind these seemingly even figures there was great year-to-year volatility (See Figure 1),[43] and as will be discussed in section 5, some districts did experience a sharp increase in migration between the two sub-periods. Even while considering that this measure is restricted to ages 16-50, this is still one

[41] See below on the definition of "major".

[42] On the question why the provinces of Lithuania were less prone to pogroms see Staliunas (2004), Sirutavicius and Staliunas (2010), and Le Foll (2010).

[43] The strong sensitivity of Jewish migration to American business cycles was demonstrated in Boustan (2007). In Spitzer (2013) I show that this sensitivity is partly attributed to migrants timing their migration optimally, and not due to an exceedingly high long-run income elasticity of migration.

of the highest rates of European U.S.-bound migration at that period.[44]

Panel B of Table 2 reports the demographic characteristics of the Russian migrants. The difference between Jews and non-Jews is quite stark (Columns 1 and 2), and, as already pointed out (Kuznets 1975, pp. 94–100), it characterized the Jewish migration as "family" or "permanent" migration, compared to the economically-driven migration of other ethnic groups. Jewish migrants came in larger family groups, and had much higher shares of females, children, and elderly people—groups that are less likely to become gainfully employed. Among the non-Jewish migrants the ratio of married adult males to married adult females was over three to one, suggesting that most non-Jewish married males migrated with the intention of returning. In sharp contrast, the number of adult Jewish married males and females was almost equal, consistent with an inclination to permanent migration.[45] A comparison of these characteristics across regions shows that the demographic composition of Jewish migration was quite consistent. A minor pattern emerges with the Jewish migration from the Polish provinces being somewhat more "economic" in nature, and the migrants from New-Russia having the highest dependency ratios. But considering the magnitude of the differences between Jews and non-Jews, within-Jewish differences appear small. Whether these patterns were sensitive to the occurrence of pogroms will be studied in section 6.

3.3 The Pogrom Treatment: Various Definitions

Pogroms, the "treatment" of interest, can be defined in several ways, and it is important to ascertain that results are not dependent on any particular definition chosen. The benchmark results will be tested for robustness to using alternative measures of pogroms. The following discussion presents presents these various measures.

As opposed to the list of the first-wave pogroms, the reports on the second-wave pogroms contain details on the severity of most events, and this information enables clearing away the less consequential cases, particularly those that were hard to identify or on which we have little or no information reported. Table 3 reports the means of the district-level pogrom indicators, based on various different thresholds for what amounts to a pogrom. Column 1 counts any event that was mentioned as a pogrom, even if no details were provided. The top three rows refer to the data from the merged list, meaning that an indicator is positive if either Motzkin's report or the AJYB list had at least one pogrom assigned to the district. According to this most inclusive measure, 50.2 percent of the districts had at least a single pogrom (this is the same figure reported in Table 2).

[44] Compare to Hatton and Williamson (2008, Table 4.2). Also, recall that the adjustment process should have generated, on average, a small upward bias of these counts.

[45] Sarna (1981) claimed that Jewish return migration was more prevalent than had been thought, but provided no quantitative evidence. Gould (1980a, Table 3) showed that it was the lowest of all ethnicities. Recent evidence on return migration by Bandiera, Rasul, and Viarengo (2013), as well as indirect evidence by Abramitzky, Boustan, and Eriksson (2012), indicate that Russia stood out as the country with the lowest rates of return migration, probably due to the large proportion of Jews among the Russian immigrants.

Some of these events were not matched to a known location. The second row reports only indicators for pogroms that could be traced to a particular locality, and in the merged list this makes an infinitesimal difference: 49.8 percent of the districts had a geo-located pogrom. The third row reports indicators for a further restricted definition, districts in which at least one town that is in the *shtetlach* data had a pogrom. Again, removing the pogroms that occurred outside the 2,300 towns identified in the *shtetlach* data makes a minuscule difference. These small differences imply that in almost all cases, if there was a pogrom anywhere in the district that is not mapped by the *shtetlach* data, mainly villages and very small communities, there was also a pogrom in one of the larger identified Jewish communities. The next 6 rows repeat the same statistics for Motzkin's report and the AJYB list separately. The main thing to notice is that the AJYB list had greater coverage; 47.4 percent of districts were hit by at least one pogrom, as opposed to 25.1 according to Motzkin. However, the AJYB list was probably less accurate and reported many cases with no details on damage.

The next columns increasingly filter out the less severe events. Column 2 reports the averages of district pogrom indicators while only counting cases that had any information on damage or casualties caused. This omission already cuts down the share of affected districts to 35.8 percent according to the merged list, mainly due to removing a large number of pogroms reported without details on the AJYB list. Column 3 counts only pogroms that were at least "major", an arbitrary definition used here for pogroms that either had at least one casualty (wounded or dead) or large damage caused (at least 100 families or 500 persons affected, or damage of over 20,000 Rubles). As reported above, according to the merged list 29.8 percent of the districts had at least one major pogrom. Column 4, reporting "violent" pogroms, uses a definition that raises the threshold to at least one dead or wounded. Finally Column 5 counts only the most severe cases, the "deadly" pogroms. These are the cases in which at least 10 Jews were killed or 50 were wounded, and presumably, they are also the least likely to have been inaccurately reported. Focusing only on thed deadly pogroms only removes more than half the districts from the pogrom group, as only 11.6 percent of the districts are tagged with a deadly pogrom according to the merged list.

District indicators effectively capture the extensive margin of the pogroms—whether a district was or was not exposed, but they do not reflect the intensive margin. This measure bundles together districts that only had a single pogrom with districts that had many. Another shortcoming of the indicator measure is that it does not distinguish between large districts and small districts; this is an important distinction if the proportion of the population actually exposed to events in the district would vary by its area or by the size of its population (for example, if a single pogrom occurred in both Luxemburg and France, the average citizen of Luxemburg would effectively be more exposed to the pogrom than an average French). Table 4 reports the averages and standard deviations of pogroms per capita, an alternative treatment measure that captures the intensive margin. When counting any pogrom reported in the merged list, an average district had 6.1 cases per 100 thousand Jewish residents counted in the 1897 census. The standard deviation is 10.6,

reflecting a distribution with a heaping at zero and a rather long right tail. As opposed to the case of the district indicators, when counting pogroms per capita, restricting the counted pogroms to geo-located localities, or to localities in the shtetlach data only, does reduce the average count. An average district had 4.7 pogroms per 100 thousand when only pogroms that took place within localities in the shtetlach data are counted. This measure is also sensitive to the threshold level of pogrom severity; it is halved to 3 when only major pogroms are counted, and further down to 0.6 deadly ones per 100 thousand.

3.4 The Case of a Single Town: Kalarash

To get a closer look at the data, I present in appendix A a case study describing the experience of a single Town, Kalarash (Orgieev district, Bessarabia province, New-Russia). It demonstrates what an actual deadly pogrom looked like, and shows that, at least in this extreme case, pogrom-driven migration did happen. This study partly builds on historical narrative evidence by eye witnesses, and I show how the narratives correspond to raw data and how the raw data were translated into observations in the data sets.

The case of Kalarash provides an important lesson: It was an extreme case. Relative to its size, it suffered in 1905 one of the worst pogroms of the Late Imperial period, with as many as one hundred murdered Jews. The pogroms left most of the residents homeless and without means to provide for themselves, as a large portion of the town was burned. There is no indication for migration coming from the region prior to the 1890s, and the town's first immigrant association in New York was founded only in 1906. I was able to count only a handful of Kalarash immigrants in each of the six years before the pogrom, but soon after it their number rose rapidly, nearly tenfold in the year after the pogrom (see Figure 14). In all probability, many of them were driven out by the pogrom and the economic devastation it brought, in the sense that if the pogrom had not occurred they would not have migrated. Whether Kalarash, the extreme case, epitomized the general case, or was it an unrepresentative odd anecdote, is the question I examine in the coming sections.

4 Results: The First Wave of Pogroms 1881–1882

The persecution theory associated the first wave of pogroms with the onset of Jewish mass emigration from Russia. Although the existence of such a strong link is doubted by historians, the available quantitative evidence is still mixed and incomplete. The purpose of this section is thus to examine the evidence on the relation between the first wave of pogroms and the beginning of mass migration, using new evidence on the geographic distribution of pogroms and the incorporation of *landsmanshaftn*.

4.1 Migrations Before the Pogroms

Prior to 1881 there had already been a trickle of Jewish migration from Russia.[46] This early flow of migration is clearly captured in the *landsmanshaftn* data. The map in Figure 7 marks the locations of the hometowns of *landsmanshaftn* that were incorporated during the years 1861–1880 in the New York County court. A very clear pattern emerges—if the landsmanshft incorporation data are broadly representative of the local origins of Jewish immigrants, then a very restricted set of provinces had provided the pioneering cohorts of migrants. Congress Poland was clearly the main source: practically all early *landsmanshaftn* originated there, a handful in Lithuania, and none in the south (see also Table 2, Panel A, Columns 3–7). Furthermore, within Poland migration was concentrated mostly in the northern provinces bordering Germany. This pattern was previously unknown. In fact, a rather detailed guess by Jacob Lestschinsky (1961), a prominent scholar who spent much of his life studying Jewish demographics and migration, on the geographic origins of pre-pogroms migration, had it that the pioneers of the Jewish-Russian immigration were Lithuanian Jews fleeing the famine of the late 1860s: "[...] most of the residents in the Jewish quarters of New York and Chicago in this decade [1870s] were Lithuanians. [...] The number of Polish Jews was at first not very great" (p. 68).[47]

4.2 Do Associations Represent Migration?

Before explaining the pattern of pre-pogrom migration described above, it is important to question the validity of the assumption that associations actually represent migration well. Could it be that what we observe is not the geographic distribution of migration sources, but only the distribution of the tendency to form associations? For several reasons, I deem this to be very implausible. First, *landsmanshaftn* had cultural components to them that may have been subjected to regional idiosyncrasies, but above all they were an institution that successfully served a diverse set of material needs that must have been shared by all communities: medical and unemployment insurance, synagogues, burials, all were vitally needed and efficiently provided within the context of a transplanted close-knitted community, within which trust and solidarity prevailed as a matter of course. As shown below in this section, sooner or later neighboring and farther regions did follow suit in form-

[46] Kuznets (1975) estimated the number of Jewish immigrants from the Russian empire during the 1870s at 15–20 thousand, as opposed to 139.5 thousand during the 1880s. Diner (1995) claimed the migration had been building up since the 1860s and 1870s, and Alroey (2008) reported figures suggesting Kuznets had under-estimated the volume of earlier migration.

[47] To be fair, the province of Suwalki, that was administratively part of Congress Poland and appeared to have been one of the main sources of early immigration, was in fact "Lithuanian" in the terms of the cultural geography of the Pale. Its immigrants would have probably been identified as true "Litvaks". However, Lestschinsky was specifically referring to the 1869 Kovno famine as the driver of early Lithuanian migration (p. 54; also, see more on the Kovno famine below), yet the province of Kovno itself was clearly a late-comer. Later attempts to identify the geographic origins of the Jewish-Russian migration failed to pick up this early pattern reported here because they relied on post-1900 evidence (Perlmann 2006), or evidence bundling the pre- and post-1900 periods (Stampfer 1986).

ing associations. So even if there had been regional differences in preferences, they did no persist long. Therefore, preference towards associations could not have created sharp regional differences, when the demand-inducing needs and the capacity were available for all communities.

Could it be that regions did not differ based on their tendency to found associations, but based on their tendency to legally incorporate them? It is true that not all associations were legally incorporated, but beyond the basic level of very restricted activity, official incorporation was a necessity in running associations that were economically active, had revenues and expenses, and made financial commitments. Perhaps the *landsmanshaft* institution was a new innovation, that in itself simply needed time to diffuse over space? Again, there is very little reason to suspect that this was the case. All of these associations were incorporated in Manhattan; the distance that was necessary for this innovation to diffuse was not from one Pale region to another, but from one lower-East-Side block to another. Replication of such an institution would have been an almost instantaneous matter, and should not have depended strongly on the Pale's geography.

Other dangers to a correct representation of migration by *landsmanshaftn* are more difficult to rule out. The data relate to Manhattan only, which indeed accounted for the majority of recent Jewish immigrants.[48] Did other immigrants from regions beyond the early migration strip skip Manhattan and cluster elsewhere in the United States? Alternatively, were they living in Manhattan, but did not yet form the critical mass to found town-based associations? While both concerns are valid, it is important to stress that the difference between the early migration strip and the rest of the Pale, shown in the map in Figure 7, was sharp: virtually all indications for early migration came within it, none outside it. The suspicions above, if true, point at the possibility of a difference in degree, but can not account for such sharp qualitative difference. Even if regions outside the strip were more likely to concentrate outside Manhattan, some of them must have formed communities in New York. If there was a critical mass problem, it must have been overcome by at least a few communities, certainly those from the larger cities. Sharp patterns require sharp explanations; and none seem to seriously cast doubt on the conclusion that early emigration was concentrated in a narrow area.

Evidence on the correlation between *landsmanshaft* incorporation and migration can be gathered from the later years (1900–1914), on which direct migration data is available from the Ellis Island records. Since incorporation is a low-frequency measure,[49] at the very fine resolution the *landsmanshaft* indicators performs rather unimpressively as a proxy for migration. As reported in Table 1, Column 1, at the district-year level the coefficient of correlation between the (adjusted) migration per-capita and *landsmanshaft* incorporation per-capita is only 0.0924 (as Column 1 in Table 1 also reports, the coefficient from a univariate regression of associations on migration is statistically significant at the 5% level). But when the counts of incorporated associations and migrants are aggregated at the province-year level, the correlation coefficient increases to 0.33 (Column 2).

[48] REFERENCE TO BE COMPLETED.

[49] Most (82.3 percent) year-districts did not have an incorporation.

Columns 3 and 4 repeat the same exercise while aggregating counts of migration and associations by five-years periods. When aggregated at the district level, the correlation coefficient is 0.17, going up to 0.49 at the province-5-year level.

The conclusion is that the rate of incorporation of associations is a poor proxy for migration at a very fine resolution, but a good one in aggregate levels. The plot on Figure 8 represents the correlation between *landsmanshaft* incorporation and migration at the province-5 year aggregation (corresponding to Column 4 in Table 1). With the exception of a handful of outliers, the two variables seem closely aligned. Therefore, to the extent that similar patterns of correlations between migration and associations existed in the previous decades, it seems plausible to interpret the *landsmanshaft* incorporation as broadly representing the evolution of the Jewish migration.[50]

4.3 Alternative Explanations for the pre-Pogroms Pattern

Explanations for the early migration strip pattern that are wholly based on internal economic conditions are hard to come by. As we shall see, the northern provinces of Poland continued to provide large cohorts of immigrants in subsequent decades as well, but one would be hard pressed to find causes that made conditions there so much more conducive to immigration in the 1870s compared to neighboring Lithuanian provinces, that in the following decades more than caught up with the Polish levels of migration. There is no way to measure whether western-Lithuania was worse- or better-off than northern Congress Poland in terms of standards of living, but little indicates that northern-Poland was particularly worse-off than other regions in the north-west. Instead, it is a convention in the historical literature that the Lithuanian provinces of Grodno, Kovno and Vilna were the epitome of Jewish-Russian poverty.[51]

Neither is no strong case for attributing the geographic distribution of early migration to transformative processes of industrialization or urbanization, as implied by Kuznets's (1975) hypothesis. Early migration did not come particularly from the large urban and industrial centers of the north-west. Lodz ("Polish Manchester"), the Pale's third largest Jewish urban community in 1897, did not incorporate an association in New York until 1888. Bialystock, another very large center of Jewish industrial labor in the province of Grodno, had two *landsmanshaftn* prior to 1881, as did Warsaw, the world's largest Jewish urban center at the time. Vilna and Minsk, the Pale's fourth and sixth largest Jewish urban communities, had one each. In contrast, all the remaining 42 pre-1881 *landsmanshaftn* were founded by communities of under 10 thousand Jews (as of 1897), 33 of them by communities under 5 thousand, and many of these founded more than one association.

Moreover, if one would look for a local economic shock driving migration from particular areas during the 1870s, the immediate suspect would be the Kovno famine of 1869, mentioned above. This

[50] In future versions of this paper I intend to cross-verify the validity of the data by collecting biographical-encyclopedic entries that enable to record the places of origin of early Russian Jewish migrants.

[51] For a classical study on the condition of Jewish workers in Lithuania see Mendelsohn (1970).

event gained the attention of western Jewish communities and reports on thousands of casualties and refugees precipitated the founding of a relief committee that eventually directed and supported several hundred Jewish refugees in migration to the U.S.[52] However, communities from the province of Kovno had founded only a single *landsmanshaft* prior to 1881. While the province of Suwalki was also hit by this famine, and did indeed produce a large number of associations, other northern-Polish provinces were not mentioned as suffering famine. In other words, the famine crisis may have induced many Suwalki Jews to emigrate, but could not have been the crucial difference explaining why the early migration came from northern-Poland and not from western-Lithuania.

Proximity to the border could have played a role in facilitating the migration from border provinces, simply by reducing the costs of travel within Russia en route to the German ports, from which many of the immigrants eventually embarked. Undoubtedly the costs of travel toward the border were burdensome, probably reducing the benefits of migration on the margin, but they could not have been a bottleneck preventing migration from regions further from the border: As we shall see below, provinces that were far from the border did produce mass emigration in later years.[53] However, the possibility that the early pattern of migration was generated by the expansion of railways in Russia must be considered. In 1869, the St. Petersburg-Warsaw line was completed, and by that time some of its branches had been operating for a few years. It crossed Congress Poland from the north-east to the south-west, and importantly, it had two links to the Prussian railway system: one in Suwalki province, at the north-east of Poland, another at the north-west. Most pre-pogrom migrants probably crossed the German border through or around (when crossing illegally) these railway border points on their way to Hamburg, Bremen, and other Atlantic ports.[54] The St. Petersburg-Warsaw line must have been easily accessible from all places along the early migration strip, and certainly facilitated migration from these areas.

However, other places were linked to this line as well. In particular, it crossed the major cities of Vilna and Grodno, and an early branch that went from Vilna to the German border in Suwalki crossed through Kovno. The city of Minsk was a short distance away from the line, connected via a major road. So the would-be greatest migration sources of western-Lithuania were linked by the railway at the same time as the early migration strip, and proximity to railway is not a crucial difference explaining why the latter regions had migration prior to 1881 whereas the former did not. Furthermore, within a few years the railways reached the south too. By 1875, the south-west provinces of Volhinia and Podolia, as well as the urban centers of Kishinev, Odessa, and Kiev, were all linked by train to Hamburg via the Austrian railway system, but migration did not follow until years later. The Brody refugees of the 1881 pogroms used these lines to reach the Austrian border, making it evident that arriving at the border was rather the easier part of the migration challenge.

[52] On this episode see Wischnitzer (1948, pp. 28–36), who saw in it the first organized migration that opened the door to subsequent chain migration.

[53] According to Alroey (2008, p. 116, Table 19), the cost of travel to the border was on average one fifth of the ship fare.

[54] On the border crossing see Alroey (2008, pp. 150–162).

Most of them failed to migrate because they had no personal relations with former migrants to rely on, and they were left depending on charity and assistance by organizations.

In fact, Russian Jews migrated over great distances within the Pale throughout the nineteenth century. By 1897 there were more than 700 thousand Jewish residents in New-Russia, where hardly any Jewish settlement had existed a century earlier. Most of them were probably immigrants or descendants of immigrants from Lithuania, and many of these migrations took place decades before railways were available anywhere in Russia.[55]

Instead, a plausible explanation for this pattern is that the previous existence of migration networks was effectively a necessary condition for migration, and that these networks to time to diffuse across regions. Consistent with Gould's (1980b) hypothesis on the European pattern of migration, these networks had only started to filtrate during the 1860s and 1870s through the German border, where the overseas migration of the neighboring formerly-Polish, now-Prussian, Jews from the provinces of East-Prussia, West-Prussia, and mainly Posen, had already been well established during the third quarter of the nineteenth century (Diner 1995). Russian Jews living in proximity to the German border maintained contacts across the border, and thus became the first to migrate from within the Pale (Leiserowitz 2009).[56] While positive proof for this assertion requires further micro-historical study, the early migration strip pattern and further evidence presented below are consistent with it. On the other hand, explanations that attribute the patterns of Jewish migration to internal economic and demographic conditions alone are insufficient.[57]

This view is supported by statistics that were collected on the immigrants' relations to persons already living in the U.S. In the years 1908–1914. Of a sample of 656 Jewish immigrants, 62.2 percent reported that their ticket was paid by a relative or another person. 94.2 percent reported that they were joining a relative, and 4 percent reported joining a friend. The rest, 1.8 percent, reported that they were not joining anyone (Kuznets 1975, Table XIII).[58] On the other hand, the evidence on the share of linked passengers should be taken with caution; it may be that by 1908 the networks were already well saturated, such that almost every prospective migrant could name a relative or a friend in America upon arrival to the U.S. port of entry, whether his arrival depended

[55] On internal Jewish migration within the Pale see Stampfer (1995). On the Jewish community of Odessa, including details on the demographic evolution through the nineteenth century, see Zipperstein (1985). On general internal migration in the Russian Empire see Anderson (1980).

[56] The Jewish trade across the German border, often illegal, was a persistent worry for the Russians throughout the nineteenth century. To curb Jewish smuggling activity, a series of orders going back at least to 1825 (Klier 1986, p. 168), and culminating with an imperial edict in 1843, were issued banning Jewish settlement at a distance of less than 50 versts (53 km.) from the German and Austrian borders. These were later interpreted as a ban on new settlement only, and generally they were hardly ever enforced in practice. For a case study on a Suwalki border town, its trade relations in Germany and the way they fostered migration, see Leiserowitz (2006).

[57] For evidence on the importance of local chain migration in the case of the German migration from Hesse-Cassel, see Wegge (1998); on chain migration in the European transatlantic migration in general see Hatton and Williamson (1998). Similar evidence on contemporary migration was presented by Munshi (2003), and McKenzie and Rapoport (2010).

[58] Among a sample of 19 thousand Italian passengers in 1907–1925, 41.3 percent had first-degree family links, and only 4.4 percent were unlinked (**Spitzer2013-a**).

on this link or not.

4.4 Post-1881 Migration

The maps on Figure 9 show the 1881 pogroms and *landsmanshaftn* incorporated during the following decade. The lack of geographic overlap between the two areas is so stark that no further statistical evidence is required: The post-1881 migrants did not come from areas that had experienced pogroms. Instead, the migration that immediately followed the pogroms was a rather smooth continuation and expansion of previous trends, where the neighboring western-Lithuanian provinces of Kovno, Vilnia, Grodno, and Minsk, were contracting emigration. The handful of pioneering southern *landsmanshaftn* was an exception rather than the rule.[59] It was only later during the 1890s and early 1900s that evidence of large scale emigration appeared in the south (Figure 10), mainly from the south-western provinces of Volhinia, Podolia, and Kiev, but even then not necessarily from places that had experienced pogroms. Over all, the rate of *landsmanshaft* incorporation during the entire period 1882–1905 was around four times greater in Poland and Lithuania compared to the pogrom-stricken south (Table 2, Panel A).

As strong as this evidence may be, it does not yet rule out that pogroms, and more broadly persecution, induced migration. It is still possible that migration during the 1880s and 1890s, although coming from different regions, was boosted by the general country-wide shock of the 1881 crisis and the ensuing "legislative pogroms". The fact that the migrants did not come from the south does not rule this option out. Since the south was traditionally a destination for internal migration from the north-west, it could be that the violence occurring in the south had an indirect effect on overseas migration by diverting internal migration of Polish and Lithuanian Jews towards the U.S.; the two options were surely close substitutes. However, there is little in the data indicating 1881 as a country-wide turning point—the increase in the volume of migration around that time could be regarded as a natural continuation of the process that had budded during the 1870s, which might have occurred even if the pogroms had never happened. The rising numbers of migrants during the 1880s compared to the previous decade may well be attributed to geographic expansion of the migration base rather than to an increase in the rate of migration in the already exposed districts.

Nevertheless, the case for a local effect of pogroms is not lost. The pogrom victims in the south may have received a very strong incentive to migrate to the U.S., but not having been linked to a chain of migration, they did not have the opportunity to respond to these incentives. The Brody Episode is a perfect demonstration of this case, where thousands of victims directly affected by pogroms wanted to become migrants but were not able to do so without assistance. The demand may have shifted outwards, but emigration was not yet in the choice set of pogrom victims.

[59] As before, Lestschinsky's (1961) speculation turns out to be incorrect: "The pogroms of the 1880s brought mostly Ukrainian Jews" (p. 68). The south-west and New-Russia regions were roughly equivalent to the Ukrainian territories of the Russian Empire.

5 Results: The Second Wave of Pogroms 1903–1906

If there was a local effect of pogroms, it should have been manifested following the second wave, when most regions had already experienced emigration to some degree, and moving to the United States had entered the choice set of victims. The maps on Figure 11 plot the 1903–1906 pogroms alongside the *landsmanshaftn* incorporated during the following decade, and reveal a more mixed pattern.[60] Pogroms became more widespread, reaching Poland and the eastern provinces of Lithuania, as well as previously peaceful areas in the south, such as Bessarabia and northern Chernigov province. Nevertheless, the south again took a greater hit: 89 percent and 70 percent of the districts of New-Russia and the southwest were affected by a pogrom, compared to 55 percent and 22 percent in Lithuania and Poland (see Table 2, Panel A, Columns 3-6).

The post-1906 *landsmanshaftn* build-up was still stronger in Poland and Lithuania, but the southwest was experiencing a formidable increase of over 80 percent in 1906–1920 compared to the previous 25 years. While the average rates of northern emigration during 1906–1914 slightly declined compared to 1900–1905, emigration from the southwest increased by more than 70 percent and surpassed those of Poland with 14.46 migrants per 1,000. Interestingly, emigration from the region that was hardest-hit, New-Russia, seemed to have remained the lowest with a smaller post-pogroms increase than the southwest. To advance beyond the crude regional patterns, district-level difference-in-differences regressions will address the question at stake: whether a district that had suffered at least one pogrom has subsequently produced more emigration than a similar but unaffected district.

5.1 The Determinants of Pogroms

Pogroms were by no means randomly assigned. Recently, Voigtländer and Voth (2012) showed that antisemitic activity in German cities during the Weimar and Third-Reich period was correlated with the occurrence of anti-Jewish riots during the Black-Death almost six centuries earlier, a pattern consistent with persistent town-level variation in anti-Semitic tendencies. In a study on the determinants of the expulsions of Jewish communities during late Middle-Ages and the Early Modern Europe, Anderson, Johnson, and Koyama (2013) found that prior to 1600, expulsions were much more likely to occur during years of cold weather shocks. Attempting to fully explain what determined the probability of pogroms in Late Imperial Russia is beyond the scope of the current study, but it is important to examine to what extent the correlation between pogroms and other observable and unobservable variables jeopardizes the identification of the pogrom effect. The main danger to identification would be if the allocation of pogroms was correlated with differential trends in migration. For example, if pogroms were more likely to occur in districts that came late to migration but were catching up, and therefore experienced rising trends compared to other districts

[60] On this period I already have direct migration data from Ellis Island; the maps show *landsmanshaftn* instead of actual migration measures in order to facilitate comparability to the previous maps.

regardless of the pogroms, then there will be a correlation between pogroms and the rise in the rate of migration biasing the estimates toward finding a more positive relation than the actual causal effect of the pogrom. In Section 5.2 I show that such convergence did occur on a massive scale, and hence it is crucial to ascertain that this convergence is not affecting the results.

Table 5 reports OLS district-level regressions of pogroms on possible determinants, according to the following estimation regression:

$$z_j = \alpha + \beta x_j + \Sigma_{\{k \in K\}} \theta^k d_j^k + \epsilon_j, \tag{1}$$

where z_j is an indicator for at least one pogrom occurring in district j during the second wave; d_j^k are indicators for district j being in region (or province) k; and x_j is a vector of district characteristics, including an indicator for at least one pogrom occurring in the district in 1881, as well as measures of migration prior to the second wave.

There is a strong unconditional correlation between having experienced at least one pogrom in 1881 and experiencing one in 1903–1906 (Column 1), reflecting the fact that the first wave occurred only in the south, and the second mostly there as well: the probability that a district would experience a pogrom during the second wave was 32.6 percent greater for districts that had already experienced one in 1881. However, this correlation is all but wiped out when the regional indicators are added (Column 2): within regions, a 1881 pogrom does not help to predict pogroms in the second wave. The effect of an 1881 pogrom on the probability for a 1903–1906 pogrom is estimated at 4.5 percent, and it is not statistically significant.[61] The regional pattern that was noted in the descriptive statistics (Table 2), is clearly reflected again in the regressions: New-Russia was hit the hardest, followed by the southwest, Lithuania, and finally Poland.[62]

Column 3 adds district characteristics to the control variables predicting pogroms. Three of the control variables represent previous migration: one based on Ellis Island counts from FY 1900–1905, and two based on *landsmanshaftn* measures from before the first wave of pogroms (1861–1881), and from between the first wave and the beginning of Ellis Island counts (1882-1899). The rate of *landsmanshaft* incorporation (per 100,000 Jews in the district, per year) is estimated to have had a negative effect during both 1861–1881 and 1882–1899, but only in the latter period it is (marginally) statistically significant. The coefficient of -0.069 implies that a district that had a one standard deviation (0.936) greater rate of incorporation in 1882–1899, had a 6.46 percentage points lower probability to experience a pogrom during the second wave. This could be a concerning indication, but importantly, there does not seem to be any correlation at all between total FY 1900–1905 emigration, measured as log of adjusted average yearly migration per capita, and the probability to suffer a pogrom. The coefficient on the log of prior migration is 0.006, meaning

[61] For evidence to the contrary over a very long range of time, linking medieval pogroms to persecution of Jews in Weimar- and Third-Reich Germany, see Voigtländer and Voth (2012).

[62] Inner-Russia, the provinces beyond the Pale, is only represented by seven districts in Courland province.

that a 10 percent greater emigration in 1900–1905 is associated with a minuscule 0.06 percentage points greater probability for pogroms, and it is statistically insignificant. It thus appears that the concern of mistakenly interpreting convergence in migration rates across districts with the effects of pogrom on subsequent migration is unfounded. Within regions, second-wave pogrom-districts were not associated with different rates of migration during the six previous years. Further detailed evidence presented below on convergence strongly reinforces this conclusion.

As for the correlation between other district characteristics and pogroms—the commerce-manufacturing ratio does not have a statistically significant correlation with pogroms, and the magnitude of the estimate is small: this variable is normalized such that a coefficient of 0.015 implies that a one standard deviation increase in the log of this share is associated with a 1.5 percentage points increase in the pogrom probability. Being the capital district of the province has a strong, positive, and statistically significant correlation with pogroms probability, a 30.5 percent increase, possibly due to the presence of a large city within this district.[63] Adding province fixed-effects (Column 4) improves the prediction, but does not change the qualitative results.

One might suspect that using a pogrom-district indicator is a poor measure. Indeed, in some provinces all, or almost all, districts were hit in 1905 by at least one pogrom, and useful information may be lost by equally tagging all of these cases as pogroms. Table 6 repeats the analysis in Table 5, but with a higher threshold: districts are tagged as pogrom-districts only if they experienced at least one major pogrom in 1903–1906, where a pogrom is defined as major if one of the two sources specifically reported that it had at least either large damage or wounded persons.[64] As reported in Table 2, 30 percent of the districts experienced a major pogrom, with the regional rates varying between 11 percent in Poland and 74 percent in New-Russia. Overall, the pattern is identical to the one seen above when tagging any pogroms regardless of severity. There is one exception, in that the effect of 1881 pogroms becomes larger and marginally significant. But importantly, the estimates of the effects of migration in the previous six years are practically zero.

Table 6 reports similar regressions as in the previous two tables, but the dependent variable is pogroms per capita (per 100 thousand Jews in the district), enabling a consideration of the intensive margin. The average district rate of pogroms per capita was 6.1 pogroms per 100 thousand Jews, with a standard deviation of 10.6. This time, the 1881 pogroms are marginally significant, but negative. In the controlled specification (Column 3), migration in 1900–1905 is statistically significantly associated with lower rates of pogroms: 10 percent more migration is correlated with 0.188 fewer pogroms per 100 thousand, a magnitude equivalent to 0.018 standard deviations only. But

[63] Most provinces were named after their largest town, that was also the capital of the province and thus situated within the capital district. Examples include Warsaw, Vilna, Kovno, Minsk, and Kiev. Among the exceptions to this rule were the provinces of Volhinia and Podolia, that were not named after a town, and the province of Kherson, in which Odessa was by far the largest city, yet the capital and the titular town was the much smaller city of Kherson.

[64] A large damage is defined as more than 100 families affected *or* more than 500 persons affected *or* damage greater than 20 thousand Ruble.

even this effect is diminished by three-quarters and becomes statistically insignificant as province fixed-effects are added (Column 4).

To summarize, it is clear that pogroms were correlated with some district characteristics. These correlations mostly became statistically and economically insignificant when controlling for region and province fixed-effects. In particular, capital-districts require a special attention, as they were much more likely to experience pogroms. However, there does not seem to be a consistent pattern of correlation between migration in the years 1900–1905 and the distribution of pogroms. This somewhat alleviates the main threat for identification, that of mistaking convergence in migration with the pogrom effect.

5.2 Differences in Migration After Pogroms

The core findings regarding the second wave of pogroms are all apparent in the plot on Figure 12. Each observation in this plot is a single district. Each district's average yearly rate of migration per capita for the pre-pogrom years FY 1900–1905, counted from the Ellis Island arrival records (and adjusted for the ratio of official-to-observed migration), is represented by the horizontal axis. Formally, pre-pogrom average migration in district j is $\bar{m}_j^{\text{before}} = \frac{1}{N_{T_0}} \Sigma_{t \in T_0} m_{jt}$, where $T_0 = \{1900, \ldots, 1905\}$. The vertical axis represents the rate of increase in the average yearly migration during the post-pogrom period (FY 1906–1914), compared to the previous six years. That is, the difference in migration for district j is $\Delta \bar{m}_j = \bar{m}_j^{\text{after}} / \bar{m}_j^{\text{before}} - 1$, where $\bar{m}_j^{\text{after}} = \frac{1}{N_{T_1}} \Sigma_{t \in T_1} m_{jt}$, and $T_1 = \{1906, \ldots, 1914\}$. For clarity of representation, the plot is drawn in logarithmic scale, with $\log(\bar{m}_j^{\text{after}} / \bar{m}_j^{\text{before}})$ plotted against $\log \bar{m}_j^{\text{before}}$, but the labels on the axes are in actual levels.

First, during the pre-pogrom years there was a very wide variation in levels of migration across districts. The 25th percentile of average pre-pogrom migration is merely 3.02 migrants per thousand (in ages 16–50), whereas the 75th percentile is almost five times greater (14.15 migrants per thousand). The mean (13.01) is 70 percent greater than the median (7.68), and the standard deviation of log average yearly migration is 1.16, implying that one standard deviation greater migration translates to an increase of 216 percent. This variation might be suspected to be partly attributed to variations in effective coverage rates (the ratio of population in towns from which migration was counted to the total Jewish population in the district). The two variables are indeed strongly correlated,[65] not surprisingly suggesting that greater coverage leads to more migration counts. But attempting to control for coverage hardly reduces the variation: a regression of log average pre-pogrom migration per capita on coverage rates has an R-squared of only 0.166.[66]

[65] The coefficient of correlation is $\rho = 0.407$, and the coefficient from a univariate regression of log migration on coverage rate is $\hat{\beta} = 2.37$, significant at a confidence level of 1%. Eight outlying districts with coverage rates exceeding 1.2 were removed; these are districts that had an unusually large proportion of Jews whose mother tongue was not Yiddish (the towns population counts Jews defined by religion, whereas the district population counts Jews according to mother tongue, such that in rare cases the Jewish population of towns within the district could exceed the total Jewish population in the district).

[66] When creating an adjusted measure of migration, by inflating migration counts by multiplication with the

Second, there appears to have been a sharp pattern of convergence in the rates of migration. Migration from districts that lagged behind during 1900–1906 was growing much faster than in other districts, and by no small margin. The coefficient of correlation between pre-pogrom log migration and the difference in log migration between pre- and post-pogroms migration is $\rho = -0.70$ ($\hat{\beta} = -0.38$, , significant at 1%). Among the top quartile of pre-pogrom migrations, the rate of migration did not increase. Their average difference in log migration was in fact negative, -0.08 (equivalent to a decline of 7 percent). In the next quartile, there was an average positive increase of 0.34 log points (an increase of 40 percent), and a difference of 0.59 log points in the third highest quartile (80 percent). At the bottom quartile of pre-pogrom migration, the average change was of 0.93 log points, equivalent to 154 percent increased migration. In fact, there is almost no overlap between the rates of growth in the top and in the bottom quartiles—87 percent of the districts in the top quartile of pre-pogrom migration had migration increase of less than half, whereas 80 percent of the districts in the bottom quartile had growth *greater* than half. The conclusion is that above all, the change in migration is governed by a process of convergence; the first order predictor of rates of increase in migration is, by and large, the rate of previous migration.

There is one caveat related to this evidence on convergence. Regressing or plotting $\log(\bar{m}_j^{\text{after}}/\bar{m}_j^{\text{before}})$ against $\log \bar{m}_j^{\text{before}}$ runs the risk of measurement errors in $\bar{m}_j^{\text{before}}$ appearing in both the left- and right-hand sides in opposite signs. This would create a mechanical bias towards finding a negative correlation between pre-pogrom migration and post-pogroms change in migration. However, it does not seem likely that this mechanical bias drives the convergence result patterns. First, the variation in pre-pogrom migration is just too large for more than a small fraction of it to be caused by measurement errors that are not common to both the pre- and post-pogrom period.[67] Second, the same exercise could be performed by testing the correlation between the change in migration and *post*-pogroms migration. The correlation between $\log(\bar{m}_j^{\text{before}}/\bar{m}_j^{\text{before}})$ and $\log \bar{m}_j^{\text{after}}$ is $\rho = -0.21$ ($\hat{\beta} = -0.16$ when regressing the former on the latter, significant at 1%). These coefficients are indeed closer to zero than those of *pre*-pogroms migration, but if the same mechanical bias mentioned above would have been large, it should have equally applied again here at the opposite direction, generating a positive correlation.[68] Therefore, notwithstanding the potential mechanical bias, strong convergence did take place. It is clearly apparent in Figure 13, showing that the standard deviation in log yearly rates of migration per capita across districts had a consistent secular trend of decline, decreasing from 1.1 in FY 1900 down to 0.82 in FY 1914.[69]

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inverse of the coverage rates, the adjusted measure has a standard deviation of 1.03, hardly tenth less than the unadjusted measure (as above, the analysis excluded outliers).

[67] Sources of measurement errors such as less than full coverage or inaccurate text conditions, should affect both periods equally, and thus would not produce a mechanical bias.

[68] Any measurement error in $\bar{m}_j^{\text{after}}$ would enter both the left- and the right-hand side, producing a mechanical *positive* correlation. The fact that the correlation is weaker compared to that between change in migration and post-pogroms migration could be itself a result of the convergence in migration rates.

[69] Additionally, more districts were dropped out from the calculations of the standard error in earlier years due to zero migration counts, meaning that the decline in variation is understated.

Importantly, Figure 12 provides strong clues on the effects of pogroms, pointing to a meaningful effect of pogroms on migration. The districts that had at least one pogrom (according to the most inclusive definition), are plotted separately from other districts. On average, pogrom-districts had a post-pogroms increase in migration of 0.60 log points (equivalent to 81 percent), whereas no-pogrom districts had an average growth of only 0.29 log points (34 percent). The implied difference-in-differences effect is 0.30 log points, or 36 percent more migration attributed to the pogroms. This effect does not seem to be driven by the convergence process. The curves on the plot represent the separate kernel regression for pogrom- and no-pogrom-districts, and show that across almost the entire range of pre-pogrom migration, the increase in migration in pogrom-districts is uniformly greater.

Table 8 shows this more formally in a differences regression. The specification in these regressions are based on the following equation:

$$\Delta \log \bar{m}_j = \alpha + \beta z_j + \gamma x_j + \epsilon_t, \tag{2}$$

where z_j is a pogrom indicator; x_j is a vector of district characteristics, which may also include pre-pogrom migration or province fixed-effects. The outcome is $\Delta \log \bar{m}_j = \log(\bar{m}_j^{\text{after}}/\bar{m}_j^{\text{before}})$, the difference in log yearly average rate of migration per capita. Column 1 repeats the uncontrolled comparison stated above: the 0.30 log point greater increase in migration in pogrom-districts is indeed statistically significant at 1%. Column 2 adds controls for the rate of coverage and pre-pogrom migration. As discussed above, there appears to have been both statistically and economically significant convergence, with a coefficient of -0.40, implying that a standard deviation less log pre-pogrom migration (1.16) is associated with 0.465 log points greater increase in post-pogrom migration, equivalent to a 59 percent increase in levels. The effect of the pogroms is somewhat weakened, but is still strong and significant (0.23 log points).

In Column 3, the pogrom effect is divided by the four quartiles of pre-pogrom migration. The coefficients confirm the impression made by the kernel regressions on Figure 12: the pogrom effect is not driven by convergence in rates of migration. On the contrary, the estimated pogrom effect is greater in each subsequent quartile, rising from 0.11 log points (not statistically significant) in the lowest quartile, up to 0.30 (significant at 1%) in the top pre-pogrom migration quartile. Adding controls of additional district characteristics in Column 4 and province fixed-effects in Column 5 further reduces the pogrom effect, but leaves it both economically and statistically significant. With province fixed-effects, the estimated difference attributed to the pogroms is 0.16 log points (17 percent).

To summarize the main findings of this discussion, the qualitative conclusions thus far are the following: (a) There was a very large variation in pre-pogrom migration counts, only partly driven by variation in coverage rates; (b) convergence in migration rates across districts was the primary cause for post-pogroms increase in migration; (c) there appears to have been a positive economi-

cally and statistically significant pogrom effect; and (d) the pogrom effect was not driven by convergence, instead, it was uniform (or even increasing) with respect to pre-pogrom migration. The next subsection further investigates more formally the pogrom effect using difference-in-differences yearly-district-level regressions.

5.3 Diff-in-Diffs Effect of Pogroms on Migration

Table 9 reports a series of DID (Difference-in-Differences) OLS regressions over district-years, predicting the level of log yearly rate of migration. First, Column 1 reports a plain difference regression of migration on a district-level pogrom indicator, effectively comparing pogrom districts with non-pogrom districts:

$$\log m_{jt} = \alpha + \beta z_j + \epsilon_{jt}, \tag{3}$$

where $\log m_{jt}$ is the log of migration per thousand within the cohorts aged 16–50, adjusted for the share of observed-to-total migration; and z_j is an indicator for any pogrom identified in the district during the second wave, the most inclusive definition of pogrom indicator. Surprisingly, although at the regional level the correlation between pogroms and migration appears negative, with southern provinces having more pogroms and less migration, pogrom-districts on average had no lower rates of migration compared to other districts over the period 1900–1914. In fact the difference is positive (0.080 log points) and statistically insignificant.

Column 2 reports a basic uncontrolled DID regression of migration on indicators of pogrom-districts, according to the following specification:

$$\log m_{jt} = \alpha + \delta(z_j \times \text{After}_t) + \beta z_j + \gamma \text{After}_t + \epsilon_{jt}, \tag{4}$$

where After_t is an indicator for the after-pogrom years (1906 and later),[70] and δ is the coefficient on an interaction term between the post-pogrom period and a pogrom indicator, capturing the pogrom DID effect. The coefficient on the interaction term is large and statistically significant, suggesting that post-pogrom emigration was 0.358 log points greater in pogrom-year-districts. Also, note that the pre-pogroms difference in migration turned negative (-0.148 log points, although statistically insignificant), suggesting that the near equality shown in Column 1 of migration from pogrom and non-pogrom districts, is a result of averaging a pre-pogrom negative difference with post-pogrom positive difference. Two rows at the bottom of the table calculate the predicted pogrom effect, the rate of increase in the prediction of total migration between a no-pogroms scenario to migration predicted under the actual pogrom allocation.[71] The predicted treatment effect on the treated districts only is a total of 43 percent greater migration in the post-pogrom period attributed to the

[70] After is indicated in 1904 (1905) and later years for pogroms that took place in 1903 (1904).

[71] That is, $\hat{\text{TE}} = \Sigma \hat{M}_{jt} / \Sigma \hat{M}_{jt}(\text{After} \times \text{pogrom} = 0) - 1$, where $\hat{M}_{jt}$ is the predicted number (not per capita) of migrants from district j in year t.

pogroms.[72] The predicted effect of pogroms on total migration from all districts, including those untouched by pogroms, is 27.4 percent.

The regression in Column 3 adds district characteristics, year-dummies, and a set of province fixed-effects. The year dummies are meant to capture country-wide conditions that are common to all districts in a given year, such as the state of the Russian and American economies as a whole, or the overall effect of the pogroms (above the differential local effects). The province fixed-effects and the district characteristics are meant to capture local time-invariant features that affect migration. In this sense, this and the coming specifications differ from the traditional push vs. pull framework of estimating migration, by abstracting from the economic and demographic causes of migration and focusing on the effects of the pogroms alone, while keeping everything else possible equal. Adding these controls sharply improves the predictions of the regression (the R-squared increases more than ten-fold) but does not substantially change the estimated effects. The interaction coefficient is down to 0.302 log points (significant at 1%), whereas the predicted treatment effect on the treated district is 35.2 percent, and 25.8 percent for all districts. As expected, the coverage rate is strongly associated with counting more migration, and capital districts are also correlated with more migration, which could be related either to the above mentioned potential for upward estimation of migration from districts that had the same name as their province, or to a greater tendency of urban cohorts to migrate.

The regression reported in Column 4 replaces the province and district controls with district fixed-effects, and adds a set of year-region dummies:

$$m_{jt} = \delta(z_j \times \text{After}_t) + \Sigma_{\{j \in J\}} \theta^j d_j + \Sigma_{\{k \in K, t \in T\}} \rho^{kt} d_j^{kt} + \epsilon_{jt}, \tag{5}$$

where d_j are district indicators, and d_j^{kt} a set of 60 ($= 15 \times 4$) year-region indicators. This is a far reaching control that is meant to take account of all district-invariable characteristics, as well as region-effects that are allowed to change non-parametrically year by year. It will be regarded as the baseline specification. Accordingly, the R-squared of the regression further increases to 0.792. The pogrom effect is yet again somewhat weakened, but it is still economically and statistically significant—pogrom-districts had a post-pogrom effect of increasing migration by 0.223 log points, with a 24.9 percent greater migration over the nine years following the second wave (17.6 percent for all districts). The fact that the pogrom effect remains after adding district fixed-effects suggests that there is little reason to suspect that it is a result of a correlation between pogroms and time-invariant unobservable district characteristics that may independently cause migration. Controlling for the regional non-parametric time trends also suggests that the effect is not driven, for example, by the southern regions catching up with northern districts that came earlier into migration, in the

[72] Note that this estimate for the treatment effect on the treated group could also be derived by a straight forward transformation of the estimated coefficient: $\hat{\text{TE}}_{\text{treated}} = \exp \hat{\beta} - 1$. This does no longer apply for the treatment effect on the total population treatment effect, or in later specifications in which the treatment variable is no longer an indicator.

process of convergence that was described in the previous sub-section.

The last regression on Column 5 is based on an "overkill" specification, repeating the specification in equation 5 while replacing the region-year indicators with a set of 390 ($= 15 \times 26$) province-year dummies. The identification is derived from the yearly within-province differences in the deviations from the district-specific averages between pogrom and non-pogrom districts. To the extent that there are within-province spill-over effects of pogroms, the estimate of the pogrom effect will be downward biased. For example, consider a province with two districts, each with a population of 10,000 Jews, and each having 100 Jews migrating every year prior to the pogroms. Suppose that a pogrom occurred in one of the districts, and the true pogrom effect was to increase migration to 120 each year in the afflicted district, and to 110 each year in its neighboring district. Thus, the pogrom caused an increase in migration of 30 Jews each year. In the overkill specification that controls for yearly-province fixed effects, only the difference in the differences between the two districts is attributed to the pogrom, and the estimated pogrom effect is only an increase in migration of 10 each year. Indeed, in this conservative specification, the estimated effect decreases by a third to 0.154 log points, with predicted treatment effects of 16.7 (treated) and 11.6 percent (all), and it is significant only at 10%, although still, arguably, economically significant.

5.4 Alternative Treatment Measures

As discussed above, the identification of the pogrom treatment-effect when the treatment is a district-level pogrom indicator is derived from the extensive margin. These specifications do not take into account variations in the intensity of the pogrom experience within districts that had at least one pogrom. Since the pogroms were so ubiquitous in the south, with very few districts unharmed, one might suspect that using pogrom indicators suppresses the identifying power of pogroms that took place in this region, and that the identification is mainly driven by events at the pogrom periphery. A straight forward way to make sure that pogrom intensity is taken into account, and that the pogrom-intensive regions also provide variations in the treatment that are useful for identifying the treatment effect, is to measure the treatment in terms of pogroms per capita. Table 10 repeats the same DID regressions as above (Table 9), while using pogroms per capita (per 100,000 Jews in the district) as the treatment of choice. The regression coefficients are not directly comparable to those in the previous table, but the predicted treatment effects could be similarly interpreted. Column 1 of Table 10 shows that districts that had more pogroms per capita had significantly less migration over the entire period, a result that stands in contrast to the roughly even rates of migration between pogrom and non-pogrom districts (Column 1 of Table 9). The statistically significant coefficient (-0.021) implies that a one standard deviation increase in pogroms per capita (10.60) translates to 0.18 standard deviations less migration during 1900–1914.[73] This is consistent with the observation that most of the pogroms took place in the

[73] $\hat{\beta} \times \mathrm{sd}(z_j)/\mathrm{sd}(\log m_{jt}) = -0.021 \times 10.60/1.26 = -0.18.$

south, where the overall rates of migration were lower, but it only shows up once the intensive margin is examined. The next four columns (2–5) all predict a treatment effect on the treated hovering around 10 percent, lower than predicted by the pogrom indicator treatment measure. The baseline specification (Column 4) is significant only at the 10% level, and the overkill specification is not statistically significant, while the point estimate of 7.9 percent treatment effect on the treated is smaller, but not negligible.

Alternatively, the treatment could be restricted to include only pogroms beyond a certain threshold of known damage. In Table 11, the same regressions are repeated using major pogrom indicators as the treatment variable. This specification is meant to test whether the estimated treatment effect is sensitive to removing the presumably less significant and accurately reported cases. It comes at the cost of losing the weak pogroms as a source for identification. The specifications that do not control for district fixed-effects (Columns 2 and 3) still predict a rather large treatment effect on the treated (34 and 27.2 percent greater migration), but the baseline and overkill specifications are no longer statistically significant, although the predicted treatment effect is still meaningful (14.6 and 9.4 percent). Table 12 report regressions using major pogroms per capita as the treatment. Despite the fact that only half of the pogroms were major, the results are qualitatively similar to those when using any pogrom per capita as the treatment: a treatment effect on the treated of around 10 percent, with only the overkill specification not significant at 5%. The fact that the total estimated treatment effect on the treated did not change in magnitude, despite removing from the counts the less-significant half of the pogroms, is consistent with an effect of migration that increases with the magnitude of the pogrom: major pogroms probably generated more migrants than minor pogroms.

To conclude, perturbing the treatment effect does not appear to produce a meaningful qualitative difference. The estimated treatment effect on the treated is on the order of 10–20 percent greater migration over the nine post-pogrom years, typically on the lower end in the specifications that impose stricter controls. The overkill specification often falls below the threshold of statistical significance, but the point estimate is qualitatively similar, if somewhat lower, compared to other specifications. In the next section, further robustness checks to specification are conducted, but the main pattern emerging is that 10 percent, and possibly more, of the post-pogrom migrants are directly attributed to the local effects of the pogrom. Considering the potential for spill-over effects of pogroms across districts within provinces, meaning that prospective migrants were likely to be driven to migration by pogroms that took place in neighboring districts, and not only by pogroms that took place in their own district, the estimated effect should stand as a lower bound to the actual marginal effects of pogroms.

6 Extensions

6.1 Pogroms and Demographic Composition

The claim that the Jewish migration was pogrom- or persecution-driven is supported by its observed peculiar demographic composition—a large proportion of non-labor force participants is regarded as a sign that the intention is resettlement and that the lure of the American labor market was not the only factor inducing migration. But was the demographic composition indeed sensitive to pogroms? We can test that at the local level, by estimating the differences in the changes in demographics of migrants between pogrom-districts and non-pogrom-districts. In other words, was there a differential trend towards more permanent migration in districts that suffered violence?

Table 13 addresses this question by reporting the results of a set of DID regressions of demographic characteristics on pogroms, using equivalent specifications to those in Tables 15 and 16. In all specifications, all the coefficients with the exception of the share of elderly people, have the expected sign, consistent with the hypothesis that pogroms make the migration look more "permanent". For example, in the baseline specification (Column 2) the estimate of the effect of pogrom on the share of females is an increase of 3 percentage points in their share among all migrants; the estimates for the effect on the share of children, adult females, and on the household size, are all positive, and the estimated effects on the share of adult males and the share of married males-to-females are negative. But almost all the coefficients are statistically insignificant, and their magnitudes are by no means spectacular. A likely scenario is that there was some local effect on the composition of migrants, but that the pogroms did not produce distinct local flows of immigrants that look like refugees in the following years. Unfortunately, the standard errors of the estimates are too large to rule out that such small effects did not exist.

Neither was there a dramatic Pale-wide change in the demographic composition of the Jewish migrants following the second wave of pogroms. Table 14, Panel A, reports average demographics of all Jewish-Russian migrants by periods. Comparing FY 1898–1904 (Column 1) with FY 1906–1914 (Column 3), there does seem to be an increase in the share of females, which went up by 4 percentage points, and a decline in the ratio of married males to married females. But other indicators such as the number of children and the size of the average household remained unchanged.

However, Table 14 also shows that the demographic composition *was* sensitive to political events other than the second wave of pogroms. First, Column 4 reports the post-WWI migration. As Kuznets (1975, p. 99) has already noted, this was a truly "refugee or relief immigration", with almost 60 percent females, an average household size of 2.9 aboard the ship, and a ratio of 0.41 married males to married females(!). No doubt, these are families of refugees from the 1919–1921 pogroms of the revolutionary period, that were far more devastating than the previous two waves, many of them reuniting with a male head of household after years of separation in which migration was discontinued.

A second finding is that FY 1905 was dramatically exceptional. In particular, the share of adult males went up to 51.9 percent, compared to 38.6 percent before and 34.5 percent after; the ratio of married males to married female rose to roughly double its regular level; the average size of migrating household went down; and the share of all groups other than adult males declined. No such pattern appears in other years (except, to a smaller extent, in FY 1904), and no equivalent trend characterizes the non-Jewish migration (Panel B.). In all likelihood, this reflects the flight of thousands of young adult Jewish males from conscription to the army in view of the 1904–1905 Russo-Japanese war by migration to the U.S.[74]

According to the official figures there were 92,388 Jewish-Russian immigrants during FY 1905. Assuming that absent the war the share of adult Jewish males would have remained the same as in the previous seven years, as many as additional 20 thousand adult male immigrants can be regarded as wartime migrants avoiding conscription during that year. To the extent that some of the immigrants pushed by the prospects of conscription were joined by members of their families who were not adult males, this estimate should be regarded as a lower bound.

Beyond the interest of these particular episodes, the lesson from the cases of the Russo-Japanese war and the post-WWI years is the following: when Russian-Jews migrated as refugees, this is reflected in the data through changes in their demographic composition. Indeed, it can not be ruled out that the pogroms had some composition effect, or that over the entire period the peculiar demographic patterns of the Jewish migration could be partly attributed to repression and the prospects of violence and persecution.[75] But as far as the demographic composition is concerned, the second wave of pogroms was no turning point - neither in the country as a whole nor in the affected districts.

6.2 Heterogenous Effects

The estimates presented in the previous section assume that the effects of the pogroms were uniform, both across space and over the post-pogrom period. However, one may suspect that this may not be the case. For example, it could be that the effect of the pogroms was stronger in regions in which more districts were hurt, or that it varied with standards of living. Also, if the pogroms were a temporary shock that subsided within a few years, as local Jewish communities realized it might have been a one-off event, then the effect should decline over time.

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[74] The war lasted from February 1904 to September 1905, spanning the later part of FY 1904, the entire FY 1905, and the beginning of FY 1906. On the conscription of Jews to the war see Petrovsky-Shtern (2008, Ch. 6).

[75] In future versions of this paper, this question will be addressed by comparing Russian-Jews to Austrian-Jews migrating from Galicia.

6.2.1 Region-Specific Effects

Table 15 tests for region-specific effects, by adding to the last three specifications of Table 3 a region-specific DID term. Unfortunately, the patterns are not perfectly consistent across specifications, and therefore it is hard to take away a clear conclusion from this exercise. The baseline specification (Column 2), indicates that the pogrom effect was the strongest in Lithuania (0.512 log points, or 66.9 percent), and non-existing in Poland and New-Russia. It is hard to rationalize this pattern, and furthermore, the more basic specification in Column 1 estimates an equally strong effect in both Lithuania and New-Russia, while the "overkill" specification (Column 3) has New-Russia with the strongest effect, although statistically insignificant.

6.2.2 Year-Specific Effects

Table 16 reports a similar exercise, in which the pogrom effects are separated by years.[76] Two broad patterns are emerging here. First, in all specifications the effect seems to weaken very gradually from 1906 onward, but then to re-surge in 1914. Again, it is hard to come up with an explanation for the 1914 effect, but at any rate it does not seem that the pogrom shock was a one-off effect. Second, in the benchmark and the "overkill" specifications (Columns 2 and 3), the year in which the pogrom effect was strongest was FY 1904, which was prior to the occurrence of almost all pogroms. This may be a case of a random outlying year, or if taken at face value, an indication for a pre-existing trend. For example, it could be that some pogrom-districts had experienced a local crisis already prior to the eruption of the second wave of pogroms, and that this crisis had caused both the pre-pogrom emigration and the pogrom themselves. If true, then the interpretation given above to the pogrom coefficients as a causal relation must be discounted.

7 Conclusion

The main empirical findings presented in the paper are the following: Pre-1881 emigration took place in a confined area in Congress Poland, along the German border. From these regions it gradually spread out to neighboring provinces, reaching western-Lithuania during the 1880s and the south-west only in the late 1890s. By the turn of the century, Jewish migration became more evenly spread across the Pale, except for New-Russia which was still under-represented. The 1881 pogroms cannot be related in any visible and direct way to subsequent migration—the post-1881 trend was a direct continuation of the pre-1881 trend and did not involve migration from pogrom areas. The second wave of pogroms was more evenly distributed across the Pale, and pogroms may have produced local effects that increased the level of migration. The baseline estimate is that a pogrom-district had 24.9 percent more migration than similar non-pogrom-districts during

[76] In Columns 2 and 3, one effect has to be omitted and 1900 serves as an omitted category.

the next nine years, and to the extent that there was a country-wide shock, or spillover effects across districts, this should be regarded as a lower bound. It does not seem that this was a one-off effect concentrated in the year of the pogroms and the one following it, and the evidence for heterogeneous region-specific effects is mixed. There is weak support at best to the claim that the second wave of pogroms generated more complete family migrations, and if it did it was a rather small change.

These findings help outlining an updated narrative of the Jewish migration from the Pale of Settlement and provide a relevant lesson for our understanding of the European pattern of transatlantic mass migration. The way through which the landsmanshaftn evolved during the last third of the nineteenth century is a substantial affirmation of the hypothesis expounded by Gould (1980b) and Baines (1995), according to which gradual diffusion of migration networks across space was largely responsible for the rather late arrival of mass emigration to southern and eastern Europe. Little else can explain why the western-Lithuanian provinces, by all accounts the Pale's poorest, entered mass emigration with more than a decade lag behind Poland, and why the south-western provinces of Volhinia, Podolia, and Kiev took a decade longer. The timing of the onset of Jewish mass migration had little to do with the crisis of 1881, and although pogroms may have well affected the inclination to migrate, this inclination could not have materialized in 1881 as it did in 1905 because the victims were not yet linked to previous chains of migration. The growth in Jewish migration during the 1880s was likely on the extensive margin, a result of a broadening of the geographical base of emigration, rather than on the intensive margin, stronger migration from provinces that were already sending migrants before.

Internal circumstances—pogroms, persecution, industrialization, declining costs of transportation, supposed absolute or relative declines in the standards of living, and demographic pressures—all of these have been mentioned as explanations for the timing of the Jewish mass migration. Economic conditions, such as real wages and employment prospects certainly did matter, and I study their effects on the Jewish migration on Spitzer (2013).[77] But I find previous explanations for the timing of the Jewish mass migration incomplete. I argue that the long time that migration chains took to diffuse across space was a key factor, possibly the chief factor that determined when, where, and how the Jewish mass migration was to occur. This claim is consistent with everything that we observe, and too much is left unexplained without it.

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[77] Godley (2001) and Boustan (2007) already showed that the fluctuations of Jewish migration reacted to U.S. business cycles, as did other migration streams from European countries.

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Tables

Table 1: Correlation between migration and associations

	(1)	(2)	(3)	(4)
Time aggregation	Single Years		5 Years	
Geog. aggregation	District	Province	District	Province
Corr. coef.	0.0924	0.3307	0.1700	0.4925
OLS coef.	0.0144	0.0283	0.0183	0.0408
OLS s.e.	0.0070	0.0127	0.0082	0.0145
Observations	3,225	390	645	78

Note: The table reports the coefficients of correlation between (adjusted) migration per-capita and incorporation of associations per capita, as well as the estimated coefficients and standard errors from a univariate OLS regression of associations (per-100,000, per year) on migration (per-1,000, per year). Cols. 1 and 3 aggregate associations and migration at the district level. Cols. 2 and 4 aggregate at the province level. Cols. 1 and 2 aggregate by year. Cols. 3 and 4 aggregate by periods of five years. (1900–1904, 1905–1909, and 1910–1914). Standard errors are clustered at the unit of geographic aggregation (district or province). The observations are from 215 districts within 26 provinces, and over 15 years.

Table 2: Descriptive statistics

			Regional averages				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
A. Districts	Average	St.Dev.	Poland	Lithu.	S.West	New-Rus.	Inn.Rus.
Total pop. (1,000s)	181.45	109.15	115.64	186.03	233.78	276.26	73.06
Jewish pop. (1,000s)	21.75	21.21	16.34	26.32	24.99	25.60	4.45
Towns matched to EI	1.98	1.23	1.51	2.06	2.69	1.96	1.00
Coverage	0.59	0.26	0.55	0.50	0.60	0.77	0.99
Commerce/Manufacturing	-0.13	0.93	-0.14	-0.86	0.51	0.22	-0.67
Pogroms (district indicator)							
1881	0.13		0.01	0.00	0.28	0.44	0.00
1903–1906	0.50		0.23	0.55	0.69	0.89	0.14
1903–1906, major	0.30		0.11	0.25	0.43	0.74	0.00
Associations (per 100k-year)							
1861–1881	0.09	0.36	0.25	0.01	0.00	0.00	0.00
1882–1905	0.68	0.94	1.02	0.90	0.26	0.23	0.42
1906–1920	0.99	1.09	1.44	1.04	0.75	0.35	0.16
Migration (per k-year)							
FY 1900–1905	13.36	21.28	13.03	19.06	8.44	6.44	38.39
FY 1906–1914	14.39	11.68	12.58	17.93	14.46	8.99	26.98
Observations	215		74	53	54	27	7

			Regional averages (Jews)				
B. Immigrants	Non-Jews	Jews	Poland	Lithu.	S.West	New-Rus.	Inn.Rus.
Female	0.293	0.459	0.442	0.467	0.460	0.481	0.489
Child (under 16)	0.122	0.287	0.283	0.289	0.299	0.309	0.286
Elderly (over 44)	0.028	0.063	0.055	0.064	0.064	0.084	0.101
Adult female 16–44	0.225	0.281	0.269	0.290	0.273	0.278	0.290
Adult male 16–44	0.625	0.369	0.393	0.357	0.364	0.328	0.324
Adult male 16-30	0.484	0.292	0.312	0.289	0.281	0.254	0.254
Marr. male/marr. female	3.225	1.175	1.251	1.078	1.243	0.948	1.018
Houshold size	1.585	2.375	2.248	2.309	2.553	2.724	2.688
Observations	996,315	602,144	61,022	133,799	73,154	42,685	9,810

Notes: Panel A reports district level averages. Coverage is the proportion of Jews within the district residing in the towns for which migration was identified. Commerce-to-manufacturing is the log of ratio of Jews employed in commerce to Jews employed in manufacturing, normalized to have mean zero and st. dev. one across all districts in the pale (the mean and the st. dev. are therefore slightly different in the current sample). A major pogrom in 1903–1906 is one in which either there were casualties or great damage reported. Associations is the number of associations pertaining to the districts over the period, divided by the district population. Migration is the number of immigrants in ages 16–50 in each year divided by the size of their respective cohorts in 1897, adjusted by the yearly ratio of observed migration to total Jewish-Russian migration. Migration is measured by Fiscal Years (e.g., FY 1904 went from July 1, 1904 to June 30, 1905).

Panel B. The sample in Cols. 1 and 2 includes all immigrants during FY 1900–1914 who reported a last place of residence that did not indicate a place outside Russia. The sample in Cols. 3–7 includes all predicted-Jews whose last place of residence was identified.

Table 3: Pogrom statistics: district indicators 1903–1906

Pogrom severity:	(1) Any	(2) Minor	(3) Major	(4) Violent	(5) Deadly
Merged list					
District	0.502	0.358	0.298	0.274	0.116
Locality	0.498	0.353	0.298	0.270	0.116
Shtetl	0.488	0.335	0.288	0.256	0.112
Motzkin					
District	0.251	0.237	0.214	0.186	0.084
Locality	0.251	0.237	0.214	0.181	0.084
Shtetl	0.219	0.214	0.205	0.167	0.079
AJYB					
District	0.474	0.284	0.214	0.214	0.107
Locality	0.460	0.279	0.214	0.214	0.107
Shtetl	0.456	0.270	0.209	0.209	0.107

Notes: The table reports the share of districts that experienced at least one pogrom, from among the 215 districts that were covered by the Ellis Island matching algorithm. Upper rows report the share of pogrom districts according to the merged list (Motzkin + AJYB); remaining rows report the two lists separately. Within each list, the *District* rows count all districts that had at least one pogrom, even if it was not identified down to a locality; *Locality* are districts that had the location (in coordinates) of at least one pogrom identified; and *Shtetl* are districts that had at least one pogrom in one of the towns in the Shtetlach data. Each column reports a different severity threshold. *Any*: including pogroms with no details reported; *Minor*: material damage or at least one dead or wounded; *Major*: large material damage or at least one dead or wounded; *Violent*: at least one dead or wounded; *Deadly*: at least 10 dead or 50 wounded. Each severity level includes all levels above it (e.g., a major pogrom is also included within the minor pogrom).

Table 4: Pogrom statistics: pogroms per-capita 1903–1906

Pogrom severity:	(1) Any	(2) Minor	(3) Major	(4) Violent	(5) Deadly
Merged list					
District	6.100	3.862	3.003	2.036	0.622
	(10.599)	(8.195)	(7.516)	(4.805)	(2.841)
Locality	5.755	3.694	2.930	2.022	0.622
	(10.330)	(8.026)	(7.415)	(4.806)	(2.841)
Shtetl	4.719	2.889	2.487	1.855	0.602
	(8.451)	(6.472)	(6.262)	(4.718)	(2.830)
Motzkin					
District	3.446	3.121	2.642	1.645	0.529
	(8.783)	(8.040)	(7.506)	(4.704)	(2.805)
Locality	3.284	2.960	2.569	1.630	0.529
	(8.599)	(7.837)	(7.400)	(4.704)	(2.805)
Shtetl	2.366	2.248	2.134	1.472	0.510
	(6.463)	(6.336)	(6.224)	(4.607)	(2.794)
AJYB					
District	4.810	2.110	1.303	1.303	0.535
	(8.720)	(4.956)	(3.937)	(3.937)	(2.737)
Locality	4.521	2.072	1.303	1.303	0.535
	(8.480)	(4.954)	(3.937)	(3.937)	(2.737)
Shtetl	4.289	1.942	1.276	1.276	0.535
	(8.170)	(4.842)	(3.924)	(3.924)	(2.737)

Notes: The table reports the average pogroms per 100,000 Jews in the district (by 1897 population) experienced in the districts, from among the 215 districts that were covered by the Ellis Island matching algorithm. Standard deviations are in parentheses. Upper rows report the averages in pogrom districts according to the merged list (Motzkin + AJYB); remaining rows report the two lists separately. Within each list, the *District* rows count all pogroms linked to the district, even if they were not identified down to a locality; *Locality* refers to pogroms that were identified down to a location (in coordinates); and *Shtetl* to pogroms that were linked to towns in the Shtetlach data. Each column reports a different severity threshold. *Any*: including pogroms with no details reported; *Minor*: material damage or at least one dead or wounded; *Major*: large material damage or at least one dead or wounded; *Violent*: at least one dead or wounded; *Deadly*: at least 10 dead or 50 wounded. Each severity level includes all levels above it (e.g., a major pogrom is also included within the minor pogrom).

Table 5: Determinants of pogrom districts 1903–1906

Dep. Var.: Pogrom indicator (mean = 0.50)	(1)	(2)	(3)	(4)
Pogrom 1881 (indicator)	0.326^a	0.045	0.018	−0.002
	(0.099)	(0.103)	(0.103)	(0.115)
Migration 1900–1905			0.006	0.009
			(0.029)	(0.034)
Associations 1861–1881			−0.015	0.055
			(0.099)	(0.125)
Associations 1882–1899			−0.069^c	−0.064
			(0.040)	(0.043)
Commerce/manufacturing			0.015	−0.046
			(0.042)	(0.062)
Capital district			0.293^a	0.263^b
			(0.099)	(0.103)
Constant	0.460			
	(0.036)			
Regions				
Poland		0.229^a	0.249^a	
		(0.052)	(0.072)	
Lithuania		0.547^a	0.558^a	
		(0.061)	(0.087)	
South-west		0.673^a	0.649^a	
		(0.067)	(0.086)	
New-Russia		0.869^a	0.830^a	
		(0.097)	(0.102)	
Inner-Russia		0.143	0.132	
		(0.168)	(0.183)	
Province F.E.				Yes
R-squared	0.048	0.230	0.278	0.387
p-value of F-stat.	0.001	0.000	0.000	0.037
Observations	215	215	215	215

Significance levels: $^a : p < 0.01$; $^b : p < 0.05$; $^c : p < 0.1$.

Notes: The table reports the outcomes of OLS regressions predicting a binary indicator for at least one pogrom of any degree occurring in the district during the second wave (1903–1906). Migration is the log of mean yearly migration of cohorts aged 16-50 over FY 1900–1905, adjusted for the ratio between observed and official Jewish-Russian migration. Associations is the yearly mean number of landsmanshaftn incorporated, per 100,000 residents in the district (1897). Commerce/manufacturing is the standardized log of the ratio of Jews employed in commerce to Jews employed in manufacturing. Capital district is an indicator for the main district of the province, upon which the province is typically named. Standard errors are in parentheses.

Table 6: Determinants of major pogroms districts 1903–1906

Dep. Var.: Major pogrom indicator (mean = 0.30)	(1)	(2)	(3)	(4)
Pogrom 1881 (indicator)	0.438^a	0.196^b	0.173^c	0.172
	(0.088)	(0.095)	(0.095)	(0.109)
Migration 1900–1905			0.006	0.007
			(0.027)	(0.032)
Associations 1861–1881			0.002	0.049
			(0.092)	(0.118)
Associations 1882–1899			−0.044	−0.049
			(0.037)	(0.041)
Commerce/manufacturing			0.014	0.009
			(0.039)	(0.059)
Capital district			0.233^b	0.227^b
			(0.091)	(0.097)
Constant	0.241			
	(0.032)			
Regions				
Poland		0.105^b	0.106	
		(0.047)	(0.066)	
Lithuania		0.245^a	0.246^a	
		(0.056)	(0.080)	
South-west		0.372^a	0.348^a	
		(0.061)	(0.079)	
New-Russia		0.654^a	0.620^a	
		(0.089)	(0.095)	
Inner-Russia		0.000	−0.017	
		(0.154)	(0.169)	
Province F.E.				Yes
R-squared	0.104	0.230	0.262	0.340
p-value of F-stat.	0.000	0.000	0.000	0.073
Observations	215	215	215	215

Significance levels: $^a : p < 0.01$; $^b : p < 0.05$; $^c : p < 0.1$.

Notes: The table reports the outcomes of OLS regressions predicting a binary indicator for at least one pogrom of at least major damage occurring in the district during the second wave (1903–1906). Migration is the log of mean yearly migration of cohorts aged 16-50 over FY 1900–1905, adjusted for the ratio between observed and official Jewish-Russian migration. Associations is the yearly mean number of landsmanshaftn incorporated, per 100,000 residents in the district (1897). Commerce/manufacturing is the standardized log of the ratio of Jews employed in commerce to Jews employed in manufacturing. Capital district is an indicator for the main district of the province, upon which the province is typically named. Standard errors are in parentheses.

Table 7: Determinants of pogroms per-capita 1903–1906

Dep. Var.: Pogrom per-capita (mean = 6.10, std = 10.60)	(1)	(2)	(3)	(4)
Pogrom 1881 (indicator)	3.866^{c}	−4.126^{c}	−3.520	−4.111^{c}
	(2.136)	(2.176)	(2.178)	(2.359)
Migration 1900–1905			−1.880^{a}	−0.422
			(0.618)	(0.693)
Associations 1861–1881			0.558	0.174
			(2.107)	(2.556)
Associations 1882–1899			0.149	−0.166
			(0.843)	(0.888)
Commerce/manufacturing			−0.365	−0.112
			(0.888)	(1.277)
Capital district			2.034	0.680
			(2.095)	(2.101)
Constant	5.597			
	(0.771)			
Regions				
Poland		1.721	4.555^{a}	
		(1.088)	(1.525)	
Lithuania		3.888^{a}	7.596^{a}	
		(1.285)	(1.836)	
South-west		10.105^{a}	13.210^{a}	
		(1.409)	(1.814)	
New-Russia		18.933^{a}	21.084^{a}	
		(2.044)	(2.168)	
Inner-Russia		5.258	10.350^{a}	
		(3.536)	(3.880)	
Province F.E.				Yes
R-squared	0.015	0.239	0.274	0.425
p-value of F-stat.	0.072	0.000	0.000	0.701
Observations	215	215	215	215

Significance levels: $^{a}: p < 0.01$; $^{b}: p < 0.05$; $^{c}: p < 0.1$.

Notes: The table reports the outcomes of OLS regressions predicting pogroms per-capita of any degree occurring in the district during the second wave (1903–1906). Migration is the log of mean yearly migration of cohorts aged 16-50 over FY 1900–1905, adjusted for the ratio between observed and official Jewish-Russian migration. Associations is the yearly mean number of landsmanshaftn incorporated, per 100,000 residents in the district (1897). Commerce/manufacturing is the standardized log of the ratio of Jews employed in commerce to Jews employed in manufacturing. Capital district is an indicator for the main district of the province, upon which the province is typically named. Standard errors are in parentheses.

Table 8: Differences in migration after pogroms

Dep. Var.: Δ log migration/k (mean = 0.44, std. = 0.63)	(1)	(2)	(3)	(4)	(5)
Pogrom 1905 (indicator)	0.304^a	0.233^a		0.208^a	0.162^b
	(0.084)	(0.059)		(0.062)	(0.065)
Migration 1900–1905		-0.401^a	-0.424^a	-0.395^a	-0.441^a
		(0.026)	(0.032)	(0.029)	(0.035)
Coverage		0.411^a	0.440^a	0.393^a	0.856^a
		(0.118)	(0.121)	(0.123)	(0.159)
Pogrom × Quart. 1			0.114		
			(0.110)		
Pogrom × Quart. 2			0.246^a		
			(0.085)		
Pogrom × Quart. 3			0.248^a		
			(0.093)		
Pogrom × Quart. 4			0.297^a		
			(0.106)		
Associations 1861–1881				−0.141	0.056
				(0.093)	(0.109)
Associations 1882–1899				0.015	0.032
				(0.038)	(0.038)
Commerce/manufacturing				0.037	0.062
				(0.034)	(0.055)
Capital district				0.111	0.069
				(0.098)	(0.092)
Constant	0.291	0.857	0.887	0.864	
	(0.059)	(0.079)	(0.085)	(0.085)	
Province F.E.					Yes
R-squared	0.059	0.562	0.566	0.570	0.709
p-value of F-stat.	0.000	0.000	0.000	0.000	0.000
Observations	213	213	213	213	213

Significance levels: $^a : p < 0.01$; $^b : p < 0.05$; $^c : p < 0.1$.

Notes: The table reports OLS regressions predicting the change in log of yearly average migration per-1,000 (ages 16–50), adjusted according to the yearly ratio of observed-to-unobserved migration. Each observation is a district, and the difference is between the log average of the the pre-pogroms period (FY 1900–1905) and the post-pogrom period (FY 1906–1914). That is, the outcome is defined as $\Delta \log \bar{m}_j = \log \bar{m}_j^{\text{after}} / \bar{m}_j^{\text{before}}$, where $\bar{m}_j^{\text{before}} = \frac{1}{N_{T_0}} \Sigma_{t \in T_0} m_{jt}$, $T_0 = \{1900, \ldots, 1905\}$, and $\bar{m}_j^{\text{after}}$ is similarly defined for FY 1906–1914. Two districts of the total 215 were omitted, due to zero migration counts prior to the pogroms. The treatment is an indicator for any pogrom identified down to the district-level. *Migration 1900–1905* is $\log \bar{m}_j^{\text{before}}$, or for after-pogrom years in districts that had a pogrom *before* 1905. *Coverage* is the ratio of Jewish population in towns covered by the geo-matching algorithm to total district population. The pogrom interactions are with quartiles of pre-pogroms migration (Quart. 1 is the lowest pre-pogroms migration quartile). *Associations* is the yearly mean number of landsmanshaftn incorporated per 100,000 residents in the district (1897). *Commerce/manufacturing* is the standardized log of the ratio of Jews employed in commerce to Jews employed in manufacturing. *Capital district* is an indicator for the principal district of the province. Standard errors are reported in parentheses.

Table 9: Diff-in-Diffs effects of pogroms on migration: any pogrom indicator

Dep. Var.: log migration/k (mean = 2.01, std. = 1.26)	(1)	(2)	(3)	(4)	(5)
After × pogrom		0.358^a	0.302^a	0.223^b	0.154^c
		(0.092)	(0.087)	(0.089)	(0.083)
Pogrom	0.080	−0.148	−0.174		
(mean = 0.50)	(0.138)	(0.173)	(0.132)		
After		0.332^a			
		(0.064)			
Coverage			2.088^a		
			(0.390)		
Associations 1861–1881			−0.009		
			(0.215)		
Associations 1882–1899			0.102^b		
			(0.047)		
Commerce/manufacturing			−0.044		
			(0.105)		
Capital district			0.354^b		
			(0.162)		
Constant	1.971	1.772			
	(0.102)	(0.126)			
Year F.E. (× interaction)			Yes	×Reg.	×Prov.
Geographic F.E.			Prov.	Dist.	Dist.
Predicted treat. eff. (treated)		0.430	0.352	0.249	0.167
Predicted treat. eff. (all)		0.274	0.258	0.176	0.116
R-squared	0.001	0.045	0.545	0.792	0.840
p-value of F-stat.	0.561	0.000	0.000	0.000	0.000
Observations	3,225	3,225	3,225	3,225	3,225

Significance levels: $^a : p < 0.01$; $^b : p < 0.05$; $^c : p < 0.1$.

Notes: The table reports OLS regressions predicting the log of migration per-1,000 (ages 16–50), adjusted according to the yearly ratio of observed-to-unobserved migration. Each observation is a year×district, where each district is observed in each of the FY 1900–1914. The treatment includes pogroms that were at least identified, using the merged list (Motzkin + AJYB), where the measure is an indicator for the district experiencing a pogrom, and the location of the pogrom was identified up to the district level (including unidentified coordinates). *After* is an indicator for FY 1906 and above, or for after-pogrom years in districts that had a pogrom *before* 1905. *Pogrom* is an indicator for the district experiencing a pogrom during FY 1900–1914. *After×pogrom* is an indicator for the district experiencing a pogrom during or before that year. *Coverage* is the ratio of Jewish population in towns covered by the geo-matching algorithm to total district population. *Associations* is the yearly mean number of landsmanshaftn incorporated per 100,000 residents in the district (1897). *Commerce/manufacturing* is the standardized log of the ratio of Jews employed in commerce to Jews employed in manufacturing. *Capital district* is an indicator for the principal district of the province. Year fixed-effects are interacted with region dummies in col. 4 and with province dummies in col. 5. The predicted treatment effect for all (treated) districts is the predicted rate of increase in migration in FY 1906–1914 in all (pogrom) districts attributed to the pogroms, i.e., $\Sigma\hat{m}_{jt}/\Sigma\hat{m}_{jt}(\text{After} \times \text{pogrom} = 0) - 1$. Standard errors, clustered by district, are reported in parentheses.

Table 10: Diff-in-Diffs effects of pogroms on migration: pogroms per-capita

Dep. Var.: log migration/k (mean = 2.01, std. = 1.26)	(1)	(2)	(3)	(4)	(5)
After × pogrom		0.016[a]	0.017[a]	0.015[a]	0.009[b]
		(0.004)	(0.004)	(0.004)	(0.004)
Pogrom	−0.021[a]	−0.031[a]	−0.020[b]		
(mean = 6.10, std. = 10.60)	(0.006)	(0.007)	(0.009)		
After		0.416[a]			
		(0.052)			
Coverage			2.169[a]		
			(0.326)		
Associations 1861–1881			−0.011		
			(0.215)		
Associations 1882–1899			0.097[b]		
			(0.048)		
Commerce/manufacturing			−0.039		
			(0.104)		
Capital district			0.339[b]		
			(0.147)		
Constant	2.139	1.885			
	(0.080)	(0.099)			
Year F.E. (× interaction)			Yes	×Reg.	×Prov.
Geographic F.E.			Prov.	Dist.	Dist.
Predicted treat. eff. (treated)		0.101	0.103	0.133	0.079
Predicted treat. eff. (all)		0.063	0.077	0.093	0.055
R-squared	0.031	0.075	0.550	0.793	0.840
p-value of F-stat.	0.001	0.000	0.000	0.000	0.000
Observations	3,225	3,225	3,225	3,225	3,225

Significance levels: [a] : $p < 0.01$; [b] : $p < 0.05$; [c] : $p < 0.1$.

Notes: The table reports OLS regressions predicting the log of migration per-1,000 (ages 16–50), adjusted according to the yearly ratio of observed-to-unobserved migration. Each observation is a year×district, where each district is observed in each of the FY 1900–1914. The treatment includes pogroms that were at least identified, using the merged list (Motzkin + AJYB), where the measure is pogrom per capita in the district, and the location of the pogrom was identified up to the district level (including unidentified coordinates). *After* is an indicator for FY 1906 and above, or for after-pogrom years in districts that had a pogrom *before* 1905. *Pogrom* is pogrom per capita in the district during FY 1900–1914. *After×pogrom* is pogrom per capita in the district during or before that year. *Coverage* is the ratio of Jewish population in towns covered by the geo-matching algorithm to total district population. *Associations* is the yearly mean number of landsmanshaftn incorporated per 100,000 residents in the district (1897). *Commerce/manufacturing* is the standardized log of the ratio of Jews employed in commerce to Jews employed in manufacturing. *Capital district* is an indicator for the principal district of the province. Year fixed-effects are interacted with region dummies in col. 4 and with province dummies in col. 5. The predicted treatment effect for all (treated) districts is the predicted rate of increase in migration in FY 1906–1914 in all (pogrom) districts attributed to the pogroms, i.e., $\Sigma\hat{m}_{jt}/\Sigma\hat{m}_{jt}(\text{After} \times \text{pogrom} = 0) - 1$. Standard errors, clustered by district, are reported in parentheses.

Table 11: Diff-in-Diffs effects of pogroms on migration: major pogrom indicator

Dep. Var.: log migration/k (mean = 2.01, std. = 1.26)	(1)	(2)	(3)	(4)	(5)
After × pogrom		0.293[a]	0.241[b]	0.136	0.089
		(0.098)	(0.093)	(0.101)	(0.089)
Pogrom	0.037	−0.151	−0.115		
(mean = 0.30)	(0.146)	(0.182)	(0.146)		
After		0.410[a]			
		(0.053)			
Coverage			2.083[a]		
			(0.399)		
Associations 1861–1881			−0.010		
			(0.215)		
Associations 1882–1899			0.103[b]		
			(0.047)		
Commerce/manufacturing			−0.046		
			(0.105)		
Capital district			0.350[b]		
			(0.154)		
Constant	2.001	1.755			
	(0.084)	(0.104)			
Year F.E. (× interaction)			Yes	×Reg.	×Prov.
Geographic F.E.			Prov.	Dist.	Dist.
Predicted treat. eff. (treated)		0.340	0.272	0.146	0.094
Predicted treat. eff. (all)		0.143	0.152	0.072	0.047
R-squared	0.000	0.040	0.543	0.791	0.839
p-value of F-stat.	0.801	0.000	0.000	0.000	0.000
Observations	3,225	3,225	3,225	3,225	3,225

Significance levels: [a] : $p < 0.01$; [b] : $p < 0.05$; [c] : $p < 0.1$.

Notes: The table reports OLS regressions predicting the log of migration per-1,000 (ages 16–50), adjusted according to the yearly ratio of observed-to-unobserved migration. Each observation is a year×district, where each district is observed in each of the FY 1900–1914. The treatment includes pogroms that were at least major, using the merged list (Motzkin + AJYB), where the measure is an indicator for the district experiencing a pogrom, and the location of the pogrom was identified up to the district level (including unidentified coordinates). *After* is an indicator for FY 1906 and above, or for after-pogrom years in districts that had a pogrom *before* 1905. *Pogrom* is an indicator for the district experiencing a pogrom during FY 1900–1914. *After×pogrom* is an indicator for the district experiencing a pogrom during or before that year. *Coverage* is the ratio of Jewish population in towns covered by the geo-matching algorithm to total district population. *Associations* is the yearly mean number of landsmanshaftn incorporated per 100,000 residents in the district (1897). *Commerce/manufacturing* is the standardized log of the ratio of Jews employed in commerce to Jews employed in manufacturing. *Capital district* is an indicator for the principal district of the province. Year fixed-effects are interacted with region dummies in col. 4 and with province dummies in col. 5. The predicted treatment effect for all (treated) districts is the predicted rate of increase in migration in FY 1906–1914 in all (pogrom) districts attributed to the pogroms, i.e., $\Sigma\hat{m}_{jt}/\Sigma\hat{m}_{jt}(\text{After} \times \text{pogrom} = 0) - 1$. Standard errors, clustered by district, are reported in parentheses.

Table 12: Diff-in-Diffs effects of pogroms on migration: major pogroms per capita

Dep. Var.: log migration/k (mean = 2.01, std. = 1.26)	(1)	(2)	(3)	(4)	(5)
After × pogrom		0.022^a	0.022^a	0.017^b	0.011
		(0.006)	(0.006)	(0.007)	(0.008)
Pogrom	-0.022^a	-0.036^a	-0.012		
(mean = 3.00, std. = 7.52)	(0.009)	(0.011)	(0.011)		
After		0.431^a			
		(0.048)			
Coverage			2.092^a		
			(0.388)		
Associations 1861–1881			-0.010		
			(0.215)		
Associations 1882–1899			0.102^b		
			(0.047)		
Commerce/manufacturing			-0.044		
			(0.105)		
Capital district			0.356^b		
			(0.158)		
Constant	2.078	1.817			
	(0.074)	(0.092)			
Year F.E. (× interaction)			Yes	×Reg.	×Prov.
Geographic F.E.			Prov.	Dist.	Dist.
Predicted treat. eff. (treated)		0.109	0.109	0.120	0.078
Predicted treat. eff. (all)		0.045	0.063	0.059	0.039
R-squared	0.018	0.059	0.545	0.792	0.840
p-value of F-stat.	0.010	0.000	0.000	0.000	0.000
Observations	3,225	3,225	3,225	3,225	3,225

Significance levels: $^a : p < 0.01$; $^b : p < 0.05$; $^c : p < 0.1$.

Notes: The table reports OLS regressions predicting the log of migration per-1,000 (ages 16–50), adjusted according to the yearly ratio of observed-to-unobserved migration. Each observation is a year×district, where each district is observed in each of the FY 1900–1914. The treatment includes pogroms that were at least major, using the merged list (Motzkin + AJYB), where the measure is pogrom per capita in the district, and the location of the pogrom was identified up to the district level (including unidentified coordinates). *After* is an indicator for FY 1906 and above, or for after-pogrom years in districts that had a pogrom *before* 1905. *Pogrom* is pogrom per capita in the district during FY 1900–1914. *After×pogrom* is pogrom per capita in the district during or before that year. *Coverage* is the ratio of Jewish population in towns covered by the geo-matching algorithm to total district population. *Associations* is the yearly mean number of landsmanshaftn incorporated per 100,000 residents in the district (1897). *Commerce/manufacturing* is the standardized log of the ratio of Jews employed in commerce to Jews employed in manufacturing. *Capital district* is an indicator for the principal district of the province. Year fixed-effects are interacted with region dummies in col. 4 and with province dummies in col. 5. The predicted treatment effect for all (treated) districts is the predicted rate of increase in migration in FY 1906–1914 in all (pogrom) districts attributed to the pogroms, i.e., $\Sigma\hat{m}_{jt}/\Sigma\hat{m}_{jt}(\text{After} \times \text{pogrom} = 0) - 1$. Standard errors, clustered by district, are reported in parentheses.

Table 13: Difference-in-Differences effects of pogroms on migrants demographics

Dep. Vars.	(1)	(2)	(3)
Female	0.020	0.029	0.020
	(0.013)	(0.016)	(0.017)
Child (under 16)	0.024	0.012	0.009
	(0.012)	(0.013)	(0.014)
Elderly (over 44)	-0.001	-0.003	-0.003
	(0.006)	(0.007)	(0.008)
Adult female 16-44	0.010	0.026	0.020
	(0.011)	(0.015)	(0.015)
Adult male 16-44	-0.033	-0.036	-0.026
	(0.016)	(0.020)	(0.020)
Adult male 16-30	-0.028	-0.030	-0.028
	(0.015)	(0.018)	(0.018)
Married mal./married fem.	-0.091	-0.059	-0.075
	(0.083)	(0.083)	(0.078)
Household size	0.111	0.046	0.058
	(0.063)	(0.070)	(0.068)
Time F.E.	Year	Year ×Region	Year ×Prov.
Geographic F.E.	Province	District	District
District controls	✓		

Notes: Each coefficient is derived from a separate regression, where the dependent variable is a demographic statistics and each column has a different specification, corresponding to specifications (4)-(6) in the Table **??**. Married male/Married female is the (log) ratio of married adult males to married adult women; where no married adult males were counted the value is set to the (log) minimum ratio over the entire sample; where no married adult females are counted, missing value was assigned. Household size is averaged over individuals (not over households). In all specifications, each observation is district×year, the number of observations is 3,225, except for the regressions on the (log) share of married-males to married-women, where n=2,900 due to cases with zero married-females.

Table 14: Demographics by periods and ethnicity

	(1)	(2)	(3)	(4)
A. *Jews*	1898-1904	1905	1906-1914	1920-1925
Age	21.398	22.402	21.003	24.847
Female	0.438	0.347	0.479	0.591
Child (under 16)	0.296	0.228	0.293	0.330
Elderly (over 44)	0.061	0.038	0.067	0.151
Adult female 16-44	0.257	0.215	0.295	0.327
Adult male 16-44	0.386	0.519	0.345	0.192
Adult male 16-30	0.295	0.399	0.277	0.151
Married mal./married fem.	1.250	2.229	1.031	0.410
Household size	2.367	2.077	2.418	2.895
Observations	127,684	49,973	444,742	131,818
	(1)	(2)	(3)	(4)
B. *Non-Jews*	1898-1904	1905	1906-1914	1920-1925
Age	23.318	23.838	23.331	24.809
Female	0.296	0.268	0.296	0.562
Child (under 16)	0.159	0.130	0.114	0.270
Elderly (over 44)	0.031	0.024	0.028	0.093
Adult female 16-44	0.208	0.196	0.232	0.387
Adult male 16-44	0.602	0.649	0.627	0.250
Adult male 16-30	0.460	0.478	0.489	0.126
Married mal./married fem.	2.396	3.305	3.399	0.808
Household size	1.880	1.575	1.526	2.169
Observations	213,095	56,116	758,805	64,793

Notes: The table reports averages of demographic characteristics for all immigrants of Russian nationality who reported a last place of residence not indicating a place outside Russia, excluding the earlier years FY 1893–1897 and the WWI period FY 1915–1919 (when the number of immigrants passing through Ellis Island was very small). The periods are in terms of fiscal years, and ethnicity is determined by the *who-is-a-Jew* algorithm. Married male/Married female is the (log) ratio of married adult males to married adult females.

Table 15: Difference-in-Differences effects of pogroms on migration, by region

Dep. Var.: Migration	(1)	(2)	(3)
Poland	0.254	-0.023	-0.022
	(0.246)	(0.164)	(0.139)
Lithuania	0.280	0.512	0.161
	(0.139)	(0.183)	(0.171)
South-west	0.233	0.206	0.194
	(0.128)	(0.147)	(0.171)
New-Russia	0.312	-0.067	0.347
	(0.130)	(0.267)	(0.283)
Inner-Russia	0.168	-0.073	-0.073
	(0.429)	(0.164)	(0.173)
Time F.E.	Year	Year ×Region	Year ×Prov.
Geographic F.E.	Province	District	District
District controls	✓		
R-squared	0.455	0.793	0.840
P-value of F-test	0.000	0.000	0.000

Notes: The reported coefficients are for the region-specific interaction terms with after×pogrom. Specifications (1)-(3) correspond to specifications (4)-(6) in the DID regressions on Table **??**. The district controls include commerce-manufacturing, capital-district indicator, and Landsmanshaftn 1899. Standard errors, clustered by district, are in parentheses. In all specifications, the number of observations is 3,225.

Table 16: Difference-in-Differences effects of pogroms on migration, by year

A. Before	(1)	(2)	(3)	B. After	(1)	(2)	(3)
1900	-0.217			1906	0.455	0.338	0.228
	(0.189)				(0.141)	(0.154)	(0.153)
1901	-0.178	-0.173	-0.109	1907	0.334	0.376	0.326
	(0.176)	(0.134)	(0.143)		(0.142)	(0.184)	(0.198)
1902	0.042	0.010	-0.038	1908	0.260	0.338	0.252
	(0.173)	(0.171)	(0.184)		(0.142)	(0.160)	(0.167)
1903	-0.101	0.081	0.089	1909	0.211	0.325	0.245
	(0.164)	(0.149)	(0.151)		(0.140)	(0.169)	(0.179)
1904	0.266	0.398	0.289	1910	0.222	0.274	0.121
	(0.162)	(0.166)	(0.174)		(0.140)	(0.181)	(0.189)
1905	0.230	0.304	0.216	1911	0.183	0.249	0.119
	(0.136)	(0.162)	(0.171)		(0.137)	(0.176)	(0.171)
				1912	0.181	0.263	0.116
					(0.150)	(0.186)	(0.187)
				1913	0.251	0.312	0.162
					(0.134)	(0.202)	(0.205)
				1914	0.359	0.349	0.197
					(0.137)	(0.189)	(0.176)
Time F.E.	Year	Year ×Region	Year ×Prov.				
Geog. F.E.	Province	District	District	R-squared	0.458	0.793	0.841
Dist. conts.	✓			P-val. F	0.000	0.000	0.000

Notes: Panel B reports the same regressions as Panel A, its columns being continuations of the respective columns in Panel A, separated for convenience by before and after years. The reported coefficients are year-specific DID effects, interaction of year×pogrom. Specifications (1)-(3) correspond to specifications (4)-(6) in the DID regressions on Table **??**. The district controls include commerce-manufacturing, capital-district indicator, and Landsmanshaftn 1899. Standard errors, clustered by district, are in parentheses. In all specifications, the number of observations is 3,225.

Figures

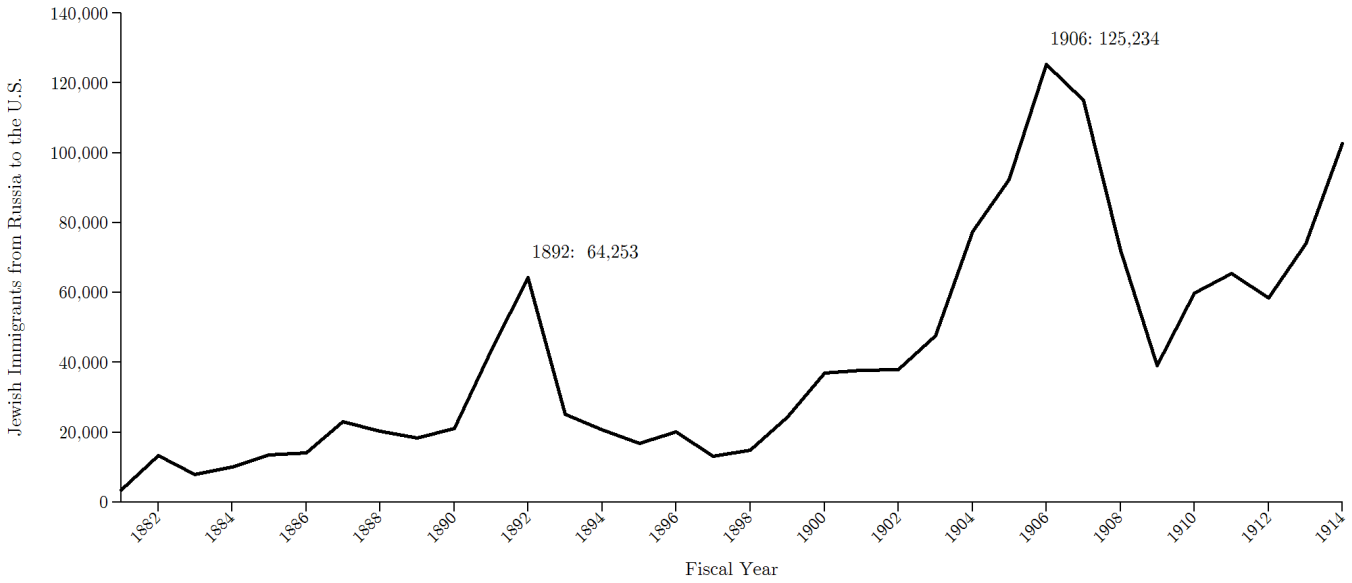


Figure 1: Jewish Immigration from Russia to the United States 1881–1914

Notes: For the period prior to 1899, no official statistics exists separately on Russian Jews. Figures on the years 1881–1898 are based on Joseph's (1914, Table XII) estimates, with corrections by Godley (2001, Table 5.4). Figures on 1899–1914 is from official statistics, as reported in Ferenczi and Willcox (1929, Table XXXII). Migration is counted in fiscal years, going from July 1st (previous year) to June 30th (current year).

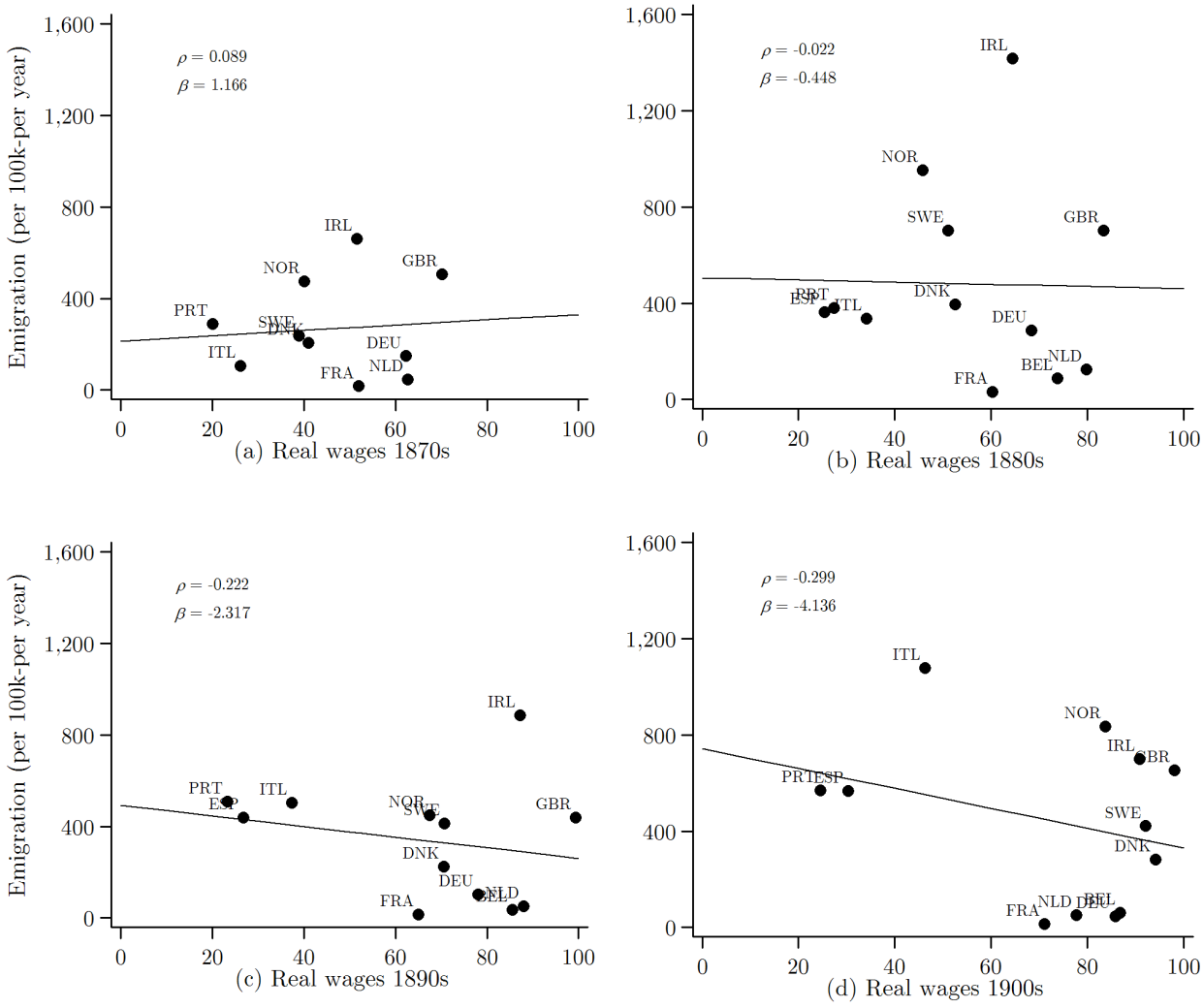


Figure 2: European Emigration and Real Wages 1870-1910

Note: Emigration rates are decade averages in yearly terms per 100,000 (Ferenczi and Willcox 1929, Text Table 9, pp. 200-201). Real wages are internationally comparable PPP-adjusted decade averages revised in O'Rourke and Williamson (1997) as reported in Hatton and Williamson (2008, Table 4.2), where 100 is the level of British real wage in 1905. Real wages are one year lagged relative to migration (e.g., 1870-1879 wages correspond to 1871-1880 emigration). Real wages in the 1900s are for the years 1900-1913. Fitted lines represent predictions of univariate OLS regressions. Correlation coefficient and slope are reported in the figures.

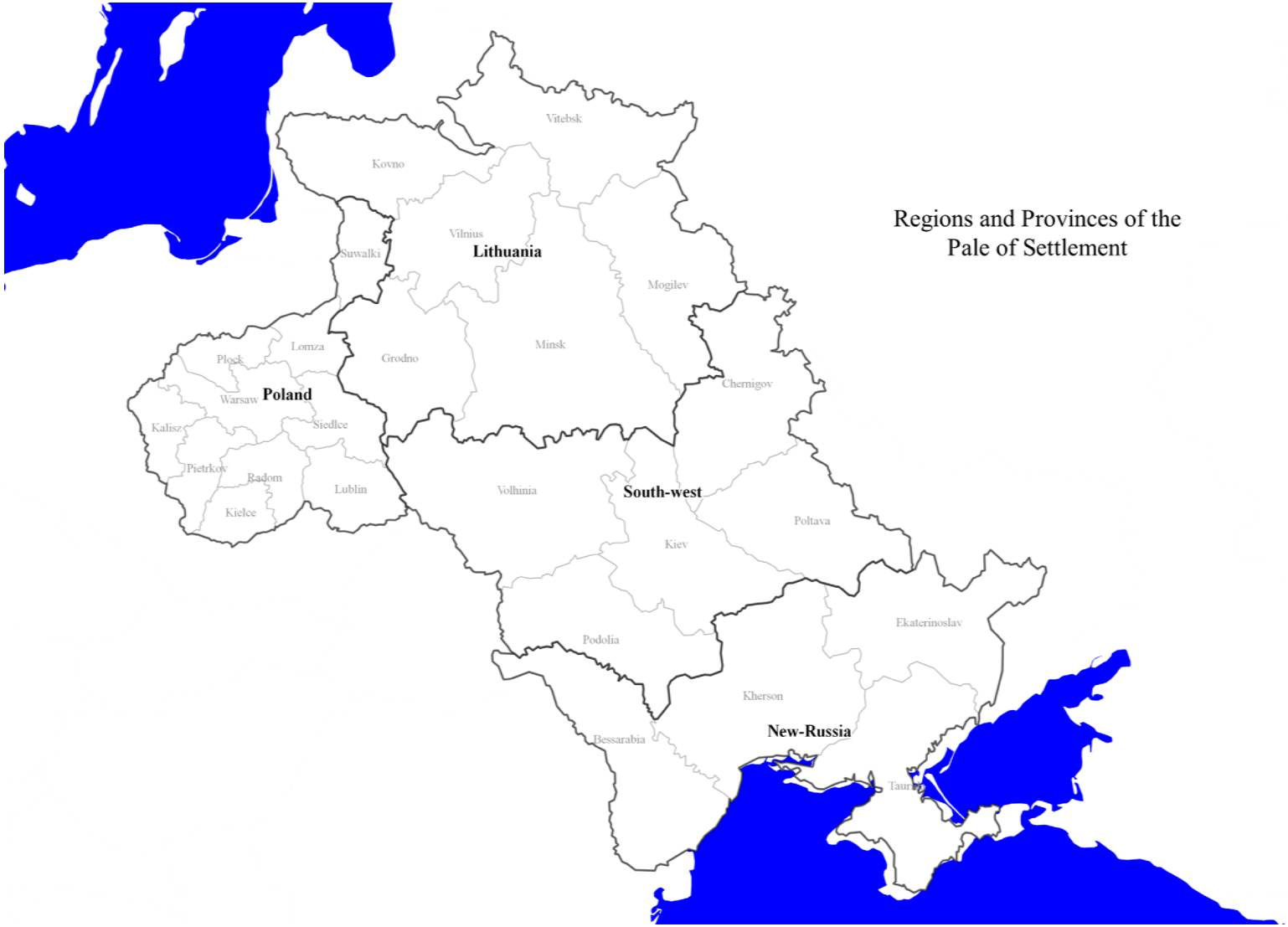


Figure 3: Regions and Provinces of the Pale of Settlement

Note: The map plots the twenty-five provinces of the Pale of Settlement and their grouping to four main regions. Poland is Congress Poland, also known as The Kingdom of Poland or Vistula Land. The region of Lithuania is also known as the North-West.

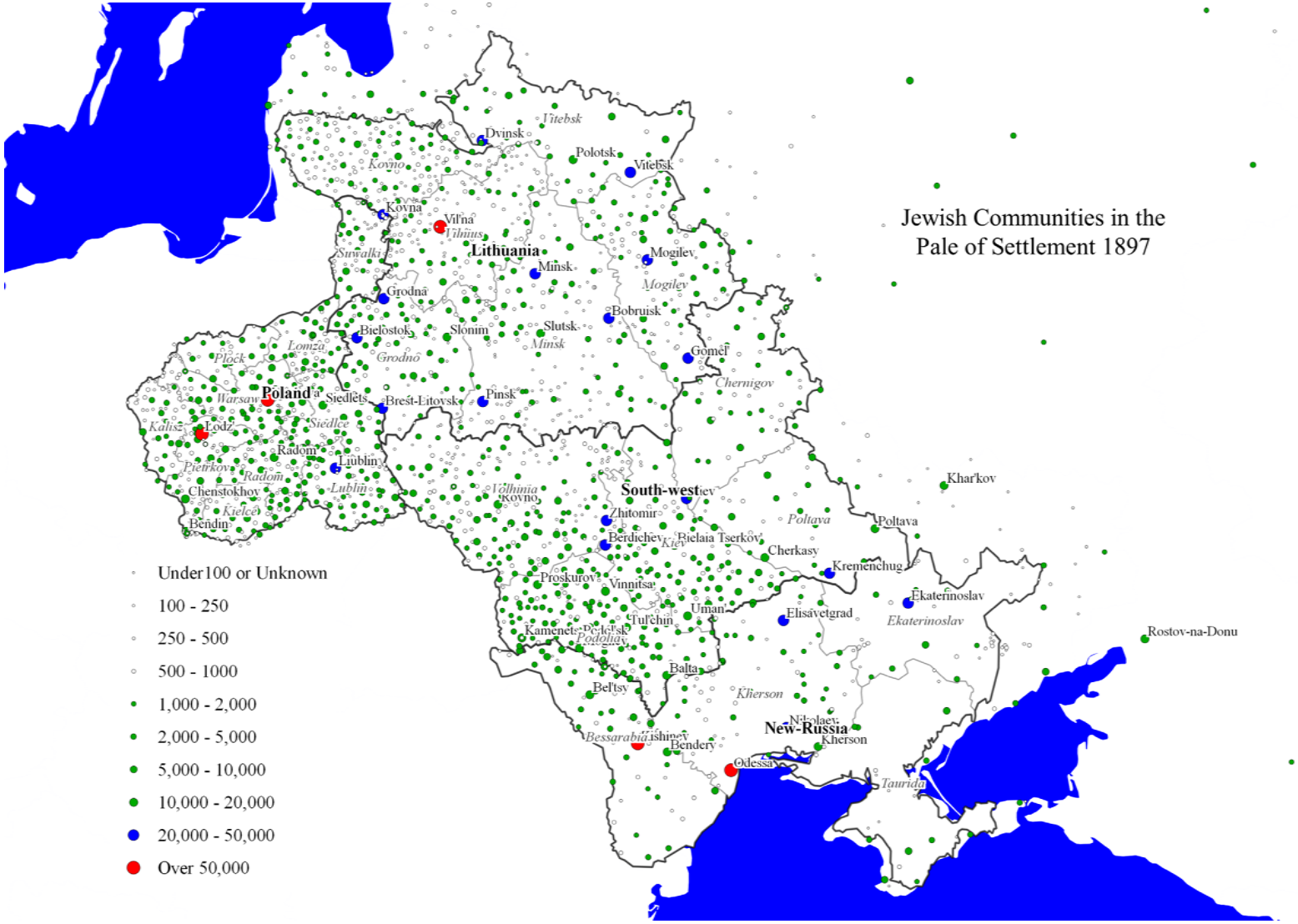


Figure 4: Jewish Communities in the Pale of Settlement 1897

Note: The map includes all localities in the Pale of Settlement in which (a) the total population was at least 500; and (b) The Jewish population was at least 10 percent of the total. The source for the names and the populations is Tsentral'nyi Statisticheskii Komitet (1905). Geographic coordinates and additional communities of unknown size, typically of very small localities, have been added from JewishGen's Jewish Communities Database (www.jewishgen.org/communities/search.asp). Remaining coordinates were added using various online sources.

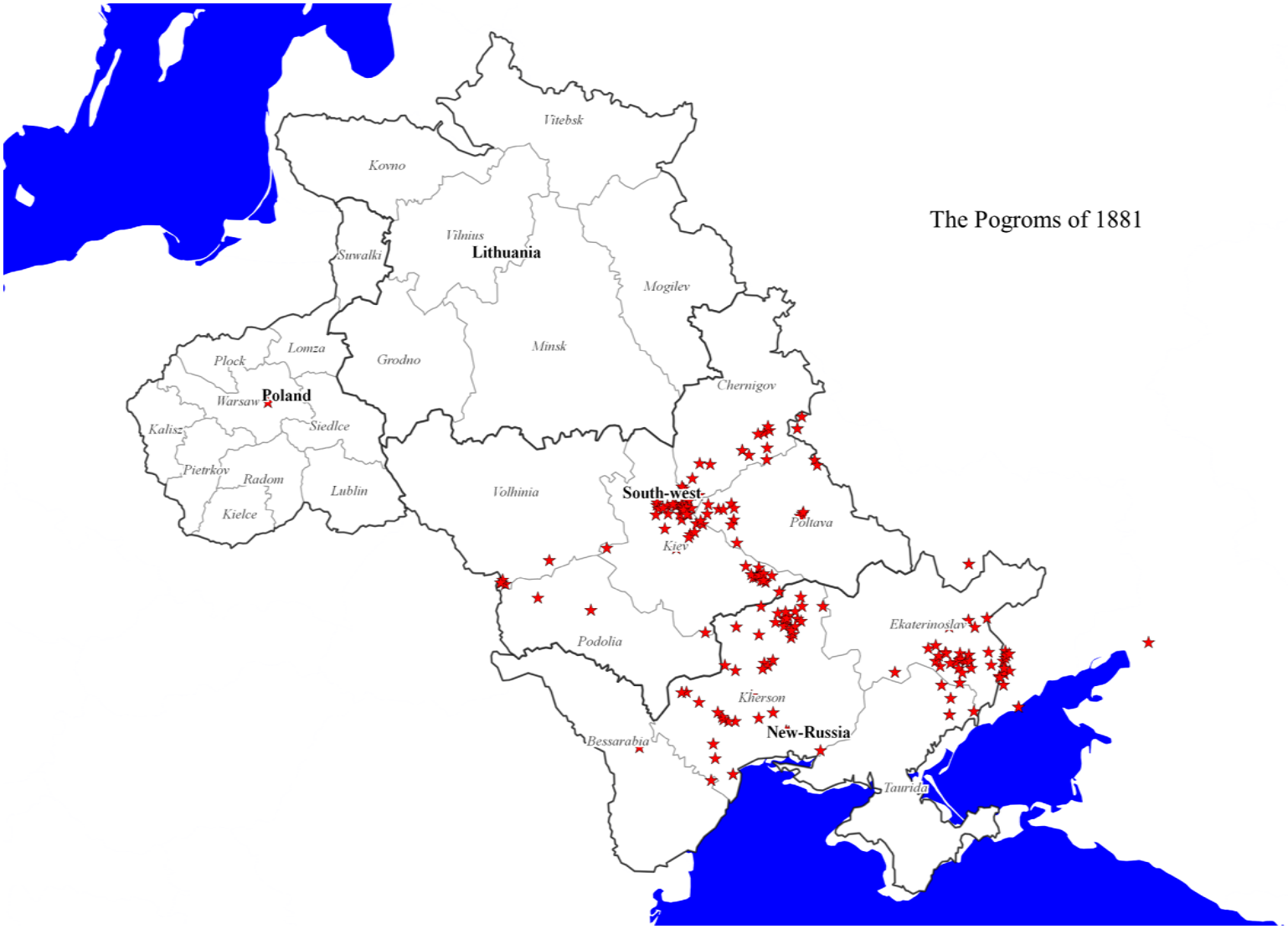


Figure 5: The Pogroms of 1881

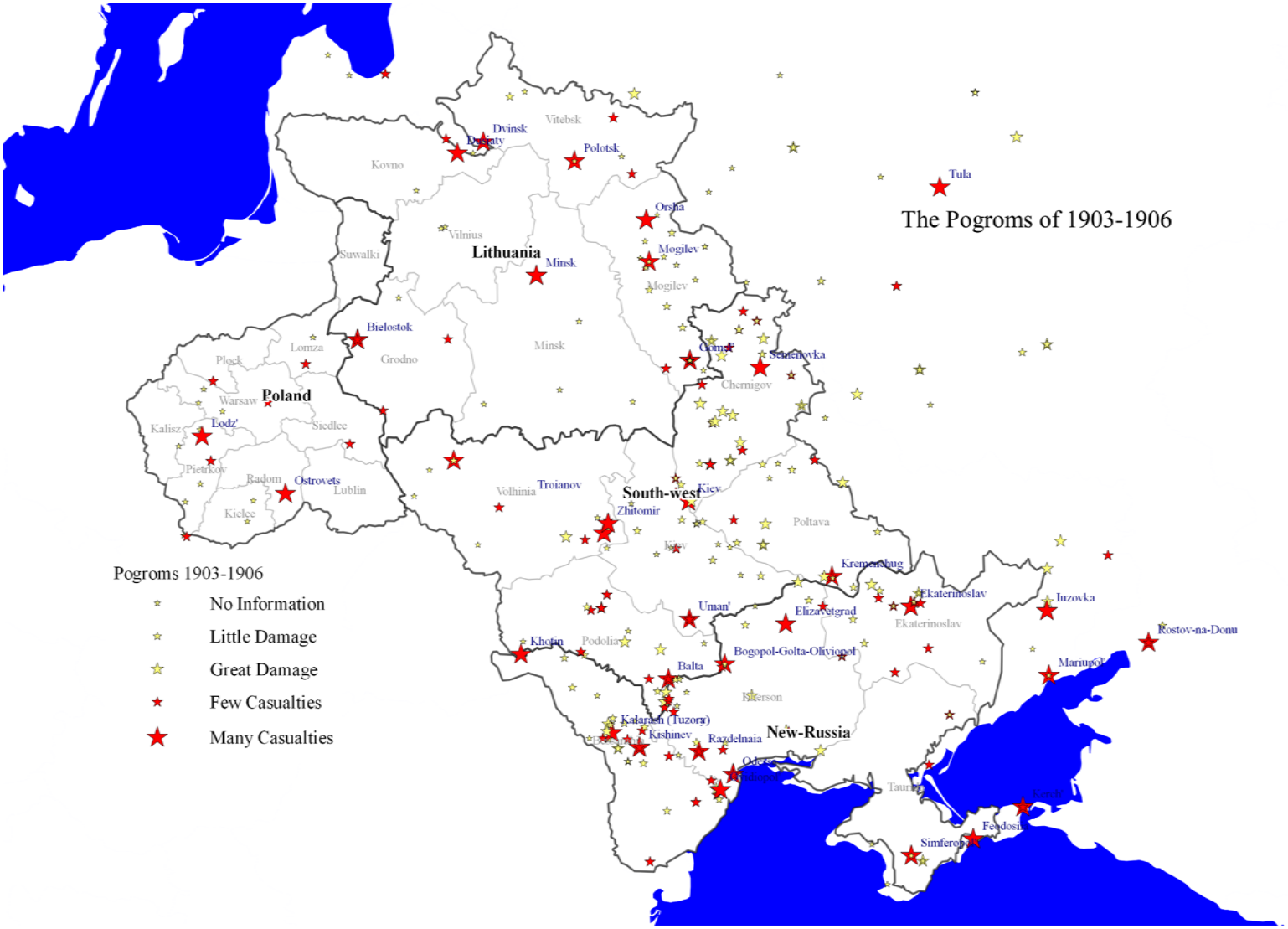


Figure 6: The Pogroms of 1903-1906

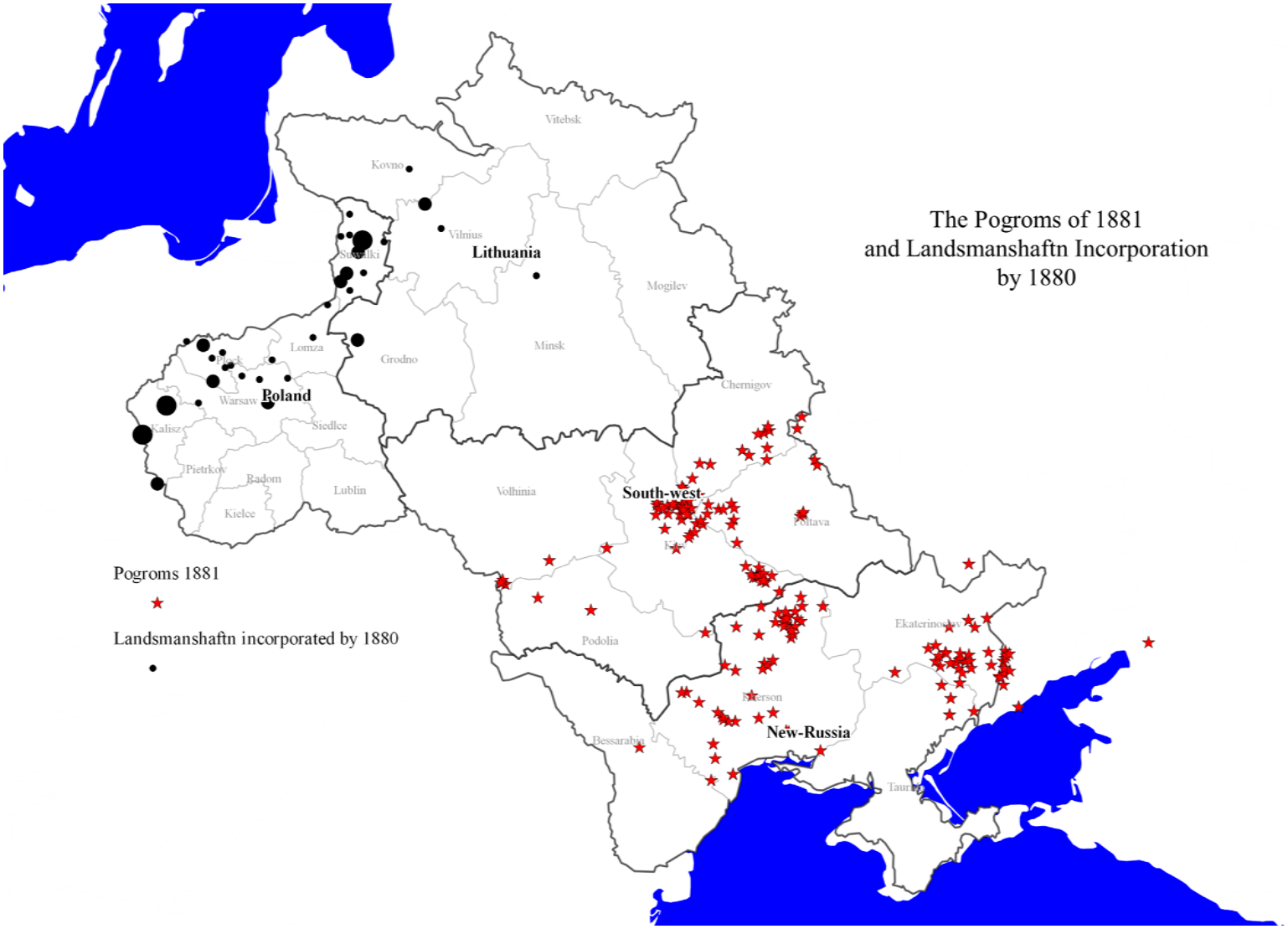


Figure 7: The Pogroms of 1881 and Landsmanshaftn Incorporation by 1880

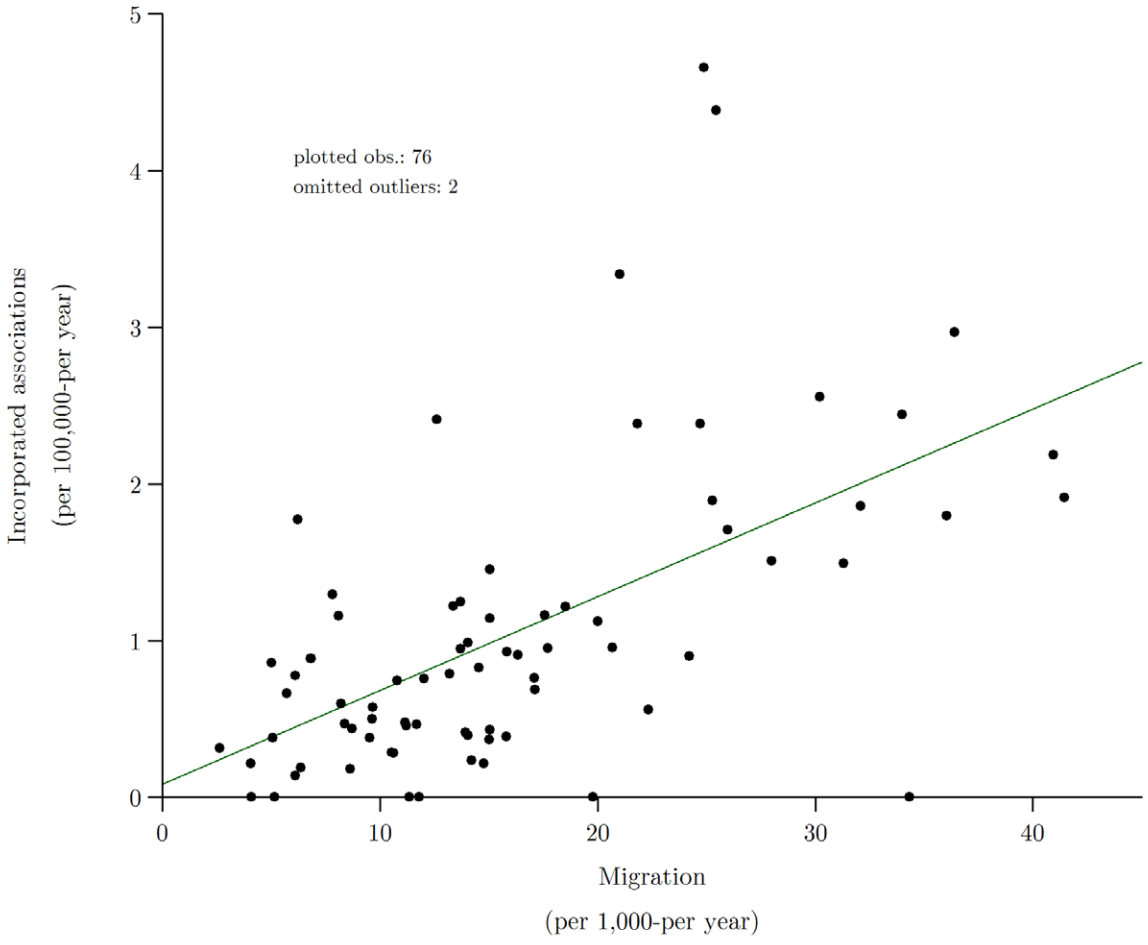
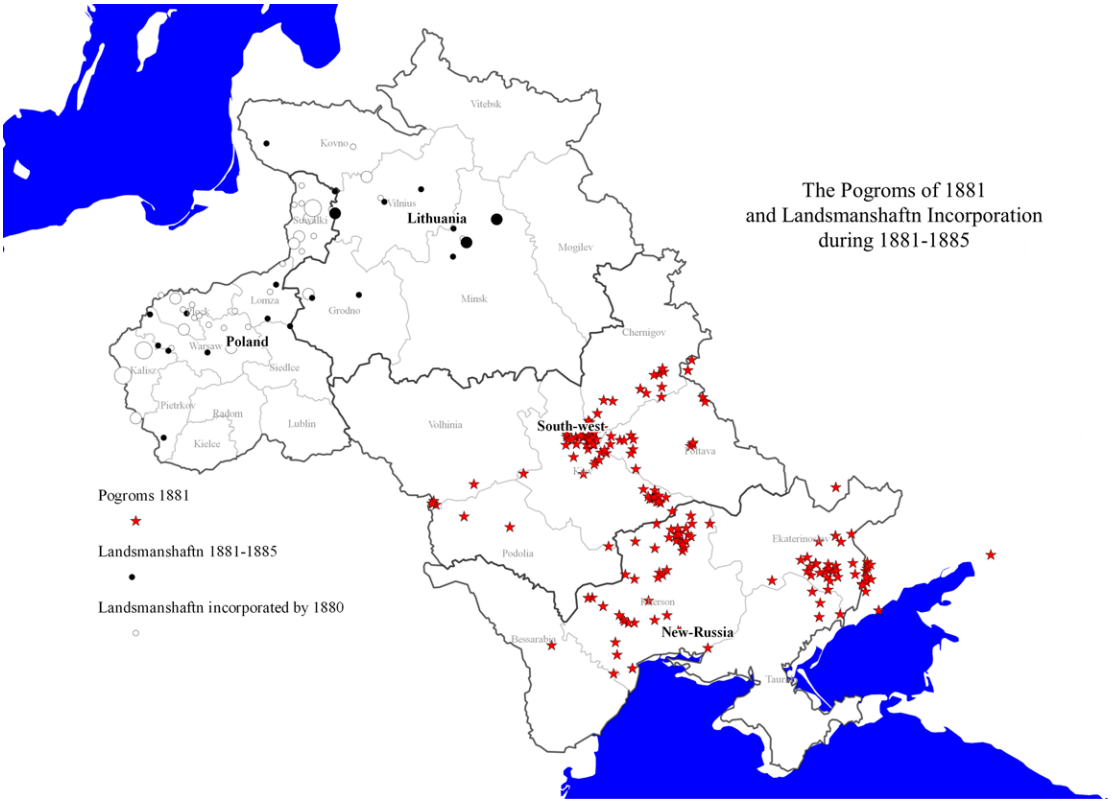


Figure 8: Landsmanshaft incorporation and migration—province-5 year aggregation

Notes: Each observation represents a single province over a five years period. The periods over which the counts were aggregated are 1900–1904, 1905–1909, and 1910–1914. The landsmanshaftn measure is incorporations per capita, per year: the number of associations related to the province that were incorporated within the five years period, multiplied by 100,000 ÷ (5 × province population). The migration measure is total migration from the province of migrants aged 16–50, adjusted for the share of observed-to-unobserved migration, multiplied by 1,000 ÷ (5 × province population), where the province population is in each year the size of the population in the cohorts that are 16–50 years old. The dotted line is the fitted OLS univariate prediction (see Table 1, Col. (4)).

(a) Landsmanshaftn Incorporated during 1881–1885



(b) Landsmanshaftn Incorporated during 1886–1890

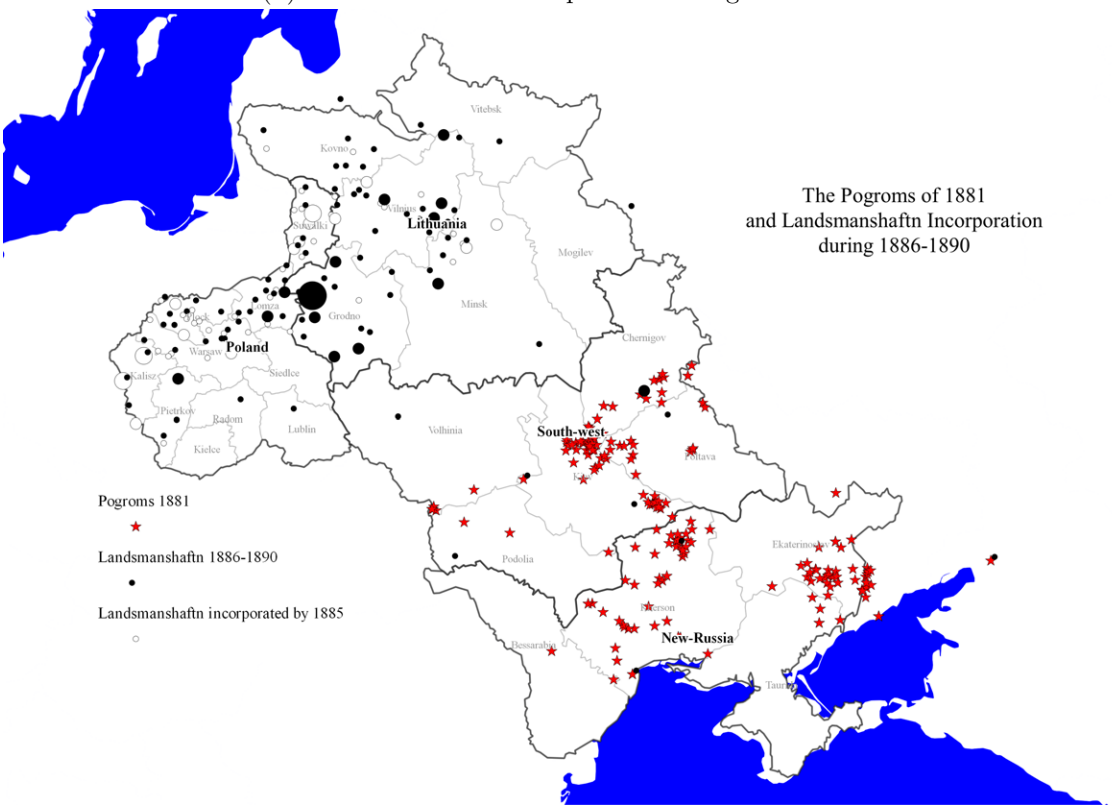
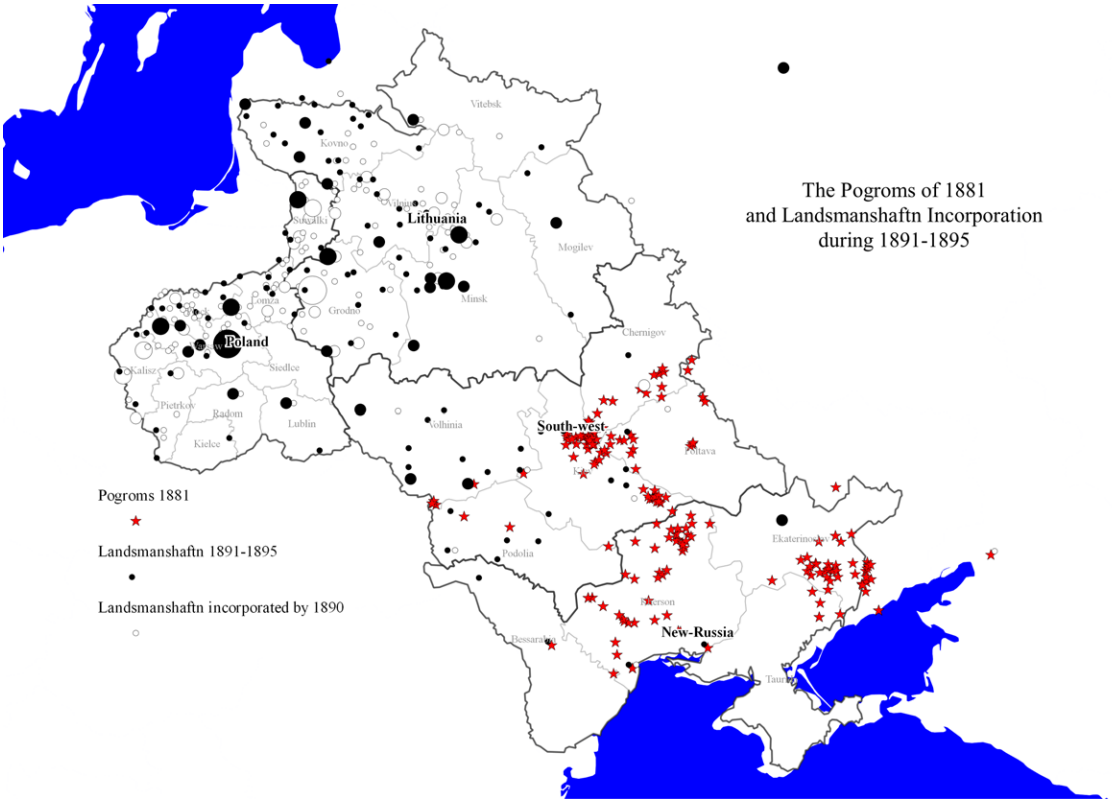


Figure 9: The Pogroms of 1881 and Landsmanshaftn Incorporation during 1881–1890

(a) Landsmanshaftn Incorporated during 1891–1895



(b) Landsmanshaftn Incorporated during 1896–1900

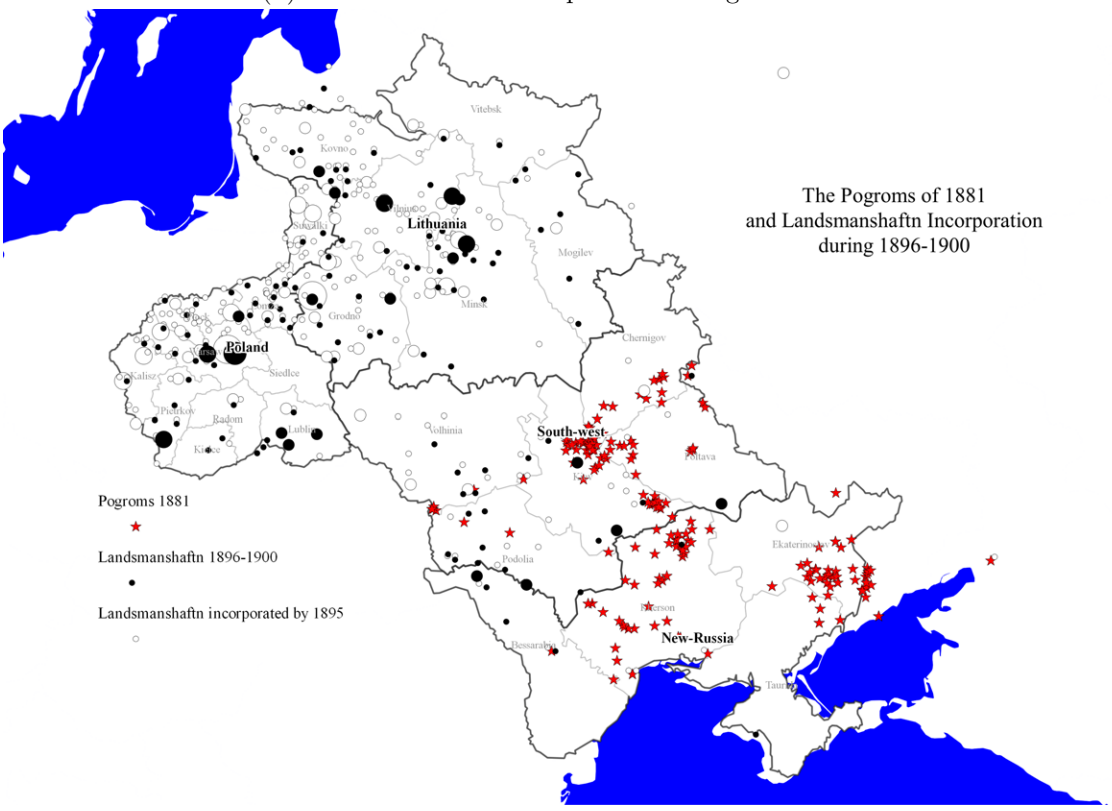
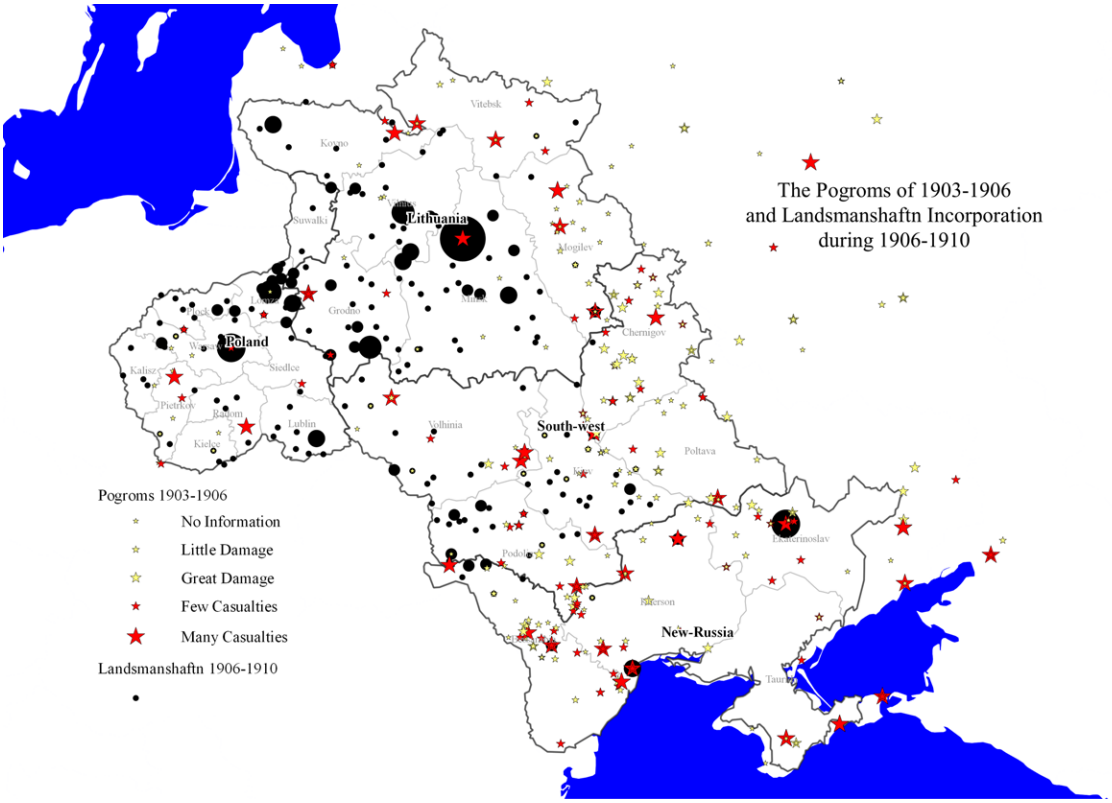


Figure 10: The Pogroms of 1881 and Landsmanshaftn Incorporation during 1891–1900

(a) Landsmanshaftn Incorporated during 1906–1910



(b) Landsmanshaftn Incorporated during 1911–1915

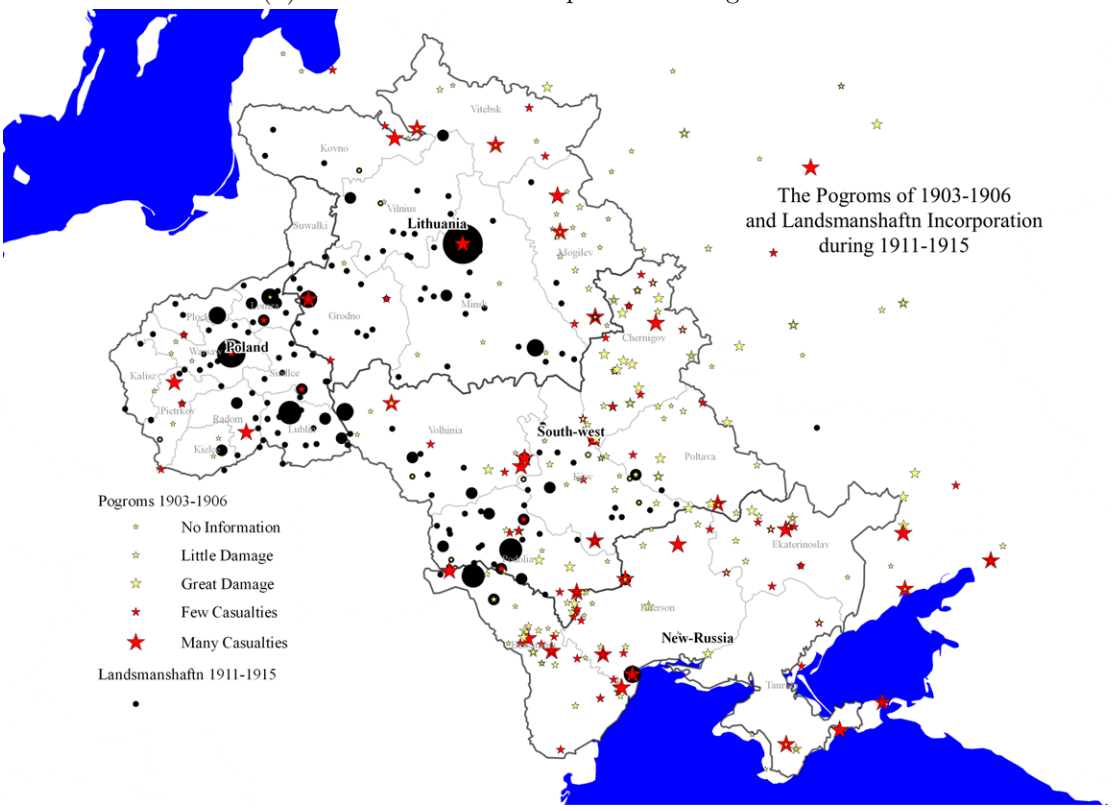


Figure 11: The Pogroms of 1903–1906 and Landsmanshaftn Incorporation during 1906–1915

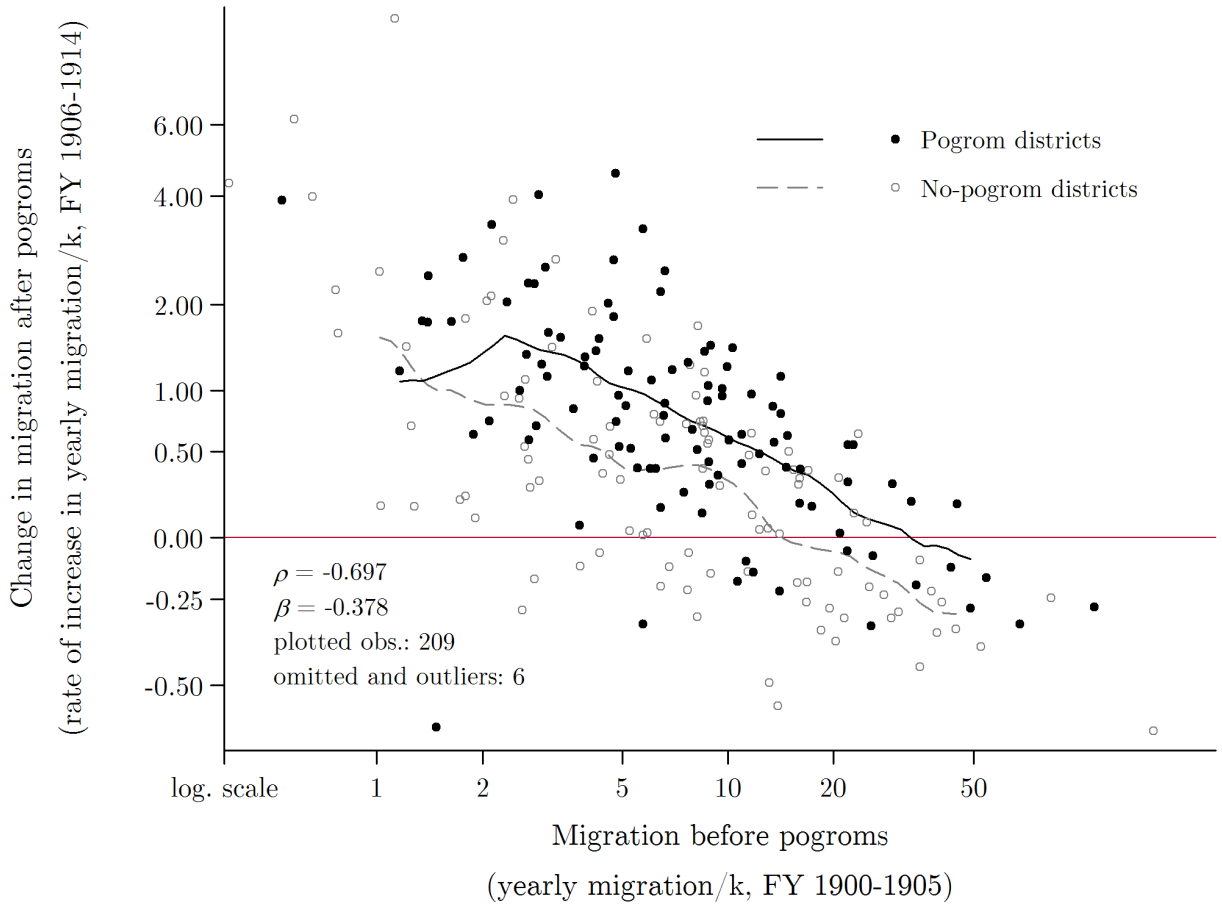


Figure 12: Convergence in migration rates and the pogroms

Notes: Each observation represents a single district from among the 215 districts that had towns matched to the Ellis Island arrival records (outliers beyond the range of this graph are not plotted but are included in the regression, districts with zero pre-pogrom migration were omitted). The horizontal axis represents yearly migration per-1,000 in ages 16–50 during the pre-pogrom years (FY 1900–1905), drawn in logarithmic scale: $\bar{m}_j^{\text{before}} = \frac{1}{N_{T_0}} \Sigma_{t \in T_0} m_{jt}$, where $T_0 = \{1900, \ldots, 1905\}$. The vertical axis represents the change in the rate of migration (drawn in logarithmic scale), as defined above, between the pre- and post-pogrom years. That is, $\Delta \bar{m}_j = \bar{m}_j^{\text{after}} / \bar{m}_j^{\text{before}} - 1$, where $\bar{m}_j^{\text{after}}$ is defined similarly with $T_1 = \{1906, \ldots, 1914\}$. For example, $\Delta \bar{m}_j = 2$ stands for 200% increase in migration. The curves represent the predictions of a kernel regression with Epanechnikov kernel function and a bandwidth of 0.2, separately for districts that did not experience a pogrom and districts that had at least one pogrom identified in the merged list. The horizontal line at zero represents no change in migration.

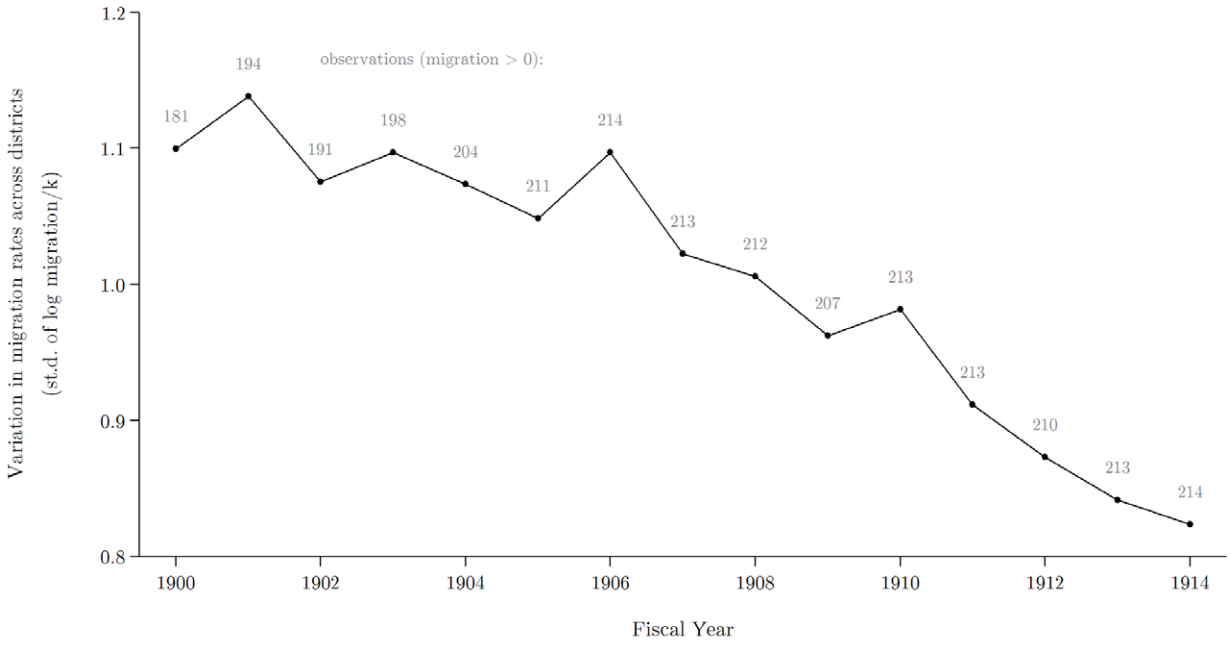


Figure 13: Convergence in migration rates: Cross-district variation by year

Notes: Each observation represents a single year. The vertical axis represents standard deviation of log migration per-1,000 in ages 16–50, across the 215 districts that had towns matched to the Ellis Island arrival records. Year-districts with zero migration were omitted. The number of non-zero observations at each year is reported above the curve.

A A Case Study

A.1 Kalarash and Orgieev District

Kalarash was a shtetl situated about 50 kilometers north-west of Kishinev, its surrounding countryside mostly settled by Moldovan peasants. It was a small market town in the district of Orgieev, part of the province of Bessarabia in the southern region of New-Russia. According to the 1897 census, the total population of the town was 5,153, of which 4,593 (89.1 percent) were Jews. Although this share of Jews was atypically high, it was certainly not unheard-of either.[78] Since Kalarash was not an administrative town (a *gorod*),[79] the census does not report additional town-level information, yet ample statistics are available on Orgieev district and some of these are presented in Table A1. Demographic statistics are reported in Panel A. The district as a whole counted 26,680 Jews (12.5 percent of total population), of which 73.3 percent were located in one of six localities identified in the shtetlach data (see Figure 4). I counted migration only from the district's four largest Jewish communities, and these communities covered 70.4 percent of the Jewish population in the district.[80] The share of females and the age distributions of Jews and non-Jews in Orgieev were quite similar, although Jews were about four times more literate than their neighbors.[81]

Like most Russian provinces, Orgieev mainly grew grains, but the mild climate also permitted the cultivation of grapes, as well as plums and other fruits. There was a wine industry, in which Jews were involved as growers, makers, and traders. The dual ethnic nature of Orgieev's labor market is apparent in Panel B of Table A1. Among the non-Jewish labor force, 79 percent of the workers were employed in agriculture, more than five times than among Jews.[82] On the other hand, a third of Jewish workers were employed in commerce, compared to 0.8 percent among non-Jews. Manufacturing captured a further 21.6 percent, and thus the commerce-manufacturing ratio of Jewish workers was 1.54, above that of 91 percent of the Pale's districts, and probably reflecting relative prosperity.

A.2 Kalarash's Associations

According to the landsmanshaftn data, Kalarash and the rest of Orgieev district were late-comers to U.S.-bound migration. Two associations of Kalarash immigrants were identified. The first, *First Kalarasher Benevolent Association*, was only incorporated in 1906. The second, *Karalasher Bessarabian Progressive Association*, followed in 1916.[83] Orgieev district had only one more lands-

[78] In fact, in two other similarly-sized shtetls in the district of Orgieev Jews constituted an overwhelming majority: Rezena (87.1 percent) and Teleneshty (88.5 percent). In Orgieev itself, the district's main city, 58 percent of the town's 12.3 thousand residents were Jews. Each of three more smaller localities in the district had a Jewish minority of 10-20 percent written in the census.

[79] In each district there were one or more administrative towns, on which the census provided further tabulations; on the gorods in the census see Rowland (1986, p. 115).

[80] As said earlier, to the extent that Jews immigrating from smaller localities in Orgieev district reported a nearby large city or just the name of the district, the effective coverage rate was probably greater.

[81] This Jewish advantage in literacy was typical for the region, but in Congress Poland Jews were often out-literated by others (Perlmann 1996).

[82] In fact, Jewish participation in agriculture was unusually *high* in this district: in only a handful of the Pale's 236 districts did it exceed 10 percent, whereas the Pale's overall average was a mere 2.6 percent.

[83] The story of the founding of the latter was told by its first president, Joseph Einbinder, in a special booklet printed for the association's 18th anniversary. The ceremonial text was concluded with a sigh of relief, thanking

manshaft identified, *Progressive Orgeyeve Aid Society*, incorporated in 1919, which was presumably related to the district's capital. Bessarabia province as a whole was rather late in founding migrant associations. By the time it incorporated its first landsmanshaft in 1891, it was preceded by twenty of the Pale's twenty-five provinces. By 1905 there were twenty-one Bessarabian associations, and twenty-five more were incorporated by 1919.

A.3 Kalarash and the Pogroms

Bessarabia province was mostly spared during the first wave of pogroms, with only a single pogrom reported in the city of Kishinev in 1881.[84] However, during the second wave it found itself in the eye of the storm, starting with the 1903 Kishinev pogrom, and followed by dozens of other violent events during October 1905 [o.s.]. At ten o'clock in the morning of Sunday, October 23, 1905 [o.s.], a group of twenty Russian "hooligans" arrived at the railway station of Kalarash from Kishinev.[85] The market was already filled with a crowd of Moldovan peasants who came to purchase and sell in the market. Within a few minutes—according to one of the reports, after initiating a quarrel with a Jewish woman at her bread stall in the market—one of the hooligans stood up and called a short incitement speech ending with the battle cry "Now, brothers, it is time to slaughter the Jews!"

The wave of pogroms that started a few days earlier had not gone unnoticed, and the people understood well what was happening: Jews locked their shops and hided while the hooligans raided the commercial streets, plundering taverns, stores, homes, and storage houses. Some farmers began to turn their carts and escape back toward their villages, while others followed the inciters, tempted by the opportunity to pillage with impunity. Police was absent, and a handful of members of a poorly armed self-defense group tried in vain to keep the perpetrators at bay. For a few hours the pogrom raged, and the town was filled with scenes of drunkenness, pillaging, beating, shooting, raping, killing, and mutilation of bodies. Many houses and all shops were burned down to the ground, including ones where entire Jewish families were hiding in cellars and attics. Dozens were burned alive. At four o'clock in the afternoon, a company of 55 soldiers arrived in town with the vice-governor, and the crowd was dispersed. But as the night came down, they raided the town once again and the pogrom resumed, finally ending only in the morning, when plunder opportunities were all but exhausted.

Motzkin (1910, p. 101) reported the following summary: 60 people killed, excluding an unknown number buried under the rubble, 75 severely wounded and 200 lightly wounded.[86] Two synagogues,

God that "[...] in my older years I do not have to work so much for the society. There is someone to leave it to: our good and honest and well-known members who watch after it with their "eyes in their head."" An English translation is available on kehilalinks.jewishgen.org/calarasi/Einbinder.html.

[84] In contrast, the neighboring province of Kherson experienced 55 pogroms.

[85] The following description is based on several accounts of the Kalarash pogrom: A section in Motzkin's (1910, pp. 97–102) report; a detailed account of Kalarash in the aftermath of the pogrom within the memories of Philip Cowen (1932, pp. 212–223), a Jewish American immigration officer working in Ellis Island who was nominated by president Theodore Roosevelt to travel to Russia and study the causes of the Jewish migration; and a section in Tamir et al. (1966, pp. 331–370), the *Yizkor* (memorial) book for Kalarash community written after it was all but wiped out during the holocaust, including a witness account published first as a Yiddish pamphlet in Odessa in 1906 by a young man by the name of Yaakov Chiplester. The accounts are generally consistent with one another, including many minute details.

[86] According to the AJYB list, there were 100 deads and 80 (severly?) wounded. According to Cowen (1932, p. 218), 42 were killed outright, 53 (severely?) wounded, of whom some died subsequently.

a Talmud Torah (religious school), and 230 houses with 412 apartments were burned down, reducing 2,500 persons to "virtual beggary", and 1 million Rubles of material damage;[87] While some pogroms during the wave of 1903–1906 were equally violent and deadly, relative to the modest size of the town, the number of casualties and the magnitude of the material damage make Kalarash a rather extreme case. Long time after the pogrom, despite support from donation funds, the town remained little more than its own wrecks. "[T]he once lively commercial center was transformed to a miserable pile of rubble, where blackened walls stand screaming to heaven as witnesses to the atrocity, and the homeless who shortly before have rejoiced in prosperity, are left to cry over the ruins of their property and reach for alms" (Motzkin 1910, pp. 101–102).

Other Jews in Orgieev district shared Kalarash's misfortune. According to the AJYB list, Orgieev itself experienced a pogrom, although no damage was specified and Motzkin's report remained mute on that. The district's other two large Jewish communities were not listed as suffering a pogrom. Six villages that were noted on Motzkin's report were identified as situated in the district. The number of families affected in each ranged between 9 and 47, and the estimated material damage from 12 to 42.8 thousand Rubles. As these were surely very small countryside Jewish communities, this material damage must have been severe.[88]

A.4 Kalarash Immigrants

On December 24, 1906, less than fourteen months after the pogrom, a group of Kalarash Jews was recorded embarking steamship Smolensk on the Russian Atlantic port of Libau (Libava), en route to New York. Their details are presented in Table A2. Among them were the Axenfelds (mistakenly written as Axelfeld): A widowed grandmother, parents in their mid-thirties, and five children under the age of ten. The father, Itzik Axenfeld, was a tradesman.[89] They were said to be joining Samuel Spiwak, a brother in law, who lived in Syracuse, NY.[90] Samuel's son, a nine year old Jankel Spiwak, was also among the group, and so was another nephew, (a second) Idel Axenfeld, eleven years old. Another childless couple in their mid-thirties, Jankel and Feige Grünberg, came as well: the brother and sister in law of Itzik and Chane. Finally, there were a sixteen year old tailoress and a twenty-five year old tradesmen.[91] The Axenfelds came with $600, equivalent to 1200 Rubles, a hefty sum that was rarely in the possession of ordinary Jewish immigrants.

The Axenfelds and their company were unlike the quintessential labor migrants, men in their early working life, ready to take advantage of the opportunities offered to the young and able-bodied on the American labor market. Out of a group of fourteen, only four were labor-force participants.

[87] According to the AJYB list and Chiplester's account, the estimated damage exceeded 2 million Rubles. To give a sense of the magnitude of this loss, a yearly wage of a skilled worker would amount to roughly 300-500 Rubles in this region. Thus, an average Jewish household in Kalarash lost the equivalent of several years of income.

[88] One of these, Onishkany, was specifically mentioned in Chiplester's account among a list of Jewish countryside communities that were ravaged by farmers returning to their villages after taking part in the Kalarash pogrom. He reported on two murdered Jews that were not recorded by Motzkin.

[89] In later American documents I found him as a wine trader. Given the prominence of the wine industry within the economy of Kalarash, this was probably his specific occupation also prior to migration. More details learned from American genealogical resources were used here to expand the description of this group of immigrants.

[90] I was able to verify that indeed there was a Samuel Spiwak living in Syracuse. He immigrated in 1906 and a couple of years later he was residing within two blocks from 511 Harrison St., the address reported by the Axenfelds.

[91] I was unable to determine a certain family relation between the latter two and the Axenfelds.

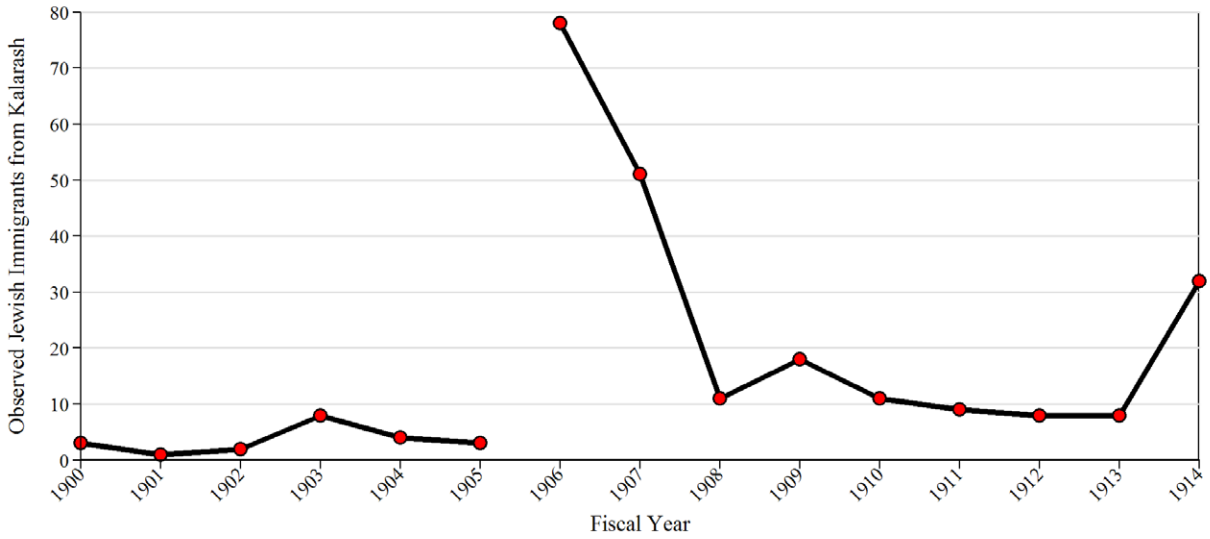


Figure 14: Kalarash Immigration in the Ellis Island Sample 1900–1914

Notes: The figure reports the yearly number of immigrants who were identified as Jews according to the WIAJ algorithm, and were linked to Kalarash by the geo-matching of Ellis Island immigrants to Russian shtetls. The numbers are raw, and were not adjusted by the ratio of observed-to-total Jewish Russian migration. Fiscal years went from July of the previous year to June of the current year.

Were they driven out of Kalarash by the pogrom? No direct evidence can tell, but having depended on trade it is more likely than not that their businesses were wrecked. Furthermore, two hints suggest that they may have experienced personal losses. Naftole Schwarzman, the twenty-five year-old tradesman, was already a widower. He could, of course, have lost his wife through natural circumstances, such as maternal death, but this would still make him an unusual case.[92] It is not unlikely that he was among the twenty-three widowed by the Kalarash pogrom (Cowen 1932, p. 218). Additionally, a certain Selig Greenberg, seventy-five years old, was listed among the known pogrom victims.[93] While Greenberg was not the rarest of Jewish names, within a single town it is not far fetched to guess that Jankel Grünberg was his son, or otherwise a close relative.

Figure 14, plotting the number of Kalarash immigrants identified in the data in each of the sample years FY 1900–1914 shows a very clear structural break around the year of the pogrom: prior to 1906, there were no more than ten immigrants identified yearly coming from Kalarash. Suddenly their number peaked to almost eighty in FY 1906, of whom only four had immigrated in the first four months of the year (July-October 1905), prior to the outbreak of the pogrom. After a couple of years, the flow came down (as was the case for all U.S. immigration in the wake of the 1907 Panic and the ensuing recession), but remained above the pre-pogrom levels.

[92] Out of 12,003 (predicted) Jewish males aged twenty-five in the data, only 13 (0.11%) were widowers.

[93] Tamir et al. (1966).

Table A1: Orgieev District in 1897

A. *Demographics*	(1) Jews	(2) Non-Jews
Female	0.503	0.489
Literacy	0.383	0.084
Age Groups		
Under 1	0.029	0.031
1–10	0.248	0.248
10–20	0.238	0.213
20–30	0.168	0.148
30–40	0.127	0.128
40–50	0.087	0.099
50–60	0.063	0.068
Over 60	0.040	0.065
Total pop.	26,680	186,798
B. *Occupations*		
Agriculture	0.147	0.790
Commerce	0.332	0.008
Manufacture	0.216	0.051
Prof. Services	0.047	0.039
Pers. Services	0.197	0.080
Transport	0.018	0.006
Other	0.042	0.025
LFP	0.286	0.225

Source: Calculations based on the 1897 Russian Census.
Note: Age groups shares may not sum to 1 due to an *unknown age* category. 65 occupations are grouped to categories according to Rubinow (1907, p. 500).

Table A2: A Group of Kalarash Immigrants in the Data

(1) Last Name	(2) First Name	(3) Age	(4) Sex	(5) Marit.	(6) Occupation	(7) Literacy	(8) Paid by	(9) Money
Axelfeld	Hinde	67	f	wd	none	no	son	600
Axelfeld	Itzik [Ytzik]	37	m	m	tradesman	yes	self	
Axelfeld	Chane	34	f	m	none	no	husband	
Axelfeld	Idel [Ydel]	8	m	s	child	yes	father	
Axelfeld	Tewie	11m	m	s	child	no	father	
Axelfeld	Sure	9	f	s	child	yes	father	
Axelfeld	Taube	7	f	s	child	no	father	
Axelfeld	Rebeka	3	f	s	child	no	father	
Schwarzman	Naftole	25	m	wd	tradesman	no	self	12.5
Grünberg	Jankel [Yankel]	37	m	m	tradesman	yes	self	50
Grünberg	Feige	34	f	m	none	no	husband	
Grobokopatel	Blume	16	f	s	tailoress	yes	uncle	10
Spiwak	Jankel [Yankel]	9	m	s	child	yes	uncle	
Axelfeld	Idel [Ydel]	11	m	s	child	no	uncle	

Source: Ellis Island arrival records, passenger list of Steamship Smolensk, embarked from Libau on Dec. 24, 1906, arrived in New York on Jan. 15, 1907.

Notes: First names were corrected when necessary, the inaccurately transcribed names are presented in brackets. The family "Axenfeld" was also misspelled in the manifests. Further fields common to all immigrant in this group—Nationality: Russia; race or people: Hebrew; last place of residence: Kalarasch; Destination: Syracuse, NY. Fields in cols. 1–5 are among the fields transcribed in the Ellis Island data. Fields in cols. 6–9 were not transcribed, and were read from the scanned manifest. Literacy was separated to ability to read and write, but for all immigrants in this groups the two fields had the same values. Paid by (col. 8): by whom was the passage paid. Money (col. 9): how much money the person possess (U.S. dollars).