CES Open Forum Series
2024-2025

No. 53 - April 2025

Intergenerational Mobility over Nine Generations

Evidence from Poland, 1800-1984

Marcin Wroński
Maria J. Minakowska

Minda de Gunzburg
Center for European Studies Harvard

About Open Forum

The Open Forum Paper Series is designed to present work in progress by current and former affiliates of the Minda de Gunzburg Center for European Studies (CES) and to distribute papers presented at the Center's seminars and conferences.

Any opinions expressed in the papers are those of the authors and not of CES. For feedback on the series or for submissions, please contact the editors.

Editors

About CES

The Minda de Gunzburg Center for European Studies (CES) was founded in 1969 at Harvard University's Faculty of Arts and Sciences to promote the interdisciplinary understanding of European history, politics, economy and societies. Its mission is to:

- Foster the study of and innovative research on Europe among Harvard faculty as well as graduate and undergraduate students.
- Facilitate the training of new generations of scholars and experts in European studies.
- Serve as a forum for vibrant discussions on European history and contemporary affairs which nurture the exchange of ideas across disciplines, sectors, generations, and across the Atlantic.

Contact:
Gila Naderi, Director of Communications
@EuropeAtHarvard
Minda de Gunzburg Center for European Studies
Where Harvard & Europe Meet Since 1969

Marcin Wroński is an assistant professor at SGH Warsaw School of Economics. During the 2024-2025 academic year, he serves as the German Kennedy Memorial Fellow and a Visiting Scholar at the Minda de Gunzburg Center for European Studies (CES) at Harvard University. His research lies at the intersection of economics and economic history. Wroński is a voting member of the Financial Supervision Authority (FIN-FSA) and a fellow of the World Inequality Database, the Global Labor Organization, and the CERGE-EI Foundation. Previously, Wroński was a consultant at the World Bank Global Poverty & Equity Group, and a consultant in the private sector.

During his fellowship at CES, Wrónski will write a monograph on the long-run evolution of economic inequality and social mobility in Poland. Specifically, the project will discuss the interdependence between economic inequality, economic development, social structure, political and social institutions, gender roles, and ethnic/religious divisions.

Maria Jadwiga Minakowska is a data scientist, internet entrepreneur, and creator of databases in various fields of digital humanities, with a focus on mass genealogy and historical demography. Since 2002, she has worked on developing the largest genealogical database of historical elites in Central Europe which can be found online at Sejm-Wielki.pl and Wielcy.pl. Minakowska received a Ph.D. in philosophy from Jagiellonian University and has published several papers on historical demography and social mobility.

Abstract

In this paper, the authors utilize mass genealogical data to measure social mobility in Poland over the last two centuries. To do so, they digitize a unique dataset of elite biographies and imputed nine generations of the Polish elite to Poland's largest genealogical database. They measure direct family links between the top 0.01% of the Polish society across nine generations. They find that intergenerational mobility was low and stagnant until WW I, then it gradually increased in the 20th century, especially after WWII. In the 19th century, 35-39% of the elite were direct descendants of the elite of the previous generation and 50% of the elite retained their social status for their children. In 1984, descendants of the previous generation of the elite still formed 17% of the current elite. Family formation strongly influenced the persistence of social status, especially in the case of outsiders, who were the first in their families to join the elite. Outsiders who marry at least twice are much more likely to join the elite family network and retain the social status for their children. Their results also show that religious institutions were an important engine of social mobility.

Keywords: intergenerational mobility, long run, genealogy, Poland, elite

JEL codes: D63; J62; N33, N34

Contact: Marcin Wroński, Aassistant Professor, SGH Warsaw School of Economics, and German Kennedy Fellow, Minda de Gunzburg Center for European Studies, Harvard University

1. Introduction

Intergenerational mobility is a central topic in the social sciences. Conventionally, researchers link two generations and measure the correlation of the economic outcomes, for example, the income of the father and son. For the past few decades, intergenerational income elasticity has usually been estimated at 0.3-0.5, with variance across space and over time (e.g. Solon, 1992, 2002; Blanden, 2013; Corak, 2013; Chetty et al., 2013; Deutscher & Mazumder, 2013). Recently, a new wave of research based on surname status has challenged this conclusion. This strand of literature suggests that socio-economic status is much more persistent than previously thought, showing an intergenerational correlation in economic outcomes at around 0.75 and stability across borders and over centuries (Clark & Cummins, 2012, 2015; Clark, 2014, Clark et al., 2015; Barone & Mocetti, 2021; Hao, 2021). However, a comparison of results presented in both strands of the literature remains challenging (Solon, 2018; Torche & Corvalan, 2018; Santavirta & Stuhler, 2024).

In this paper, we contribute to the literature on the long-run evolution of social mobility by investigating the family links of the Polish social elite over nine generations from 1800 to 1984. We digitize all genealogical data included in the Polish Biographical Dictionary (*Polski Słownik Biograficzny*, hereafter PSB). The PSB collects the biographies of the most important people in Polish history across a wide range of fields, for instance, politics, economy, social activism, culture, art, and science. We combined data from 28,500 PSB entries (out of whom 18,800 are people who died after 1800) with the largest Polish genealogical database, Wielcy.pl, which aims to include genealogical records for Poland's "top million" and currently has 1.2 million entries. To measure social mobility, we directly exploit genealogical trees and do not rely on hypothetical links based on the surnames. The size of our sample equals to the 0.01% of the Polish population, and therefore we interpret our results as a measure of the uppermost social mobility.

We find that intergenerational mobility was low and stagnant until WWI. In 1800, 1823, 1846, 1869, 1892, and 1915, 35% to 39% of people included in the elite were relatives of people included in the PSB in the previous generation. Social mobility gradually increased over the 20th century, especially after WWII and the establishment of the communist Polish People's Republic. However, even in 1984, still, 17% of the top elite were the descendants of the elite of 1961. The decline of assortative matching started earlier and was faster than the evolution of social mobility.

We find that high society formed a single family network linking the top nobility, intellectuals, and businessmen. After WWII, the core network is still visible, though smaller in size relative to the rest of the elite.

The emancipation of peasants in the mid-19th century did not affect the intergenerational transmission of social status, at least in the context of our estimates focusing on the top of the social stratification. However, our research confirms the importance of structural shocks for the transmission of social status as well as their potential to increase equality of opportunity (Piketty, 2014; Scheidel, 2017, 2024; Alfani, 2021). Social mobility increased after WWI and the regaining of independence, and further increased after WWII and the transition to communism. Contrary to recent research on Hungary (Bukowski et al., 2022), we find that social mobility significantly increased in the post-war communist decades. As we do not observe any significant change in intergenerational mobility during the first five decades of industrialization, our results challenge modernization theory, according to which modernization of the economy increases social mobility (Kaelbe, 1985; Rotberg, 2000).

We find that the descendants of the deputies of the Great Sejm 1788-1792—the reformative Parliament that adopted the Constitution of May 3, the first modern constitution in Europe—had a significantly higher chance of remaining amongst the social elite. The field of activity impacted social mobility. In all investigated generations, religious institutions remained the main engine of the very top social mobility in the country. People born outside of the elite had a higher chance of becoming bishops than important politicians, successful businessmen, or renowned professors. We also find that love and marriage were major factors reducing social mobility. While the elite relatively open and ready to incorporate successful outsiders through marriage, the vast majority of people who joined the elite (achieved enough to be included in the PSB) without any past elite kin were already married. Outsiders exposed to the death of a first spouse or divorce (a practice relevant only after WWI), who had the opportunity to marry a second time had a much higher chance to join the elite family network and retain the place at the top of the social structure for their children.

Our measure of social mobility is based on kinship up to the sixth degree. We show that direct family links, traditionally used in the literature on intergenerational mobility, capture only a minor share of the transmission of social status. The hypothetical estimate based on the first degree

of kinship (direct family links, such as father to son) covers only 10-20% of the total persistence of social status. Meanwhile, by including more distant family links, we see the mobility over multiple generations and the impact of relatives other than parents on the transmission of social status (Campbell & Lee, 2011; Lindahl et al., 2015; Long & Ferrie 2018, Adermon, 2021; Mare & Song, 2023). We find that, at least in the context of the top 0.01% of society, distant relatives are crucial in measuring social mobility. Many of those who join the elite and are not a direct relative (sons/daughters) of the elite of the previous generation are more distant relatives of the past elite.

By estimating the intergenerational mobility over two centuries, we contribute to the literature on social mobility before the welfare state (Abramitzky et al., 2021a; Berger et al., 2023; Schifano & Paccoud, 2024; Zhu, 2024), especially to the literature focused on peripheral economies (Lippényi et al, 2013; Mejía, 2024; Fouerie et al, 2024). Our contribution is particularly relevant for the scholars of elites (Popovici et al., 2024), as we show that although social mobility in the 19th century was stagnant, the level of upwards mobility and elite openness was higher than it is often perceived (Mayer, 1981; Berend, 2003)

The historical context is presented in the next section. The literature on intergenerational mobility is reviewed in Section Three, while the data and method are discussed in Section Four. Next, the evolution of social mobility is presented in Section Five, with the determinants of the social mobility then discussed in Section Six. Section Seven contains robustness checks. The last Section concludes and suggests the directions for future research.

2. Historical context

Our research covers two centuries of Polish history. In 1795, Poland was partitioned by Prussia, Russia and Austria. There are two competing explanations of the partitions. The first one underlines the increasing pressure from neighboring Great Powers and international price trends of grain export that was harmful to the Polish economy. The second explanation identifies the reasons for failure mainly within Polish borders and highlight the political chaos and weak central power as the factors blocking the development of the Polish economy. Such internal factors contributed to the "Little Divergence" in pre-1800 economic development between England/Britain and the Netherlands and the rest of Europe (Malinowski, 2016; 2019; 2024; Sosnowska, 2019).

Poland lost its independence for 123 years, with Russia taking the largest share of Polish land, establishing the Congress Kingdom of Poland with the Russian tsar as the Polish king. Serfdom was first gradually abolished in Prussian Poland in the years 1811-1850, with peasants emancipated in Austrian Poland in 1848, while the tsar emancipated peasants in the Congress Kingdom only in 1864. The development of industry and the modernization of the economy started in the 1860s (Koryś, 2018; Koryś & Tymiński, 2022).

Poland regained its independence in 1918, although its borders stabilized only in 1923. The Second Polish Republic was a multiethnic state, with one-third of the population of non-Polish ethnicity. Immediately after the regaining of independence, Poland introduced universal suffrage and implemented a series of progressive political reforms: progressive income taxation, extraordinary wealth tax, establishment of public healthcare, and unemployment insurance. The first years of Polish independence were full of political turbulence, with 16 different governments in the years 1918-1926. In 1926, Marshall Piłsudski imposed an authoritarian regime after a successful coup d'état. The Polish economy was hit hard by the Great Depression, but overall Polish economy expanded during the interwar period. In 1938, the GDP per capita was approximately 30% higher than in 1913, and significant regional convergence was achieved (Bukowski et al., 2024). Economic inequality decreased after the World Wars but continuously increased during the interwar period (Bukowski & Novokmet, 2021; Wroński, 2023). The middle class was weak and largely of non-Polish ethnicity, and the very top wealth shares were high compared to other states. An oligarchy of 900 families (0.01%) controlled 15% of private wealth.

WWII and the Holocaust profoundly transformed the Polish society. The Polish elite was explicitly targeted by Germany. 90% of the Polish Jews, strongly represented in the middle class, perished in the Holocaust. Five to six million of Polish citizens lost their lives during the war. Material losses were also enormous, with the capital city nearly destroyed. The post-war border change resulted in the mass resettlement of the population (Charnysh, 2024). In the years 1944–1989, Poland was ruled by the communist party, with a centrally planned economy. While initially, the massive "big push" towards industrialization and the expansion of education generated economic growth, this stagnated later. Industry and trade were nationalized, and decisions on prices and production were controlled by the state. The impact of these structural changes on economic inequality and social stratification was huge but should not be overestimated. Top income shares

decreased, but Poland still had the highest level of economic inequality among socialist countries (Atkinson & Micklewright, 1992). Social mobility increased in the first decades but dropped thereafter when the new system stabilized (Wroński, 2024a). Similarly, the improvement of the biological standard of living (as proxied by human height) was fast and equally distributed in the first two decades of state socialism, but slowed and became unequal later (Wroński, 2024b). The 1980s are commonly seen as the lost decade for Poland.

3. Literature Review

Economists traditionally measured intergenerational mobility by estimating the income correlation between fathers and sons, with conventional estimates in the range of 0.3-0.5, varying across states and time. Corak (2013) and Björklund & Jäntti (2020) provide an excellent discussion of this strand of the literature, while Deutscher & Mazumder (2023) provide a practical review of different approaches to measure intergenerational mobility. The main practical challenge, that limits the application of this approach to modern times and mostly to developed economies is the need for joined data on the income of fathers & sons, which is currently unavailable for Poland and many other countries. Therefore, outside the core developed economies, researchers often study intergenerational education mobility instead of intergenerational income mobility (van der Weide et al., 2024). Sociology and social history, meawhile, have a long tradition of research on occupational mobility (Kaelbe, 1985; Dubrow et al., 2023).

The two-generation study of intergenerational mobility has been extended to cover three generations, with the results suggesting that mobility over three generations is lower than suggested by the correlation between fathers and sons. The income or education of the grandfather, after controlling for the income or education of the father, still has a positive, statistically significant impact on the outcomes of the son, which can be explained by the existence of dynastic human capital. The outcomes of the single generation can deviate from the dynastic human capital level, which is not enough to erase the earlier advantage. Estimates from only two generations of data underestimate the intergenerational process (Lindahl, 2015; Anderson et al., 2018; Adermon et al., 2021). However, measurement error and its consequences for the outcome remain a concern (Ferrie et al., 2021).

Combined data on the income, education, or occupations of two generations are available mainly for the 20th century. However, in the recent decade, two novel research methods were developed that allowed for the study of social mobility in the earlier periods. The automatic linking of historical census data (see Abramitzky et al., 2021b) allowed for the study of intergenerational mobility since the mid-19th century. This significantly increased our knowledge of the patterns of mobility, although it is not free of several drawbacks. Firstly, the necessary data is available only for a small subset of developed economies that both conducted high-quality censuses since the mid-19th century, and digitized the data in the last decade. The matching rates are around 50%, and 15-40% percent of the automatic matches tend to be classified as errors by the human reviewer (Bailey et al., 2020). Recently, significant effort has been made in improving the match rates by using more data than before, improving the transcription accuracy (errors were commonly made by the enumerators) and supplementing the census data with the family histories stored in genealogical databases (Ward, 2023; Hwang & Squires, 2024).

Another new research approach is based on the name/surname estimator. In this strand of literature, researchers exploit the difference in social status across names or surnames to measure intergenerational persistence (see Santavarit & Stuhler, 2024). This approach was popularized by Clark (2014), who comparatively studies a number of countries (as diverse as USA, UK, Sweden, China, and Japan) and finds that the "true" level of intergenerational correlation in socioeconomic status is around 0.75 instead of 0.3-0.5. Clark claims that a universally applicable law of mobility exists, and public policy cannot significantly impact the persistence of social status. In this strand of literature, higher persistence of social status is usually explained by the fact that the approach employs higher multi-dimensionality compared to single-dimension intergenerational correlations.

The surname-based estimation has been challenged on methodological grounds. Santavarit & Stuhler (2024) review different types of estimators and discuss the stability of outcomes. The estimate based on the surnames captures group-based mobility instead of individual mobility and may thus be impacted by the regional and ethnic differences in intergenerational mobility (Torche & Corvalan, 2018). The research method relies on rare surnames, but the social status of the surname usually decreases with the surname's popularity, making the method by definition highly selective and potentially nonrepresentative. The assumption that the rare surnames indicate family

links has not been discussed and is difficult to verify empirically—although in our view, the assumption likely holds.

In this paper, we use mass genealogical data to measure the social mobility of nine generations of the Polish elite. According to our best knowledge, up to this point, large-scale genealogical data has only been used to investigate the international persistence of social status in the Chinese (Campbell & Lee, 2011; Mare & Song, 2023) and British context (Clark & Cummins, 2024). While the research by Clark & Cummins (2024) is closely related to ours, we use a genealogical dataset that is three times larger than theirs to investigate intergenerational mobility over a period that is two times shorter. Clark and Cummins (2024) examine social mobility from 1754 to 2023 using a database comprising 426,552 individuals, spanning the years 1653 to 2003. This database was compiled with contributions from volunteers. In contrast, our investigation focuses on the period from 1800 to 1984 and is based on a curated database of over 1.2 million records, meticulously compiled by a single scholar for over more than 20 years.

4. Data and Method

Our research is based on two data sources. To identify the members of the elite, we use the Polish Biographical Dictionary (*Polski Słownik Biograficzny*, the PSB), which is published by the Institute of History of the Polish Academy of Sciences. The first volume was published in 1935, with 224 issues (54 volumes) so far. The PSB was founded on the model of older national Biographical Dictionaries, such as the *Oxford Dictionary of National Biography* and *Allgemeine Deutsche Biographie*.

The PSB is a collective effort by three generations of Polish historians. Initially, people of Polish nationality have higher chances of being included. In the socialist era, progressive social activists were probably oversampled. The PSB has a slight bias towards the intelligentsia (professors, writers) and may, to some extent, be slightly biased against landowners and business elites. Wealth alone was never enough to be included in the PSB: Wealthy people had to also be important in their political and social lives. The PSB is the best source listing the members of the elite over centuries of Polish history. The approach of the editorial board is close to Bourdieu (1986): They are looking for the top of the joint distribution of economic, social, and cultural

capital, not only for the top of one of the distributions. To investigate to what extent the discretion of the PSB editors can impact our results, we digitized the "*Who Is Who*" from 1938 (Łoza, 1938), including 5,611 listed people in our database. As we demonstrate in the robustness section, the results calculated for "*Who Is Who*" are similar to those calculated for the PSB of the same generation, despite the overlap of both samples being only at 30%.

The PSB, currently includes approximately 28,500 biographies, and is published in alphabetic order, with the volumes up to the letter "T" published. The editorial board includes only biographies of the deceased. Thus, our sample is a result of a twofold selection. First, only people who died before their letter of the alphabet was published are included. People with surnames beginning with U to Z are not included in our sample because the volumes that contain their names have not yet been published. The distribution of the people in the PESEL database (national identifier) and in different generations of the PSB across the first letter of surname is presented in Appendix Table A1.

Currently, only 14% of people have surnames beginning with the letters between U to Z. Thus, the lack of the letters U to Z cannot significantly impact our sample. The people with surnames beginning with letters between U and Z do not seem to be overrepresented among the politicians, professors, and other segments of the elite. The distribution of surnames until WWII is coherent with the current one. In 1961 and 1984, the distribution of surnames became highly skewed towards the end of the alphabet, although as we show in the robustness section, this skewness does not impact our results. We match people based on the *Wielcy.pl* database, not the PSB alone. Moreover, the matching relies on the kinship, not only father-son links. While fathers and sons usually have the same surname, the kinship networks involve many different surnames.

Our second data source is the database *Wielcy.pl*, the largest Polish genealogical database. The database was funded and is operated by Maria (formerly Marek) Minakowska. *Wielcy.pl* started two decades ago with the mission to collect the genealogical trees of the deputies for Great Sejm (pl. *Sejm Wielki*) of 1788- 1792, the session of parliament that passed the Constitution of May 3rd, 1791. Later, the database was extended to include the "*printed class*"—people who were important enough to have their names and surnames published in print (mostly by newspapers), even if only in the form of an obituary. All people listed in PSB are included in *Wielcy.pl*.

Wielcy.pl, currently includes over 1,200,000 people. *Wielcy.pl* includes 137,394 descendants of the Great Sejm's deputies and over 200,000 people who had their obituaries published by the Polish press in the years 1845-1939, along with their families. The database was also extended on the base of selected thematic dictionaries of national biographies, such as dictionaries on Polish art. The relatives and descendants of core entries (mostly deputies for the Great Sejm of 1788-1792, people included in the PSB, and people with obituaries published by the Polish press) are identified based on the birth, death, and marriage certificates published by *Geneteka.pl*. *Geneteka.pl* is the leading database of genealogical documents, and currently includes over 56,000,000 birth, marriage, and death certificates. While *Wielcy.pl* provides the genealogical trees, *Geneteka.pl* only lists the certificates.

The *Wielcy.pl* is constructed based on the snowball method. Contrary to other genealogical databases, it does not depend on the submission of genealogical trees by random genealogists. Instead, the database has been curated by Maria Minakowska since 2002, based on strict methodology (Minakowska, 2018). When a core person is added to the database, their relatives are included based on their Minakowski Index—an algorithm similar to PageRank—which determines the relative importance of the person for the whole genealogical network. The Minakowski Index is determined by the distance between a person and other people with a biography in the PSB. The Minakowski Index increases the closer the relation of a given person with other entries in the PSB. When the Minakowski Index starts declining, the search for descendants is not continued. Existing research demonstrated a strong link between the Minakowski Index and the position of the person in the pre-partition political elite (Minakowski, 2019). The index has also been shown to have a strong link with the centrality of the position of the family network of the obituaries published by *Kurier Warszawski* in the mid-19th century (Minakowski, 2017), and the membership in the Polish Academy of Sciences (Minakowski, 2016). This research method generates a densely connected network. Separate networks without a link to the rest of the network are rare and small in size. Currently, the largest separate networks include fewer than 20 people, representing the patricians of Poznań from the 16th century and families of several Arian clergy.

We monitor the elite of Polish society over nine generations: 1800, 1823, 1846, 1869, 1892, 1915, 1938, 1961, and 1984. Our research ends in 1984 because civil registration documents are publicly available in archives only for people born before 1939. To be included in the elite of a

given era, the person must be between 40 and 80 years old—a condition that was imposed to properly assign people to the generations based on the era, so that they were old enough to achieve the peak of their social impact during the assigned periods. The generations are densely distributed, because otherwise we would miss some members of the elite, and linking the current elite to the past elite would be challenging due to limited overlap (see Santavirta & Stuhler, 2024 on the importance of overlap for correctly measuring social mobility). As a result, some members of the elite belong to two consecutive generations. As we show in the robustness section, our results do not change, even if we recalculate our mobility measures only for those who are members of the elite during the first generation in which they are counted. We assign all persons included in our database to one of twelve social categories. This categorization was performed by Open AI's GPT-4o, based on a prompt with the list of categories, and manually verified afterwards. One person can be assigned to multiple categories. The machine categorization was performed in random order and repeated several times based on extracts of original biographies (entry headlines).

The basic descriptive statistics of our sample are presented in Table 1. The size of our sample varies, increasing over time, except for the first two (1800 and 1823) and last (1984) generations. The last generation is smaller in size due to the rule that only the deceased are included in the PSB. The share of women is at 3-4% in the first half of the 19th century and at 5% in the second half, before it increases to 8% on the eve of WWI, then remaining stable during the interwar period. After WWII, the share of women increases slightly to 14% and stagnates at that level.

The mean number of social categories per capita is relatively stable at 1.66 to1.83. In the early 19th century, "social activism," "government," "military," and "clergy" were the most important categories. Except for "social activism," the importance of these categories declines over time, while "science" and "art" continuously increase. The share of people classified as "business" or "literature" increased in the mid-19th century and peaked in 1915. The relatively low share of records classified as "agriculture" (mainly landowners) and "business" confirms that wealth alone was never enough to be included in the PSB.

Table 1. Descriptive Statistics

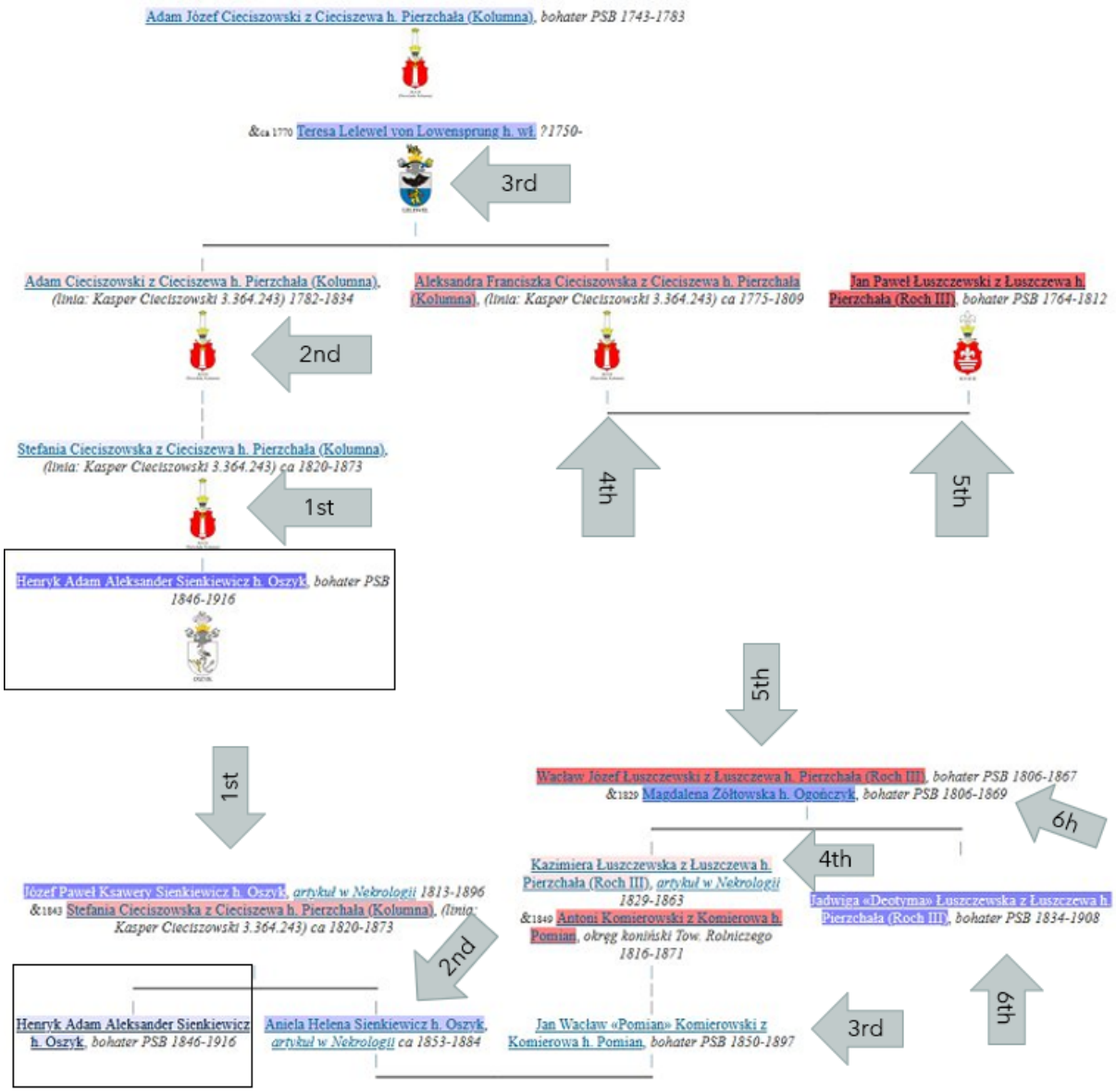
Stat	1800	1823	1846	1869	1892	1915	1938	1961	1984
Number of people	853	841	1461	1970	2301	3219	4584	2782	698
Share women	0.036	0.312	0.044	0.054	0.053	0.077	0.097	0.134	0.137
Known mother	0.625	0.658	0.761	0.789	0.823	0.855	0.928	0.969	0.973
Categories per. capita	1.72	1.66	1.74	1.77	1.79	1.80	1.83	1.82	1.72
Social activism	0.39	0.25	0.30	0.34	0.30	0.35	0.37	0.28	0.17
Government	0.30	0.21	0.10	0.10	0.09	0.12	0.13	0.10	0.07
Military	0.19	0.26	0.29	0.21	0.14	0.07	0.14	0.16	0.09
Business	0.05	0.07	0.08	0.10	0.10	0.11	0.08	0.05	0.03
Landowners	0.02	0.05	0.07	0.08	0.08	0.06	0.05	0.04	0.04
Science	0.12	0.15	0.18	0.18	0.22	0.24	0.26	0.31	0.39
Art	0.09	0.13	0.11	0.14	0.15	0.15	0.15	0.18	0.22
Literature	0.14	0.14	0.21	0.23	0.26	0.22	0.18	0.17	0.19
Clergy	0.24	0.16	0.13	0.13	0.12	0.10	0.09	0.07	0.06
Medicine	0.04	0.06	0.07	0.08	0.09	0.11	0.08	0.09	0.10
Engineering	0.03	0.05	0.04	0.05	0.08	0.10	0.11	0.13	0.15
Education	0.11	0.13	0.15	0.13	0.15	0.17	0.20	0.23	0.22

Source: Authors' own estimation.

To measure social mobility, we exploit the kinship links between the different generations of the elite, using kinship up to the 6th degree as our core measure. We apply two concepts of kinship. First, we construct a binary variable measuring if a person has any kin in a given generation. Second, we measure the number of kin for people with at least one kin. In our view, the first variable is a better proxy of social mobility, while the second variable provides additional insights into the strength of kinship.

The degree of kinship is determined by the number of steps in our network, with each generation representing one degree. For example, a brother and sister is a 2nd degree kinship (one step to parents and one step to sibling), nephew and uncle is a 3rd degree, and first cousins have a 4th degree of kinship. The kinship at the 5th and 6th degree usually includes the family of the wife/husband or family links spanning more than one generation (for example, currently living relatives of the grandfather). We illustrate the different degrees of kinship based on the genealogical tree of Polish Nobel laureate Henryk Sienkiewicz presented in Figure 1. This example presents how dense the PSB family network can be: Seven different people listed in the PSB are present in just two segments of the family tree.

Figure 1. Family Connection of Henryk Sienkiewicz: An Example of Degrees of Kinship Calculation.



Source: Arrangement by author based on Wielcy.pl

Note: The figure presents two segments of the genealogical tree of Henryk Sienkiewicz. People with "PSB" in the description are listed in the Polish Biographical Dictionary. Henryk Sienkiewicz is listed in the PSB in 1892 and 1915. He is connected to Jan Paweł Łuszczewski (listed in the PSB in 1800 but too young to be included in our database), through his mother at the 5th degree of kinship. He is also connected to Jan Pomian (active in PSB in 1892) through his sibling (Jan Pomian is a husband of Henryk Sienkiewicz's sister) at the 3rd degree; to Wacław Łuszczewski (listed in PSB in 1846) at the 5th degree (Wacław Łuszczewski is a grandfather of the sister's husband); and to Jadwiga "Deotyma" Łuszczewska (Deotyma is a sibling of a mother of husband of Sienkiewicz's sister) and Magdalena Ziółkowska (wife of the grandfather of the sister's husband) at the 6th degree.

While kinship at the 6th degree is not the closest kinship in our database, in practice, all kins at this degree are relatively close to us. In fact, we usually know our kin up to this degree—we can meet them at family reunions and can reach them if needed. Henryk Sienkiewicz met the husband of his sister, and probably met his family at least once—for example, during his sister's wedding. All of the people present in the graph were most likely acquainted with Sienkiewicz. As presented in Figure 1, for each person included in the Polish Biographical Dictionary active in a given epoch, we separately identify the kinships link operating through mother, father, children, siblings, and spouse. The kinship is defined through the shortest path from person X (included in PSB) to person Y (included in the PSB).

The reconstruction of genealogical trees depends on the linking of the current generation to the past generation. The linking was performed based on the civil act certificates listed in *Geneteka.pl*, in some cases supplemented by genealogical sources. We matched 92% of the observations to their fathers and 86% of observations to their mothers. 86% of the observations were matched to both parents. The cases in which we know the mother but not the father are extremely rare (0.02%). Our matching rate is much better than in the case of automatic linking of historical census data. The matching rate is reported in Appendix Table 1. The matching rates improve over generations. We discuss the consequences of this change in the robustness section, where we show that the change in the matching rate may to some extent impact the level of social mobility but not the change of the social mobility in the investigated period.

The kinship links are not broken randomly. The reconstruction of family links depends on the availability of civil registration acts and other supplementary sources. The majority of observations for which we do not know the father are people who migrated to Poland in the first half of the 19th century (mostly Germans). For people born outside Poland, we have no birth certificates and are not able to identify their parents. As the digitization of civil certificates is based on the work of volunteers, the sample of digitized parishes is not equally distributed. To grasp the consequences of the variation in data availability, in the robustness sections we compare the evolution of the mobility metrics for people born in Warsaw (the highest data quality) with the people born elsewhere. Once again, our robustness exercise shows that although the level of social mobility may be slightly impacted, the trend towards higher mobility is still clear.

In the 19th and early 20th, century, the risk of maternal death was high for women. Meanwhile, husbands often died before their wives because they were much older. Based on data from 470,000 obituaries published in the Polish press, Minakowski (2023) studies the gender difference in the age of death in detail. The members of the elite often had more than one spouse. After WWI, divorces start to increase. For simplicity, we classify as "husband" and "wife" everyone with whom a given person has a known child. Up to WWI, the children born out of wedlock were generally registered with an unknown father. A few exemptions present in our data represent the cases in which both the father and mother were members of the top aristocratic elite. Even if they were not formally registered, it was often the case that these births out of wedlock were common knowledge—for instance, the fact that Prince X was the father of the son of Countess Y, who was a second wife of Prince Z. After WWI, the rights of children born out of wedlock improved, allowing us to know more about these out-of-the-wedlock children of the elite. 10.4% of men in our sample had more than one wife. For women, the share is even higher at 11.7%. 1% of people in our database had a third wife/husband. This share is again strikingly similar between men and women.

We measure past kinship (share of generation *k* with a relative in generation *k-1*) and future kinship (share of generation *k* with a relative in generation *k+1*). As the number of members of the elite changes over the generations and one person could have more than one relative in the past or future generation, these measures are not equal. The first concept measures how many of the current elite are descendants of the elite of the previous generation. The second concept measures how many of the current elite have descendants in the elite of the next generation. We use two sets of kinship measures: binary measures (any past or future kin) and multi-valued measures (number of past or future kin).

Family links in the past can generated by future events, for example a member of generation *k* can have kin in generation *k-1*, linked to them through the marriage of their child in the generation *k+1*. Moreover, the kin in generation *k-1* can generate new kin in generation *k+1*—kin who are not direct descendants of persons living in the generation *k*. To simplify the interpretation, we define past kinship as kinship through mother, father, or wife/husband. Future kinship is defined as a kinship through children, (own) siblings, and wife/husband. In Appendix Tables 2 to 5 we present the composition of kinship through different links. Our definitions exclude

10 – 20% of identified kinship—an aspect that is challenging in the interpretation from the social mobility perspective. For example, we should not identify a person who entered the elite in generation *k* without previous family links and then arranged a good marriage for the children, through which he or she himself/herself became a relative of a member of the elite in the generation *k-1* as a someone who inherited the social status.

By measuring the link at (up to) the 6th degree of kinship, we extend earlier literature which was mostly focused on direct family links. This allows us to get a better, more comprehensive understanding of social mobility. The contribution of each degree of kinship to a kinship (up to) the 6th degree is presented in Table 2. Here we focus on kinship defined as a binary variable equal to 1 if a member of the elite in generation *k* has any kin in generation *k-1* (past kinship defined as discussed above) or generation *k+1* (future kinship). We find that the contribution of the 1st degree of kinship to the total kinship up to 6th degree is lower than 10%, except for the last generation (23%, in the case of past kinship, and at 10 – 20% in the case of future kinship). Thus, the research focusing on direct family links (for instance, father-son links—common in the literature on intergenerational mobility) misses the vast majority of family links which may impact social mobility.

Contrary to the vast majority of the literature, our method assigns equal opportunity to men and women. As our results show, the social position (in our case proxied through kinship to important people) of the mother can be more predictive than the social position of the father. Fathers more often improve their social standing than mothers. Thus, the social status of the mother is a better proxy of the social status of her family, than in the case of the father.

Table 2. Contribution of Kinship up to a Given Degree to the Kinship up to the 6th Degree.

Panel A: Past Kinship (Binary): Kin Included in the PSB in the Previous Generations

	1800	1823	1846	1869	1892	1915	1938	1961	1984
1st degree		0.0269	0.0441	0.0344	0.0461	0.0627	0.0727	0.0961	0.2338
2nd degree		0.0606	0.0791	0.0687	0.0821	0.1065	0.1182	0.1367	0.2727
3rd degree		0.1274	0.1513	0.1429	0.1591	0.1842	0.2020	0.2393	0.4069
4th degree		0.0807	0.1189	0.1267	0.1549	0.1817	0.2040	0.2514	0.3766
5th degree		0.4980	0.4991	0.5216	0.5622	0.5476	0.5952	0.6222	0.7532
6th degree		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Note: As the generation from 1800 is the first in our data, their past kinship is not identified.

Panel B: Future Kinship (Binary): Kin Included in the PSB in the Next Generation

	1800	1823	1846	1869	1892	1915	1938	1961	1984
1st degree	0.1614	0.2046	0.1611	0.1551	0.1926	0.1962	0.1865	0.1306	
2nd degree	0.3682	0.3633	0.3742	0.3426	0.3973	0.4108	0.4112	0.3197	
3rd degree	0.6205	0.5574	0.5762	0.5469	0.5827	0.5981	0.5959	0.4963	
4th degree	0.7137	0.7183	0.6932	0.7257	0.6615	0.3691	0.4740	0.2406	
5th degree	0.8681	0.8566	0.8172	0.8456	0.7839	0.4477	0.6058	0.2807	
6th degree	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	

Note: As the generation from 1984 is the last in our data, their past kinship is not identified

Source: Authors' own estimation.

We investigate the determinants of social mobility. Firstly, we estimate a logit model to identify the impact of gender, being a descendant of the Great Sejm, and social categories on the probability of having past/future relatives in the PSB. Then, for those with any past/future kin we regress the same variables on the number of kin. We estimate a logit model identifying the factors affecting the probability of marrying into the elite by the outsiders who joined the PSB as the first in their family. Finally, we estimate a logit model identifying the probability of having a child in the PSB network.

5. Evolution of social mobility

Graphs of the kinship network in each of the generations are presented in Appendix Figures A1 to A9. Until WWII, Polish high society was composed of a visible core and a group of single people who were not connected to the core. No counter-elite (separate network not connected to

the core) ever existed. The best candidate for this position was the Russian administrative class during the partition period. However, a vast majority of high-level public officials served in Poland only for a short period of their careers, and public servants often returned to Russia after retirement. Finally, the vast majority of the Russian population evacuated to Russia during WWI and never returned to Poland. Contrary to our expectations, even people of different religions find links to the central network. The catholic Austrian administration of the Austrian partition easily integrated into the Polish family network (Röskau-Rydel, 2011; Vushko, 2015), and even the German Lutheran and Jewish elite is often matched to the core network through relatives who converted to Catholicism (in the case of Jews, usually through an earlier conversion to Lutheranism) or in later generations, secularized. Earlier research by Minakowski (2017) on the social network of Warsaw in the years 1820 – 1863 similarly shows the strong core of the network. She finds that the best candidates for forming the "counterelite" were followers of Jacob Frank (a Jewish religious leader) who converted to Catholicism and initially married amongst themselves. However, also in this case, the religious barrier did not stand the test of time.

Descendants of the deputies of the Great Sejm had a central position in the network at least until 1961. Richard Butterwick (2022) claims that the Polish Enlightenment initiated the reforms of Poland, which resulted in the partition of the country. The neighboring powers could tolerate a weak Poland that was prone to their influence, but could not accept the risks raised by the movement that could potentially reform and strengthen the country. The Polish Enlightenment eventually created Poles as a political nation, thus ensuring the survival of Poles as a separate nation and in the long run resulting in the regaining of independence. The central position of the descendants of the deputies of the Great Sejm in the Polish elite family network confirms Butterwick's hypothesis.

The best graphical proxy for social mobility and intergenerational persistence of social status is the proportion of the core network to the rest of the people. The number of people (represented by dots in our graph) in the central network shrinks in relation to the size of the "asteroid belt," which is composed of the members of the elite not connected to the network[1]. The second graphical proxy is the density of the central network. As we can see, over generations the

[1] This "asteroid belt" is visible only on full high-quality graphs included in the replication package.

central network not only shrinks in size, but also becomes less interconnected and starts to include the separate "arms" with a more distant connection to the center.

The measures of social mobility are presented in Table 3, with measures of past and future kinship shown separately. For a binary variable indicating future kinship in the elite, the outcomes of the people with kin in the elite of the previous generation are presented in a separate row to capture the difference in the retention of elite status between the old elite and outsiders entering the elite as the first in their generation.

In the 19th and early 20th century, 34-39% of the people included in the PSB had a relative in the PSB one generation earlier. Social mobility increased only slightly after WWI, and in the generation from 1938, 31% of the elite had a relative in the elite one generation earlier. Similarly, WWII and the transition to state socialism also initially had a limited impact on top-end social mobility. The share of people with a biography in the PSB in the generation from 1961 with a relative from a generation earlier who was also included in the PSB equaled 28% and was only slightly lower than in 1938. The war and the transformation of the society in the early decades of communism had a limited effect on the top-end social mobility in 1961. This was because to belong to the elite in this generation, a person had to have completed their education before the war. In the case of the 1984 generation, the share of members of the elite who had a relative in the elite of the previous generation dropped further to 17%.

Table 3. Social Mobility: Kinship in the Previous and Future Generations of the PSB

	1800	**1823**	**1846**	**1869**	**1892**	**1915**	**1938**	**1961**	**1984**
Past kin: binary		0.3832	0.3387	0.3747	0.3936	0.3614	0.3116	0.2785	0.1653
		(0.0160)	(0.0118)	(0.0102)	(0.0096)	(0.0080)	(0.0065)	(0.0081)	(0.0136)
Past kin: number		9.0871	5.8095	5.3063	4.3255	3.6206	3.2207	1.8780	2.4672
(mean, if binary=1)		(0.5622)	(0.3094)	(0.2334)	(0.1660)	(0.1126)	(0.0902)	(0.1329)	(0.1270)
Future kin: binary	0.5158	0.5156	0.5006	0.4810	0.4841	0.4332	0.2245	0.0583	
	(0.0171)	(0.0164)	(0.0125)	(0.0106)	(0.0098)	(0.0082)	(0.0059)	(0.0042)	
Future kin, binary		0.8539	0.8516	0.7867	0.7552	0.6935	0.4536	0.1392	
if at least 1 past kin		(0.0187)	(0.0152)	(0.0142)	(0.0135)	(0.0127)	(0.0126)	(0.0018)	
Future kin: number	10.4682	8.5887	6.6406	5.2563	4.6035	3.3006	1.9139	1.2235	
(mean, if binary=1)	(0.5165)	(0.4751)	(0.2951)	(0.1927)	(0.14770	(0.0860)	(0.0452)	(0.0432)	

Source: Authors' own estimation.

In the first generation (1800), 51.6% of our sample had a (future) kin in the second generation (1823). Until the end of the 19th century, approximately 50% of members of the elite

succeeded in transferring their status one generation further. The retention of the elite slightly decreased at the beginning of the 20th century—although 43% of the elite of the 1915 generation had a relative in the elite of the 1938 generation. WWII and the transition to state socialism transformed the social system, with only 22.4% of members of the prewar elite having a relative in the elite of the next generation (1961). The full effects of such a structural change can be observed in the case of the 1961 generation, in which only 5.83% transferred their position in the elite to the following generation.

The members of the old elite had 50 to 140% higher chances of having a child retaining the elite status than the rest of the sample, and the persistence of social status over three generations is much higher than the estimate based on two generations suggests. While in the 19th century, 50% of the elite had kin in the next generation of the elite, among those members of the elite who had kin in the previous generation of the elite, this share was at 75-85%. We further investigate the difference in intergenerational persistence of social status between the old elite and outsiders in Table 6.

Why was the future kinship consistently higher than the past kinship? The main reason is the constant increase in the population and, as a consequence, also in the size of the social elite. While the share of the population included in the PSB is more or less stable at 0.01%, the higher number of people included in this group means the chances of entering this group without a relative in the previous PSB generation are increased. Thus, population expansion tends to increase social mobility. The fact that in the 1984 generation, which is smaller than the previous one, past kinship is higher than the future kinship of the 1961 generation supports our interpretation.

To better understand the patterns of social mobility, we decompose the elite into three groups. The first group has kin in the previous generation of the elite. The second group does not have kin in the previous generation of the elite, but their genealogy is included in the *Wielcy.pl* (at least one person other than their parents was identified). The third group is composed of complete outsiders—people for whom we know only the parents. The second group is further decomposed to identify people who do not have kin in the previous generation included in the PSB, but have kin in the PSB two or three generations earlier. To capture the degree of the selection and to better interpret the outcomes, we provide representation rates. We compare the share of the elite coming

from each of the groups with the share of each group in the Polish population. The outcomes are presented in Table 4.

Table 4. The Composition of the Social Elite.

Generation	PSB (top 0.01%)	Wielcy.pl (top 0.1-0.5%)				Rest (>99.5%)	The representation ratio		
		All	PSB -2	PSB -3	No PSB	All	PSB	Wielcy.pl	Rest
1823	38.32%	6.15%	.	.		55.53%	4580.95	15.77	0.56
1846	33.87%	9.64%	2.51%		7.13%	56.49%	2574.98	17.53	0.57
1869	37.47%	8.48%	2.64%	3.03%	2.81%	54.05%	2810.34	15.31	0.54
1892	39.36%	10.88%	3.31%	3.45%	4.12%	49.76%	3154.48	19.65	0.50
1915	36.14%	13.32%	4.72%	4.78%	3.82%	50.54%	2482.26	26.69	0.51
1938	31.16%	9.66%	2.91%	3.74%	3.01%	59.18%	2368.90	49.29	0.59
1961	27.85%	7.67%	3.29%	2.51%	1.88%	64.48%	2980.83	59.59	0.65
1984	16.53%	11.42%	5.77%	3.53%	2.12%	72.05%	8739.83	178.42	0.72

Source: Authors' own estimation.

Apart from the elite with a direct kinship link to the previous generation of the PSB, an additional 7-13% belongs to the top 0.1-0.5% of the population included in *Wielcy.pl*. The majority of this group does not have kin in the previous generation of the PSB but had kin in the PSB two or three generations ago. Although their promotion to the PSB reflects social advancement, most of these cases are just comebacks, while 50-72% of the sample are complete outsiders with very limited genealogical information available. As the kinship links are missing in a non-random manner, the missing links reflect lower social positions of parents. However, in our view, these people are still descendants of lower segments of the social elite (lower nobility, intelligentsia) or at best middle class (skilled artisans). Reaching the social status required to be included in PSB without previous secondary education was extremely rare. Even before WWII, at best 5% of each cohort completed secondary education and approximately 0.5% completed higher education. Thus, even the last group for which our genealogical knowledge is limited, in our view, was highly positively selected.

The people with kin in the previous generation of the PSB have a 2,500 – 4,600 higher chance of inclusion in the PSB than the rest of society. The 8739 (over)representation ratio for the last generation is an outlier resulting from the smaller size of this generation. People who have their ancestors in *Wielcy.pl* but not in the PSB have a 15-60 higher chance of inclusion. Once again, the

smaller size of the last generation is driving the estimate upwards. Finally, the rest of the society was approximately two times underrepresented compared to their population size. The overrepresentation of the PSB and *Wielcy.pl* clearly shows the importance of parental social status for the opportunities of children.

In Table 5, we present the share of people who have their ancestors listed in the PSB two or three generations ago, among people, who have an ancestor listed in the PSB one generation ago. The vast majority of people who have kin in PSB one generation ago also have PSB kins two or three generations ago. In all cases, we present only kin up to the 6th degree of kinship, so each previous generation is one step more distant. Only 15- 30% of the people who have kin in the PSB in the previous generation had kin in the PSB only one generation ago. This shows that the multigenerational persistence of social status is higher than the persistence of social status over two generations.

Table 5. The Composition of the Social Elite: People with Kin in the PSB in the Previous Generation

Generation	Only 1 generation in PSB	Two generations in PSB	Three generations in PSB
1846	0.2051	0.7949	
1869	0.2515	0.1323	0.6162
1892	0.2515	0.2175	0.5310
1915	0.2429	0.1388	0.6184
1938	0.2261	0.2096	0.5643
1961	0.2795	0.2023	0.5181
1984	0.1545	0.2114	0.6341

Source: Authors' own estimation.

Social scientists usually study the correlation between the characteristics of generation k, and generation $k+1$, with the correlation between the income of father and son being around 0.3 – 0.5. Clark (2014) argues that there is a universal law of social mobility. According to his hypothesis, intergenerational elasticity is more or less constant at 0.75. To obtain a comparable metric we measure the Pearson's correlation between past and future kinship. The results are presented in Table 6.

Table 6. The Correlation between Past and Future Kinship

	1800	1823	1846	1869	1892	1915	1938	1961	1984
Binary		0.5366	0.5024	0.4735	0.4369	0.3951	0.3695	0.2144	
Natural (number, including 0)		0.7046	0.5548	0.6093	0.6496	0.6102	0.4744	0.2464	

Source: Authors' own estimation

For the natural variable (number of kins, including zeros) the correlation was at 0.70 for the 1823 generation, 0.61 for the 1915 generation, 0.47 for 1938, and 0.25 for the 1961 generation. Similar to the findings of the literature based on surnames, we identify low and stagnant intergenerational mobility in the 19th century. However, we show that the hypothesis that social mobility is stagnant over centuries is not true, as the social mobility significantly increased in the 20th century. Thus, the hypothesis of the "law of mobility" should be rejected. Similar conclusions were reached by Häner & Schaltegger (2024) who studied social mobility in Basel over 15 generations. In the case of a binary variable, the correlation is biased downwards because all records with any kin have the same value. For the 1823 generation, the correlation coefficient is at 0.54, and for 1915 it is at 0.3951. Then it stagnates at 0.37 in 1938 and declines to 0.21 in 1984. However, the decline of the correlation over time is still evident.

We observe the family connection of both a given person and their spouse, which enable us to study assortative mating—the degree of the correlation between the social standing of both married partners. The results are presented in Table 7, together with the share of outsiders, who married into the elite family network. We identify outsiders as those, who did not have past kin with biography in the PSB but married someone who has past kin in the PSB.

Table 7. Marriage and Social Mobility: Assortative Mating (Spousal Correlation of Past Kinship) and Share of Outsiders who Joined the Elite Family Network though Marriage

	1800	1823	1846	1869	1892	1915	1938	1961	1984
Assortative mating									
Binary		0.4362	0.3668	0.2734	0.2403	0.2570	0.2203	0.1514	0.2168
Natural (number, including 0)		0.4074	0.3965	0.3545	0.3219	0.3363	0.3089	0.2753	0.1389
Outsiders (first gen PSB) married into elite network									
Share of the whole sample		0.0947	0.0937	0.1201	0.1095	0.0899	0.0861	0.0938	0.0618
		(0.0096)	(0.0073)	(0.0069)	(0.0061)	(0.0047)	(0.0040)	(0.0053)	(0.0029)
Share of outsiders		0.1331	0.1241	0.1612	0.1530	0.1234	0.1112	0.1151	0.0690
		(0.0132)	(0.0095)	(0,0090)	(0.0084)	(0.0064)	(0.0098)	(0.0064)	(0.0098)
Share of outsiders married at least twice		0.3030	0.3083	0.4085	0.3333	0.2694	0.2306	0.1955	0.1092
		(0.0057)	(0.0402)	(0.0414)	(0.0390)	(0.0032)	(0.0211)	(0.0198)	(0.0287)

Source: Authors' own estimation.

We find that the degree of assortative mating declined over time. The correlation between the current generation with the 1823 generation is 0.41; 0.34 with the 1915 generation; 0.31 with the 1938 generation; and 0.14 with the 1984 generation. The declining spousal correlation in social status supports our main conclusion that social mobility increased over the investigated period, which demonstrates that the elite was relatively open to outsiders. Before WWI, 12-16% of outsiders were married to a husband/wife with past kin in the PSB. After WWI, the share declined to 12%, and in 1984, it dropped to 7%. This probably reflects the declining importance of marriage for social standing and lower availability of outsiders, who may marry a second time due to the declining mortality. These statistics show a much higher level of elite openness than the first look at the number suggests. Most outsiders did not marry into the elite, because they were already married when they achieved enough to be included in the PSB. If we limit our sample to those who married at least twice (11% of the sample, 10% of outsiders), the share of outsiders marrying into the elite increases to 32 – 41% in the 19th century, 25% in the interwar period, and 14% in 1984.

To better understand the retention of the position in the social elite, we compare the outcomes of the children—the probability of any connection through child to a person included in the PSB in the next generation, including children—across four groups: old elite who married well

(both the person and their spouse have kin in the PSB in the previous generation), old elite who did not marry well (the person has kin in the PSB in the previous generation, the spouse does not have kin in the PSB in the previous generation), outsiders who married well (the person does not have a kin in the PSB in the previous generation, the spouse has a kin in PSB in the previous generation), and outsiders who did not marry well (both the person and the spouse do not have kin in the PSB in the previous generation). To simplify the interpretation, here we focus only on kinship through child, and reject links through spouse and own siblings. Thus, our definition of kinship is more constrained for this comparison than for the rest of the paper. If we stick to our core definition, the advantage of those who married well will increase through additional spousal connections in the next generation (for instance, good outcomes for the children of siblings of the spouse). The results are reported in Table 8.

Table 8. The Persistence of Social Status: Old Elite vs. Outsiders, and the Importance of Marriage

	1800	1823	1846	1869	1892	1915	1938	1961	1984
Old elite, married well		0.8176	0.7043	0.6198	0.6264	0.4360	0.2493	0.0634	
		(0.0319)	(0.0336)	(0.0313)	(0.0293)	(0.0268)	(0.0235)	(0.0205)	
Old elite, not married well		0.3750	0.3397	0.2622	0.2820	0.2012	0.0797	0.0188	
		(0.0444)	(0.0328)	(0.0243)	(0.0210)	(0.0158)	(0.0096)	(0.066)	
Outsiders, married well		0.5341	0.4834	0.3978	0.4311	0.3293	0.1227	0.0243	
		(0.0535)	(0.0408)	(0.0299)	(0.0295)	(0.0260)	(0.0158)	(0.0091)	
Outsiders, not married well		0.2286	0.1867	0.1629	0.1678	0.1327	0.0437	0.0090	
		(0.0164)	(0.0176)	(0.0119)	(0.0099)	(0.0094)	(0.0070)	(0.0020)	
All (four groups together)		0.3703	0.2940	0.2550	0.2655	0.1911	0.0702	0.0143	
		(0.0164)	(0.0159)	(0.0114)	(0.0092)	(0.0087)	(0.0036)	(0.0021)	

Source: Authors' own estimation.

We find that marriage matters a lot for the social outcomes of the children. Old elite who married well had 2-4 times higher chances of having children connected to at least one member of the elite compared to the total sample. Outsiders not married well had an approximately 40% lower chance of having children in the PSB. Interestingly, outsiders who married well had a higher chance of retaining the position in the elite for their children than the members of the old elite who did not marry well, with the gap being 30-50%. Our results highlight the importance of marriage for the intergenerational persistence of social outcomes, at least in the 19th and 20th centuries. Minakowski (2019) similarly highlights the importance of women for the persistence of social status. He finds that the position of mothers in the social network of Polish nobility in pre-partition Poland was a

better predictor of the nomination to the Senate (The king nominated the majority of members of the Senate) than the position of the father.

6. Determinants of Intergenerational Mobility

The results of the logit model estimating the effects of individual characteristics on binary variables—indicating having any kin in the previous generation of the PSB—are presented in Table 9. We find that women are more likely to inherit a position in the elite. This effect is strong and highly statistically significant in all generations. In earlier generations, many women included in our sample were members of noble and aristocratic families—although later, more women from outside the aristocracy entered the sample. Women who achieved enough to be included in the PSB in the 19th or 20th century faced a world that was not open to women's professional achievements. For instance, Maria Skłodowska-Curie had to emigrate to pursue higher studies, as Polish universities did not yet admit women. Under such conditions, family resources and social connections were even more crucial than they are today.

The effects of having a deputy of the Great Sejm[2] as an ancestor are even stronger. This variable represents individuals who formed the core of the elite and were especially successful at preserving social status. It's striking that in the Polish People's Republic, the effects are as strong as in the 19th century. We cannot fully rule out the possibility that our data source, which began as the Genealogy of Descendants of the Great Sejm, is somehow biased towards the better inclusion of their families. However, in our view, it is doubtful that the effects of this size may be driven only by this bias. The same amount of effort was invested to identify the kinship links of all people listed in the PSB as in the case of Great Sejm's descendants. In fact, the majority (over 90%) of individuals listed in *Wielcy.pl* are not descendants of the Great Sejm.

[2] By "deputy" we mean both members of House of Representatives (elected by noble citizens in their constituencies) and members of Senate (appointed for life by the King). As both houses made less than 500 people together and some, like bishops, left no legal issue, the notion of their descendants is widened to include also direct descendants of their brothers and sisters. This technically means that being a descendant of Great Sejm is understood as being a descendant of about 850 men and women whose son was either a Senator or Representative (poseł) in the 1798-1792 Parliament

Table 9. Logit Model: The Probability of Having Any Kin Included in the PSB in the Previous Generation

VARIABLES	(1) All	(2) 1823	(3) 1846	(4) 1869	(5) 1892	(6) 1915	(7) 1938	(9) 1961	(10) 1984
female	0.727***	2.170***	1.598***	0.858***	0.608***	0.580***	0.842***	0.872***	0.926***
	(0.0577)	(0.558)	(0.342)	(0.238)	(0.202)	(0.142)	(0.107)	(0.117)	(0.255)
Great Sejm	3.166***	3.414***	4.352***	3.716***	3.343***	3.004***	2.687***	2.941***	2.973***
	(0.0866)	(0.388)	(0.439)	(0.313)	(0.269)	(0.195)	(0.155)	(0.236)	(0.461)
Social activism	0.0622	0.528**	0.527***	0.381***	0.243**	-0.151	-0.217***	-0.0176	-0.392
	(0.0407)	(0.231)	(0.149)	(0.119)	(0.110)	(0.0919)	(0.0818)	(0.113)	(0.364)
Government	0.188***	0.680***	0.121	-0.0272	0.131	0.278**	0.222**	0.149	0.742
	(0.0570)	(0.256)	(0.225)	(0.180)	(0.169)	(0.127)	(0.108)	(0.161)	(0.470)
Military	-0.0396	0.651**	0.277	-0.294**	-0.253*	-0.534***	-0.0591	-0.0396	0.0753
	(0.0525)	(0.254)	(0.174)	(0.144)	(0.140)	(0.169)	(0.110)	(0.139)	(0.415)
Business	0.238***	-0.484	0.0100	0.0715	0.365**	0.309**	0.281**	0.0694	-0.299
	(0.0597)	(0.361)	(0.233)	(0.172)	(0.148)	(0.124)	(0.121)	(0.193)	(0.712)
Agriculture	0.477***	0.684*	0.632**	1.104***	0.326*	0.324*	0.329**	0.191	-1.076
	(0.0720)	(0.371)	(0.250)	(0.202)	(0.179)	(0.169)	(0.154)	(0.210)	(0.744)
Science	0.181***	0.107	0.0770	0.0826	0.145	0.234**	0.225***	0.433***	0.509*
	(0.0432)	(0.270)	(0.187)	(0.142)	(0.117)	(0.0982)	(0.0850)	(0.108)	(0.280)
Art	0.0886	-0.429	0.214	0.0941	-0.120	0.0492	0.0902	0.297**	0.731**
	(0.0540)	(0.319)	(0.224)	(0.165)	(0.146)	(0.123)	(0.108)	(0.135)	(0.317)
Literature	0.110**	-0.0475	0.0554	0.0531	0.0190	0.0219	0.153*	0.282**	0.253
	(0.0441)	(0.272)	(0.164)	(0.126)	(0.109)	(0.0990)	(0.0912)	(0.124)	(0.304)
Religion	-1.359***	-1.757***	-1.856***	-1.729***	-1.334***	-1.229***	-1.303***	-1.061***	-1.651**
	(0.0803)	(0.389)	(0.349)	(0.235)	(0.185)	(0.170)	(0.168)	(0.243)	(0.814)
Medicine	-0.0923	-0.776*	-0.227	-0.174	-0.00374	-0.0627	0.0815	-0.238	-1.224**
	(0.0621)	(0.455)	(0.261)	(0.188)	(0.162)	(0.129)	(0.123)	(0.171)	(0.573)
Engineering	0.0408	-0.547	0.195	0.442**	0.0420	-0.0756	0.147	0.233*	-0.0957
	(0.0589)	(0.422)	(0.292)	(0.206)	(0.167)	(0.132)	(0.110)	(0.140)	(0.375)
Education	-0.323***	-0.613*	-0.810***	-0.442***	-0.343**	-0.309***	-0.156*	-0.189*	-0.363
	(0.0477)	(0.332)	(0.239)	(0.165)	(0.135)	(0.109)	(0.0889)	(0.109)	(0.287)
Constant	-1.013***	-1.125***	-1.241***	-0.855***	-0.665***	-0.753***	-1.073***	-1.437***	-2.213***
	(0.0472)	(0.254)	(0.183)	(0.141)	(0.122)	(0.106)	(0.0955)	(0.130)	(0.335)
Observations	19,841	929	1,612	2,239	2,584	3,647	5,016	3,070	744

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Authors' own estimation.

Table 10. OLS Regression: The Number of Kin Included in the PSB in the Previous Generation

VARIABLES	(1) All	(2) 1823	(3) 1846	(4) 1869	(5) 1892	(6) 1915	(7) 1938	(9) 1961	(10) 1984
female	0.621***	5.425**	1.398	1.789**	2.105***	0.316	0.495**	0.200	-0.0224
	(0.186)	(2.171)	(1.014)	(0.731)	(0.542)	(0.338)	(0.240)	(0.219)	(0.317)
Great Sejm	5.745***	10.02***	7.048***	7.737***	6.051***	4.632***	3.567***	2.783***	0.458
	(0.144)	(1.073)	(0.600)	(0.458)	(0.339)	(0.252)	(0.212)	(0.243)	(0.411)
Social activism	0.759***	2.177*	0.752	0.987**	1.222***	0.479**	0.315*	0.242	-0.536
	(0.138)	(1.211)	(0.605)	(0.441)	(0.329)	(0.232)	(0.190)	(0.218)	(0.441)
Government	0.533***	0.543	-0.195	-0.105	0.450	0.737**	0.460*	0.286	-0.539
	(0.188)	(1.331)	(0.876)	(0.662)	(0.485)	(0.316)	(0.255)	(0.309)	(0.557)
Military	0.360*	3.956***	0.00256	-1.545***	-0.836*	0.109	-0.162	-0.329	0.198
	(0.184)	(1.408)	(0.726)	(0.552)	(0.439)	(0.456)	(0.273)	(0.283)	(0.509)
Business	0.574***	-0.0254	-0.407	0.809	1.317***	1.067***	0.272	0.294	-0.136
	(0.209)	(2.606)	(1.054)	(0.675)	(0.446)	(0.323)	(0.290)	(0.381)	(0.823)
Agriculture	1.227***	2.510	1.660*	0.715	2.322***	0.776**	1.377***	0.946**	-0.711
	(0.214)	(1.869)	(0.900)	(0.587)	(0.462)	(0.368)	(0.334)	(0.394)	(0.939)
Science	-0.686***	0.781	-1.404	-0.665	-0.192	-0.248	-0.375*	-0.334	0.295
	(0.154)	(1.925)	(0.910)	(0.581)	(0.366)	(0.248)	(0.205)	(0.212)	(0.365)
Art	-0.169	3.375*	-0.484	-1.631**	0.0422	0.0660	0.0387	0.287	0.168
	(0.188)	(1.917)	(0.921)	(0.641)	(0.459)	(0.318)	(0.258)	(0.260)	(0.382)
Literature	-0.317**	0.249	-0.497	-0.529	-0.293	0.100	0.0829	-0.222	-0.784**
	(0.154)	(1.525)	(0.708)	(0.494)	(0.341)	(0.263)	(0.217)	(0.242)	(0.390)
Religion	-0.792**	-6.149**	-3.020*	-0.331	-0.381	-0.311	0.667	-0.363	-1.863
	(0.310)	(2.723)	(1.649)	(1.027)	(0.635)	(0.474)	(0.459)	(0.522)	(1.152)
Medicine	-0.403*	-0.748	-0.233	-0.821	-0.305	0.188	-0.0447	-0.374	-1.182
	(0.239)	(3.736)	(1.423)	(0.845)	(0.541)	(0.363)	(0.315)	(0.363)	(0.794)
Engineering	-0.527**	2.017	-1.506	-0.619	0.230	-0.143	-0.244	-0.238	-0.208
	(0.219)	(3.387)	(1.477)	(0.844)	(0.544)	(0.356)	(0.275)	(0.285)	(0.509)
Education	-0.261	1.474	0.882	0.164	0.359	-0.141	-0.316	-0.247	-0.456
	(0.182)	(2.720)	(1.278)	(0.735)	(0.453)	(0.299)	(0.225)	(0.227)	(0.402)
Constant	2.575***	1.421	3.251***	3.305***	2.071***	2.141***	2.322***	2.321***	2.111***
	(0.170)	(1.493)	(0.799)	(0.555)	(0.394)	(0.286)	(0.236)	(0.260)	(0.449)
Observations	6,617	356	546	839	1,017	1,318	1,563	855	123
R-squared	0.255	0.279	0.270	0.331	0.334	0.262	0.215	0.178	0.113

Source: Authors' own estimation.

In all the investigated generations, religious institutions (this category is highly dominated by the Roman Catholic Church) were major engines of top-end social mobility in Poland. The estimated effects of "religion" on past kin are negative and highly statistically significant. Until WWII, the seminary was the only educational institution that was offering secondary or higher education free of charge. The estimated effects are significant also in the post-war generations, which may be driven by the fact that admission to seminaries is generally non-competitive and thus contrary to universities the seminaries did not discriminate against the candidates based on the educational outcomes. In part, this effect may also reflect the socioeconomic selection. Even today, almost all Polish bishops were born in rural areas or small cities, and the largest cities are the areas of lower religiosity.

The effects of other categories change over time. Up to WWII, people identified as "agriculture" more often than past kin had in the elite. As politically/socially active landowners make up most of the people in this category, this effect is unsurprising. Similarly, social activism turns out to be the most prevalent profession of the well-born in the 19th century. In the 1823 and 1938 generations, people classified as "government" more often than past kin had in the elite. In the first generation, the Congress Kingdom of Poland remained under Russian rule, but enjoyed high autonomy, which was later reduced, lowering the political importance of the old Polish elite. In the interwar period, Poland regained independence, which allowed old Polish elites to once again impact Polish politics. This effect disappears after WWII and the transition to communism

In the early 19th century, those active in business were neither positively nor negatively selected based on family background. Although in the late 19th century and early 20th century, they were more likely to inherit social status than other categories—which reflects the growing importance of modern, capitalist sectors in the Polish economy (Koryś & Tymiński, 2022). In the early and mid-20th century, scientists were more likely to have past kin in the PSB, but in other generations, the effects are not statistically significant. In the 1938, and 1961 generations, writers and poets were also positively selected based on their social background. In the generations 1869, 1892, and 1915, the most important military officers had a lower probability of having past kin in the PSB. The career in the Tsarist army was not closed for Polish nobility—in fact, in WWI, approximately a hundred Polish generals served in the Russian army. However, our results suggest that this career was not a first choice for the Polish elite.

The outcomes of the model of the number of past kin estimated for those who have any past kin are displayed in Table 10. Here, we can also observe positive and statistically significant effects for women in some of the generations, but they are not consistent and lose size and significance in the 20th century. The importance of ancestors in the Great Sejm remains high but loses statistical significance in the last generation. Once again people in the category of agriculture are positively selected based on their social roots, and this time the effect is significant also in 1961. The significance of this variable in the early decades of communism may be explained by the fact that some of the people in this category are past landowners, who, after losing their land estates, chose a career in science as a professor of agriculture. Social activists remain positively selected in the late 19th century and early 20th century, and late 19th century military officers remain negatively selected. Scientists, physicians and engineers tend to be negatively selected, but the effect is statistically significant only in the total sample, not in the separate generations. Overall, the impact of social categories on the number of past kin included in the PSB is weaker and less consistent than the impact on having any kin in the PSB. This difference may result from the restriction of the sample to only those who have any kin in the PSB and therefore are more socially similar than the full sample.

The inheritance of social status is an important side of social mobility, but the retention of social status remains another important aspect. The results of the logit model estimating the factors affecting having any kin included in the next generation of PSB are presented in Table 11. The estimated model shows that women and descendants of Great Sejm are not only more likely to inherit social status, but also to retain it. However, in both cases, the effects on future kin are smaller than the effects on the past kin. Moreover, in the case of women, the statistical significance is reduced or lost in some of the generations.

Religion once again had a strong negative impact on the dependent variable. The lower probability of having kin in the PSB by people active in this area is clearly the result of the celibate. In some cases, we observe distant relatives of bishops included in the PSB in the next generation, but the most direct line of the social status transfer is blocked. The majority of 19th-century landowners and businessmen had a higher probability of retaining their social status than the rest of our sample. Combined with the results of the logit model of past kinship, this shows that in the early 19th century, when capitalism was slowly advancing in Poland, the business elite did not have

family links with the elite of Polish society, but after achieving business success, they were generally welcomed by high society. As many examples from history and literature indicate, the "blue blood" may get poorer and start looking for additional resources. For other social categories, the majority of the estimated effects are not statistically significant.

In Table 12, we present the regression model estimating the effects of characteristics on the number of future kin, with the sample limited to those who have any future kin. We observe that women in the 19th century and 20th century tend to have more future kins in the PSB. However, later the effects disappear. Similarly, as in the case of models discussed above, having an ancestor who was a deputy of the Great Sejm increases the number of descendants in the elite. The effects of this variable are positive and highly statistically significant in all generations except for the last one (1961). As in the case of past kin, social categories seem less important as a predictor of the number of kin than as a predictor of the binary variables indicating a connection to any kin. Clergy have fewer future kin in the elite, although this effect is not statistically significant, because the number of clergy with at least one future kin in the PSB remains limited. Overall, scientists, writers, and artists have fewer future kin, but the estimated effects are not statistically significant in all generations. Engineers, educators, and doctors have fewer future kin, but the effects are statistically significant only at the level of the total sample, remaining insignificant in all generations.

Table 11. Logit Model: Probability of Having Any Kin included in the PSB in the Next Generation

VARIABLES	(1) All	(2) 1800	(3) 1823	(4) 1846	(5) 1869	(6) 1892	(7) 1915	(8) 1938	(10) 1961
female	0.0955	1.037**	0.898*	0.402	0.516**	0.658***	0.319**	0.643***	0.426**
	(0.0593)	(0.494)	(0.499)	(0.311)	(0.220)	(0.196)	(0.136)	(0.112)	(0.207)
Great Sejm	1.773***	2.098***	2.443***	2.512***	1.691***	1.642***	1.727***	1.567***	1.500***
	(0.0571)	(0.269)	(0.342)	(0.288)	(0.190)	(0.178)	(0.148)	(0.117)	(0.229)
Social activism	0.0347	0.590***	0.782***	0.195	0.0773	0.222**	0.0313	-0.0524	0.0385
	(0.0382)	(0.224)	(0.227)	(0.135)	(0.109)	(0.105)	(0.0852)	(0.0865)	(0.209)
Government	0.282***	0.691***	0.362	0.625***	0.110	0.456***	0.200*	0.240**	0.267
	(0.0521)	(0.259)	(0.247)	(0.213)	(0.167)	(0.166)	(0.119)	(0.112)	(0.285)
Military	-0.0121	0.555**	0.593**	-0.0622	-0.456***	-0.291**	0.0670	-0.0696	0.163
	(0.0489)	(0.271)	(0.236)	(0.155)	(0.131)	(0.131)	(0.144)	(0.119)	(0.250)
Business	0.502***	0.169	0.925***	0.502**	0.294*	0.819***	0.519***	0.371***	0.0544
	(0.0563)	(0.377)	(0.307)	(0.209)	(0.162)	(0.150)	(0.119)	(0.126)	(0.369)
Agriculture	0.502***	1.238*	0.863**	0.467*	1.086***	0.486***	0.294*	0.367**	0.649**
	(0.0680)	(0.656)	(0.400)	(0.241)	(0.209)	(0.174)	(0.158)	(0.153)	(0.317)
Science	-0.109**	-1.019***	0.0421	0.138	-0.0485	0.163	0.190**	0.160*	0.149
	(0.0423)	(0.333)	(0.237)	(0.160)	(0.130)	(0.111)	(0.0923)	(0.0905)	(0.196)
Art	-0.134**	-0.504	-0.299	0.184	-0.404***	-0.111	-0.00304	0.00419	0.737***
	(0.0527)	(0.339)	(0.266)	(0.195)	(0.153)	(0.137)	(0.116)	(0.117)	(0.230)
Literature	-0.0597	-0.680**	-0.227	-0.121	-0.164	-0.164	-0.0271	-0.106	-0.0678
	(0.0424)	(0.277)	(0.241)	(0.143)	(0.116)	(0.104)	(0.0932)	(0.0996)	(0.236)
Religion	-1.323***	-1.433***	-2.303***	-1.822***	-1.555***	-1.463***	-1.422***	-1.178***	-1.678**
	(0.0708)	(0.281)	(0.350)	(0.239)	(0.176)	(0.166)	(0.157)	(0.185)	(0.725)
Medicine	0.0325	0.155	0.0793	-0.241	-0.441**	0.149	0.172	0.0872	0.421
	(0.0590)	(0.406)	(0.330)	(0.215)	(0.172)	(0.154)	(0.120)	(0.133)	(0.288)
Engineering	-0.173***	0.297	0.275	0.0497	0.183	0.0170	0.137	0.167	0.227
	(0.0586)	(0.442)	(0.333)	(0.262)	(0.200)	(0.159)	(0.123)	(0.118)	(0.259)
Education	-0.201***	-0.235	-0.267	-0.537***	-0.262*	-0.0507	-0.0232	0.0116	0.205
	(0.0463)	(0.341)	(0.266)	(0.177)	(0.143)	(0.125)	(0.101)	(0.0948)	(0.192)
Constant	-0.724***	-0.418*	-0.425*	-0.136	0.0424	-0.250**	-0.501***	-1.496***	-3.363***
	(0.0447)	(0.248)	(0.225)	(0.159)	(0.129)	(0.116)	(0.0994)	(0.102)	(0.238)
Observations	19,950	853	929	1,612	2,239	2,584	3,647	5,016	3,070

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Authors' own estimation.

Table 12. OLS Regression: Number of Kin in the PSB in the Next Generation

VARIABLES	(1) All	(2) 1800	(3) 1823	(4) 1846	(5) 1869	(6) 1892	(7) 1915	(8) 1938	(10) 1961
female	1.377***	12.74***	8.983***	4.139***	2.348***	1.463***	1.017***	0.169	0.0257
	(0.267)	(2.213)	(2.157)	(1.168)	(0.709)	(0.545)	(0.289)	(0.131)	(0.118)
Great Sejm	5.455***	5.751***	7.591***	7.840***	5.823***	5.072***	3.412***	1.113***	0.198
	(0.186)	(1.019)	(1.017)	(0.666)	(0.459)	(0.375)	(0.227)	(0.118)	(0.129)
Social activism	1.037***	1.153	2.492**	1.740***	1.758***	1.272***	0.477**	0.163	-0.0524
	(0.168)	(1.165)	(1.080)	(0.608)	(0.397)	(0.320)	(0.190)	(0.101)	(0.120)
Government	1.465***	4.216***	3.345***	0.623	-0.0560	-0.315	0.284	0.0727	-0.242
	(0.219)	(1.193)	(1.185)	(0.835)	(0.580)	(0.463)	(0.256)	(0.132)	(0.161)
Military	1.084***	3.838***	2.314*	1.514**	-1.093**	-0.944**	0.233	0.126	0.00923
	(0.218)	(1.255)	(1.213)	(0.717)	(0.488)	(0.430)	(0.324)	(0.148)	(0.141)
Business	1.093***	0.923	1.704	2.091**	1.877***	1.997***	0.794***	0.506***	-0.145
	(0.241)	(2.427)	(1.590)	(0.916)	(0.573)	(0.418)	(0.253)	(0.150)	(0.198)
Agriculture	0.892***	4.860*	1.123	2.242**	1.547***	2.118***	1.007***	0.220	0.00784
	(0.262)	(2.771)	(1.631)	(0.934)	(0.550)	(0.463)	(0.310)	(0.175)	(0.171)
Science	-0.505**	0.420	0.137	-0.639	-0.379	0.396	0.379*	0.202*	-0.0874
	(0.197)	(2.589)	(1.481)	(0.792)	(0.500)	(0.349)	(0.208)	(0.111)	(0.115)
Art	-0.400*	-0.247	0.148	-0.219	-0.902	-0.0386	0.314	0.195	-0.0266
	(0.240)	(2.243)	(1.574)	(0.886)	(0.590)	(0.442)	(0.264)	(0.141)	(0.128)
Literature	-0.508***	-1.332	0.117	-0.0646	-0.855*	-0.679**	0.168	0.261**	-0.172
	(0.191)	(1.654)	(1.343)	(0.690)	(0.436)	(0.335)	(0.212)	(0.122)	(0.133)
Religion	-1.587***	-3.047	-3.174	-2.217	-1.830**	-1.601**	0.614	0.211	-0.357
	(0.366)	(2.055)	(2.621)	(1.456)	(0.805)	(0.643)	(0.419)	(0.247)	(0.416)
Medicine	-0.543*	-2.027	-0.502	-0.0323	-0.687	0.0185	0.198	0.0971	-0.199
	(0.279)	(2.935)	(2.203)	(1.160)	(0.706)	(0.498)	(0.275)	(0.166)	(0.155)
Engineering	-1.078***	-2.789	-0.801	-1.129	-1.043	0.0102	0.0617	-0.151	0.115
	(0.276)	(3.083)	(2.040)	(1.340)	(0.748)	(0.523)	(0.275)	(0.146)	(0.142)
Education	-0.471**	1.867	0.902	0.0596	0.0450	0.0343	-0.314	-0.0737	-0.0875
	(0.225)	(2.668)	(1.857)	(0.993)	(0.593)	(0.409)	(0.232)	(0.118)	(0.107)
Constant	3.026***	3.592**	2.922**	3.273***	3.692***	3.039***	2.064***	1.421***	1.323***
	(0.204)	(1.396)	(1.244)	(0.756)	(0.480)	(0.379)	(0.231)	(0.126)	(0.143)
Observations	6,939	440	479	807	1,077	1,251	1,580	1,126	179
R-squared	0.190	0.234	0.246	0.248	0.238	0.217	0.179	0.107	0.064

Source: Authors' own estimation.

In the 19th century and early 20th century, the old aristocratic elite gradually opened towards outsiders. To better understand this process, we model the probability that the outsider (a person included in the PSB who did not have any past kin in the PSB) marries into the elite. The results of the estimated model are presented in Table 13. We find that outsiders who married at least twice were more likely to marry a person with past kin in the PSB. In the context of our outcomes, love and earlier marriage seem to have been the main factors blocking the top achievers from outside the elite from joining the elite family network. Most top achievers were already married before they accomplished enough to join the elite of their generations. The mean age at the first wedding is virtually the same for outsiders and the rest of the sample (29.88 and 30.05, respectively).

Table 13. Logit Model: Probability of Marrying Well, Conditional on Being the Outsider

VARIABLES	(1) All	(2) 1823	(3) 1846	(4) 1869	(5) 1892	(6) 1915	(7) 1938	(8) 1961	(9) 1984
female	0.770***	2.152***	1.387***	1.053***	0.626**	0.472**	0.859***	1.088***	1.628***
	(0.0815)	(0.734)	(0.470)	(0.293)	(0.284)	(0.222)	(0.158)	(0.166)	(0.367)
Great Sejm	1.169***	1.041*	2.266***	1.573***	0.649	1.160***	0.774**	0.909**	1.377*
	(0.143)	(0.571)	(0.543)	(0.438)	(0.502)	(0.333)	(0.301)	(0.425)	(0.770)
Married twice	1.023***	1.271***	1.380***	1.315***	1.164***	1.125***	1.028***	1.094***	1.161***
	(0.0617)	(0.341)	(0.221)	(0.192)	(0.187)	(0.170)	(0.128)	(0.140)	(0.339)
Social activism	0.0566	0.549	0.134	0.519***	0.0886	-0.183	-0.0364	0.0665	-0.183
	(0.0635)	(0.340)	(0.229)	(0.172)	(0.173)	(0.153)	(0.133)	(0.174)	(0.491)
Government	0.0649	0.807**	0.0977	-0.365	-0.0516	-0.0938	0.195	0.118	0.886
	(0.0891)	(0.358)	(0.324)	(0.283)	(0.271)	(0.216)	(0.171)	(0.249)	(0.649)
Military	-0.0886	0.665*	-0.00506	-0.628***	-0.302	-0.604**	-0.0145	0.133	-0.0485
	(0.0813)	(0.366)	(0.263)	(0.224)	(0.214)	(0.276)	(0.175)	(0.209)	(0.554)
Business	0.151*	-1.120*	-0.248	0.0259	0.0437	0.166	0.324*	0.311	0.438
	(0.0916)	(0.601)	(0.352)	(0.241)	(0.234)	(0.200)	(0.189)	(0.284)	(0.866)
Agriculture	0.185	0.740	-0.0604	1.047***	-0.273	0.0219	-0.223	0.130	
	(0.118)	(0.516)	(0.412)	(0.271)	(0.318)	(0.292)	(0.305)	(0.342)	
Science	0.145**	0.00554	0.316	0.184	0.203	0.166	0.188	0.459***	-0.319
	(0.0662)	(0.399)	(0.256)	(0.199)	(0.173)	(0.161)	(0.138)	(0.163)	(0.427)
Art	0.0747	-0.596	-0.0584	0.337	-0.180	-0.262	0.266	0.414**	0.279
	(0.0813)	(0.499)	(0.329)	(0.223)	(0.214)	(0.206)	(0.167)	(0.200)	(0.476)
Literature	-0.0273	-0.129	-0.190	-0.0677	-0.190	-0.144	0.0418	0.167	0.0382
	(0.0688)	(0.438)	(0.253)	(0.181)	(0.169)	(0.162)	(0.147)	(0.187)	(0.479)
Religion	-2.179***		-3.138***	-1.591***	-2.313***	-2.250***	-2.372***	-2.065***	
	(0.203)		(1.022)	(0.367)	(0.469)	(0.465)	(0.511)	(0.722)	
Medicine	-0.00830	-0.983	-0.557	0.0594	0.0446	0.0765	0.140	-0.0616	-0.863
	(0.0909)	(0.684)	(0.383)	(0.251)	(0.230)	(0.193)	(0.192)	(0.246)	(0.808)
Enigineering	-0.0434	-0.920	0.114	0.824***	0.107	-0.397*	0.0687	0.185	0.447
	(0.0913)	(0.766)	(0.418)	(0.275)	(0.241)	(0.230)	(0.179)	(0.214)	(0.561)
Education	-0.212***	-0.455	-0.460	-0.132	-0.00972	-0.308*	-0.103	-0.190	0.0768
	(0.0710)	(0.512)	(0.300)	(0.217)	(0.185)	(0.177)	(0.141)	(0.165)	(0.402)
Constant	-2.136***	-2.179***	-2.072***	-2.008***	-1.691***	-1.829***	-2.391***	-2.772***	-3.376***
	(0.0738)	(0.381)	(0.276)	(0.206)	(0.186)	(0.175)	(0.156)	(0.206)	(0.532)
Observations	15,109	528	1,217	1,669	1,850	2,657	3,885	2,503	591

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Source: Authors'own estimation.

Top-achieving women were more likely to marry into the PSB elite network in the mid and late-20th century, while the results for earlier generations are not statistically significant—probably due to the limited number of women active in the 19th century included in the PSB without any past kin in the PSB. Before WWI, less than 4% of outsiders were women, and in 1938 generation their share among newcomers increased to 8%. Although the population of outsiders was dominated by men also after WWII, the share of women increased to 10-15%. Ancestry in the Great Sejm had a positive and statistically significant impact on the probability of marrying well. As people with ancestry in the Great Sejm and no close PSB kin are distant relatives of the elite and may be related to the earlier generations of the PSB, this result is not surprising.

After controlling for gender, ancestry in the Great Sejm, and second marriage, social categories do not contribute much to explaining the probability of marrying into the elite. Religion has a negative and statistically significant impact, but this is an obvious consequence of celibacy in the Roman Catholic Church. Only a dozen of people in this category were outsiders and married well. This group includes protestant/orthodox clergy and a catholic nun who joined the convent after the death of her husband. In the 1823 generation, businessmen were less likely to marry well, but in the interwar period the effects were contrary. In both cases, the estimated effects are only marginally statistically significant ($p=0.1$). People active in the area of education were generally less likely to join the elite through marriage, but the effect is not always statistically significant.

In the last step, we focus on the outcomes of the children of the elite. We estimate the effects of past kin of parents, past kin of spouse, gender, ancestry in the Great Sejm, second marriage, and social categories on the binary variable indicating that children remain in the elite—that is, they have a kin or are themselves included in the PSB. The outcomes of the model are reported in Table 14.

Table 14. Logit Model: Probability of Having a Connection to the Next Generation of the PSB through One's Children

VARIABLES	(1) All	(2) 1823	(3) 1846	(4) 1869	(5) 1892	(6) 1915	(7) 1938	(8) 1961
Past kin: parents	0.519***	0.554**	0.726***	0.463***	0.454***	0.343***	0.438***	0.696*
	(0.0497)	(0.216)	(0.163)	(0.133)	(0.116)	(0.104)	(0.135)	(0.370)
Past kin: spouse	1.177***	1.129***	1.188***	1.066***	1.139***	1.002***	1.086***	0.950***
	(0.0471)	(0.204)	(0.152)	(0.121)	(0.111)	(0.102)	(0.129)	(0.344)
Female	-0.484***	-0.0930	0.0329	0.0757	-0.0840	-0.0608	0.000738	-0.236
	(0.0823)	(0.477)	(0.295)	(0.234)	(0.223)	(0.176)	(0.196)	(0.470)
Great Sej	0.541***	0.484*	0.242	0.391**	0.474***	0.317**	0.729***	0.724
	(0.0677)	(0.270)	(0.215)	(0.182)	(0.172)	(0.152)	(0.175)	(0.490)
Married twice	0.0776	0.828***	0.507***	0.378**	0.0690	0.241*	-0.0422	0.506
	(0.0583)	(0.226)	(0.174)	(0.160)	(0.155)	(0.143)	(0.165)	(0.348)
Social activism	0.0128	0.736***	-0.173	-0.0315	0.313***	0.132	-0.0803	0.182
	(0.0494)	(0.220)	(0.149)	(0.127)	(0.119)	(0.105)	(0.139)	(0.387)
Government	0.181***	0.256	0.451**	0.251	0.162	0.161	0.208	-0.474
	(0.0656)	(0.239)	(0.208)	(0.181)	(0.177)	(0.143)	(0.171)	(0.576)
Military	-0.168***	0.00758	-0.327*	-0.738***	-0.306**	0.272	-0.597***	-0.557
	(0.0650)	(0.242)	(0.172)	(0.160)	(0.155)	(0.178)	(0.228)	(0.576)
Business	0.580***	0.912***	0.626***	0.443**	0.755***	0.372***	0.566***	0.924*
	(0.0673)	(0.311)	(0.214)	(0.175)	(0.156)	(0.140)	(0.179)	(0.521)
Agriculture	0.539***	0.654*	0.420*	0.666***	0.446**	0.535***	0.631***	0.951*
	(0.0758)	(0.370)	(0.235)	(0.187)	(0.176)	(0.169)	(0.205)	(0.507)
Science	-0.265***	-0.0725	-0.227	-0.450***	0.0671	0.187*	0.119	-0.0510
	(0.0561)	(0.257)	(0.183)	(0.159)	(0.128)	(0.114)	(0.144)	(0.378)
Art	-0.343***	-0.116	-0.131	-0.508***	-0.295*	-0.119	-0.255	-0.347
	(0.0715)	(0.280)	(0.211)	(0.182)	(0.164)	(0.151)	(0.203)	(0.538)
Literature	-0.137**	-0.194	-0.0678	-0.311**	-0.288**	-0.0587	-0.281*	-0.187
	(0.0562)	(0.251)	(0.160)	(0.138)	(0.123)	(0.120)	(0.168)	(0.473)
Religion	-1.653***	-3.202***	-1.976***	-1.860***	-2.083***	-1.513***	-1.046***	
	(0.140)	(0.733)	(0.385)	(0.295)	(0.322)	(0.285)	(0.355)	
Medicine	0.0724	0.237	-0.0509	-0.290	0.151	0.189	0.0572	0.573
	(0.0777)	(0.357)	(0.247)	(0.208)	(0.175)	(0.150)	(0.223)	(0.508)
Engineering	-0.266***	0.567	0.386	-0.232	-0.258	0.302**	0.237	-0.521
	(0.0782)	(0.357)	(0.286)	(0.241)	(0.195)	(0.149)	(0.181)	(0.580)
Education	-0.0580	0.254	-0.176	0.219	0.0635	0.0657	0.00374	0.632*
	(0.0631)	(0.295)	(0.212)	(0.172)	(0.149)	(0.130)	(0.158)	(0.366)
Constant	-2.011***	-1.408***	-1.269***	-1.235***	-1.501***	-2.021***	-3.042***	-4.913***
	(0.0613)	(0.241)	(0.182)	(0.157)	(0.143)	(0.132)	(0.174)	(0.491)
Observations	19,841	929	1,612	2,239	2,584	3,647	5,016	2,858

*** p<0.01, ** p<0.05, * p<0.1

Source: Authors' own estimation

Our results clearly show that the old elite is much more resilient than the newcomers. Both connections of their own parents and spousal connections have a positive and highly statistically significant impact on the retention of elite status by the children, while the estimated effects for spousal connections are even higher than for parental connections. Before WWI, people who married twice had a higher chance of retaining their position in the social elite for their children, though the effects later disappeared. Religion has negative and statistically significant effects, for the reasons discussed above. Businessmen and landowners had a higher probability of securing a spot at the top of the social ladder for their children—which interestingly, continues even after WWII. The social status of scientists, military, and writers is less resilient than the rest of the sample.

7. Robustness Checks

Selection based on matching to parents

Genealogical trees provide a comprehensive and complex picture of family relations and social links—although as discussed in the *Data* section, they are not complete. We find that social mobility increased over the generations. However, in our data, the share of known fathers and mothers also increases over generations. As presented in Appendix Table A1, the share of those matched increases from 80% in 1800 to 91% in 1915, then to 99.9% in 1984. The share of matched mothers increases from 62.5% in 1800 to 85.5% in 1915, then to 97.3% in 1984. The parents are not missing at random, as the lower their social status, the higher the probability that they will be missing. One exception is the small number of migrants to Poland, mainly in the early 19th century, who were mostly German entrepreneurs.

To investigate the consequences of changing matching rates for the evolution of social mobility, in Table 15, we compare the share of people with kin included in the previous generation of the PSB in the whole sample, with samples limited to 1) father known; 2) mother known; 3) both parents known.

The restriction of the sample significantly increases the share of observations with the past kin in the PSB, with a higher difference in the case of early generations. However, the general trend of increasing social mobility is still the same. The selection on matching slightly increases our

measures of intergenerational persistence but does not affect the evolution of social mobility, and the increase in social mobility over generations is even higher in the matched sample than in the full sample. In the sample restricted for observations with both parents matched, the share with past kin in the PSB in 1984 is at 31% of the same share in 1823. In the full sample, the share with past kin in the PSB in 1984 is at 43% of the same share in 1823.

Table 15. Kin in the Previous Generation of the PSB: The Impact of Matching

	Total sample	Matched father	Matched mother	Both parents matched
1823	0.3832	0.4518	0.5352	0.5352
	(0.0160)	(0.0180)	(0.0202)	(0.0202)
1846	0.3387	0.3915	0.4271	0.4274
	(0.0118)	(0.0131)	(0.0141)	(0.0141)
1869	0.3747	0.4206	0.4527	0.4530
	(0.0102)	(0.0111)	(0.0118)	(0.0118)
1892	0.3936	0.4307	0.4542	0.4542
	(0.0096)	(0.0103)	(0.0108)	(0.0108)
1915	0.3614	0.3918	0.4084	0.4084
	(0.0080)	(0.0085)	(0.0088)	(0.0088)
1938	0.3116	0.3213	0.3300	0.3300
	(0.0065)	(0.0067)	(0.0069)	(0.0069)
1961	0.2785	0.2804	0.2865	0.2862
	(0.0081)	(0.0082)	(0.0083)	(0.0083)
1984	0.1653	0.1655	0.1699	0.1699
	(0.0136)	(0.0136)	(0.0140)	(0.0140)

Source: Authors' own estimation.

Selection based on the letter of the alphabet

As discussed in the *Data* section, the PSB is published in alphabetical order, with individuals included only if they pass away before their letter is reached, resulting in the distribution of surnames becoming notably skewed towards the end of the alphabet in the last two generations. The composition of our sample by the first letter of the surname is presented in Appendix Table A1.

To grasp the consequences of this skewness for our results, we recalculated the share of people with kin in the previous generation included in the PSB in all generations only for those

with surnames starting with the letters P-Z (overrepresented in generations 1961 and 1984). The results are shown in Table 16.

Table 16. Kin in the Previous Generation of the PSB: The Impact of the First Letter of the Surname

	Total sample	Surnames beginning with P and later letters
1823	0.3832	0.4243
	(0.0160)	(0.0284)
1846	0.3387	0.3875
	(0.0118)	(0.0206)
1869	0.3747	0.3791
	(0.0102)	(0.0170)
1892	0.3936	0.3765
	(0.0096)	(0.0161)
1915	0.3614	0.3736
	(0.0080)	(0.0130)
1938	0.3116	0.3143
	(0.0065)	(0.0090)
1961	0.2785	0.2642
	(0.0081)	(0.0092)
1984	0.1653	0.1548
	(0.0136)	(0.1133)

Source: Authors' own estimation.

The results re-estimated only for the later part of the alphabet are virtually the same as the results calculated for the whole sample, with the persistence of the social status becoming slightly higher only for the generations 1823 and 1846. The non-representativeness of the PSB sample by the letter of the alphabet in the last two generations does not impact our results, because the matching of kin is conducted based on *Wielcy.pl*, not the PSB alone. Moreover, our measures of mobility are based on kinship up to the 6th degree, thus involving many various surnames.

Selection based on the region

The coverage of *Wielcy.pl* varies across regions. This is first of all due to the regionally varying availability of genealogical data, with the highest availability in large cities. Moreover, more people worth listing resided in large cities. *Wielcy.*pl includes 0.1-0.5% of the population (depending on the generation) but in the most elite parishes of Warsaw, 15% of marriages involve individuals worth listing. To control for the geographical selection, we compare the persistence of social status among people born in Warsaw with the rest of the sample. Social mobility can vary across regions, with migrants usually more mobile than the rest of the population. Thus, in this case, we are more interested in the validity of the trend towards higher social mobility than in the direct comparison of measures for different generations. A comparison is presented in Table 17.

Table 17. Kin in the Previous Generation of the PSB: The Importance of the Geographical Selection

	Total sample	Warsaw
1823	0.3832	0.4928
	(0.0160)	(0.0606)
1846	0.3387	0.4380
	(0.0118)	(0.0453)
1869	0.3747	0.5691
	(0.0102)	(0.0362)
1892	0.3936	0.5491
	(0.0096)	(0.0282)
1915	0.3614	0.5215
	(0.0080)	(0.0245)
1938	0.3116	0.4629
	(0.0065)	(0.0192)
1961	0.2785	0.3877
	(0.0081)	(0.0242)
1984	0.1653	0.2561
	(0.0136)	(0.0485)

Source: Authors' own estimation.

The persistence of the social status seems to be significantly higher in Warsaw than in the rest of the country. In the 19th century, in the total sample, 35-39% of the people listed in the PSB inherited social status. In Warsaw, this share was at 43-55%. In the 19th century, less than 10% of

our sample was born in Warsaw, so any interpretation of the change of mobility across the generation needs to remain careful. The 10-15% gap remains valid also in the 20th century. Higher persistence of the social status among people born in Warsaw may result from the lack of migration (people born in the largest city tend to stay there) and denser social networks, which increased the probability of finding kin listed in the PSB. Despite the lower level of social mobility, the trend towards higher mobility is still valid, even if slightly weaker.

Double listing of some observations

To obtain a dense family network, the generations are separated only by 23 years, resulting in some people in our sample being active in two generations. To check the impact of double listing on our results, we re-estimate them from the sample restricted to people who are listed for the first time. The results are presented in Table 18.

Table 18. Kin in the Previous Generation of the PSB: The Importance of Double-Counting

	Total sample	Only people who are listed in the elite for the first time
1823	0.3832	0.3810
	(0.0160)	(0.0183)
1846	0.3387	0.3289
	(0.0118)	(0.0127)
1869	0.3747	0.3809
	(0.0102)	(0.0120)
1892	0.3936	0.3895
	(0.0096)	(0.0110)
1915	0.3614	0.03585
	(0.0080)	(0.0089)
1938	0.3116	0.2918
	(0.0065)	(0.0073)
1961	0.2785	0.2615
	(0.0081)	(0.0106)
1984	0.1653	0.1160
	(0.0136)	(0.0203).

Source: Authors' own estimation.

The sample restriction only has a minor impact on our results. The shares of observation with past/future kin in the PSB after the restriction of the sample changes by -11% to + 2% (no

more than three percentage points) for all generations except 1984. In the case of the 1984 generation, the share of people with past kin in the PSB is 40% higher in the restricted sample. However, as discussed above, this generation is atypical due to the smaller sample size. Our conclusion that social mobility increased over the investigated period remains valid, the trend towards higher mobility becomes even higher.

PSB vs. 1938 "Who Is Who"?

The estimation of top-end social mobility is our main goal. However, it may be argued that historians evaluate the importance and social position according to different criteria than the contemporaries. To check to what extent our results are driven by this difference, we digitized the "Who is who" list published in 1938 (Łoza, 1938) and added all people to our database. The list includes 5,611 people active in 1938 (according to our definition, a person must be between 40 and 80 years old), while the PSB includes 5,016 people active in the same years. Therefore, both sources report a similar share of the population as the elite. Both sources partially overlap—1,695 people (approx. 30%) are present in both. The degree of overlap confirms that the classification criteria of editorial board of the PSB are different from that of the social intuition of contemporaries, although not entirely.

In Table 19, we compare intergenerational mobility estimated for both samples. The binary metrics for "*Who Is Who*?" sample are slightly lower. The difference in the number of past kin is very small. The number of future kin is bit higher for the PSB sample. Although estimates for both samples differ slightly, these small differences are not enough to change our interpretation of the evolution of social mobility. In the construction of *Wielcy.pl*, people listed in the PSB were treated as central, and more effort was put in identifying their relatives. We did our best to do the same for people listed in "*Who Is Who*?", but still the difference between both samples may be driven by the construction of *Wielcy.pl,* and thus our results may overestimate the real difference. Additionally, we present the graph of the "Who is who" network in the Appendix Figure A10. Interestingly, the graph for the "*Who Is Who*?" is slightly denser than the graph for the same generation of the PSB.

Table 19. Intergenerational Mobility: Polish Biographical Dictionary (1938) vs. "Who Is Who" (Łoza, 1938)

	PSB 1938	Łoza (1938)
Past kin: binary	0.3116	0.2768
	(0.0065)	(0.0060)
Past kin: number	3.2207	3.2395
(mean, if binary=1)	(0.0902)	(0.0855)
Future kin: binary	0.2245	0.1706
	(0.0059)	(0.0050)
Future kin: number	1.9139	1.7868
(mean, if binary=1)	(0.0452)	(0.0461)

Source: Authors' own estimation.

We have also re-estimated models reported in Tables 9 to14 and compared the results for the PSB and the "Who is who?" sample. The results of the models are almost identical. While the statistical significance of social categories sometimes differs, the direction of effects remains the same. We therefore conclude that our results are robust.

Unfortunately, we cannot perform similar exercises for other generations due to the lack of a comparable "Who is who" list. The list published in 1984 (Interpress, 1984) cannot be used for this task because only for a minority of records the mother is known to us (the entries do not contain parents' names), which reduces comparability with the PSB. In the case of the 1984 PSB generation, we know 97% of mothers, but in the case of the 1984 "Who Is Who?" generation, we only know 35% of mothers. Thus, social mobility estimates cannot be reliably compared. While the lists of landowners and businesses were published before 1938, we are not aware of any comprehensive "Who Is Who" published for earlier generations.

Conclusions

In this paper, we measure intergenerational mobility in Poland in the years 1800 -1984, with our estimates covering nine generations of the Polish elite. Our approach is based on the direct linking of 20,000 people listed in the Polish Biographical Dictionary (PSB), active in the chosen generations. The people listed in the PSB form the top 0.01% of Polish society. Using Poland's largest genealogy database, we establish family connections across nine generations of the elite.

We focus on the kinship link up to the 6th degree, documenting that the direct link of the 1st degree (common in the literature, such as the father-son correlation in income) captures only around 20% of the total family links between different generations of the Polish elite. Thus, intergenerational mobility estimated solely from 1st-degree family links would significantly overestimate mobility (underestimating the persistence of social status across generations). The introduction of mass genealogical data to the literature on social mobility is a significant innovation, enabling more nuanced understanding of complex family networks and mobility patterns.

We find that social mobility was low and stagnant throughout the 19th century, gradually increasing only in the 20th century, especially after World War II. People listed in the PSB in generation *k*, had 2300 to 4600 times higher chances of having their kin listed in the PSB in generation *k+1*. Our results highlight the importance of family formation for social mobility (see Mogstad & Torsvik, 2023). Multigenerational mobility was slower than mobility measured over two generations, and the old elite had a higher chance to retain the position at the top of the social stratification for the next generation. The outsiders who join the elite as the first in their generations could significantly increase their chances for status retention by arranging a good marriage. As most outsiders were already married when they joined the elite, those who remarried after the death of their first spouse showed a much higher probability of status retention.

We document that the descendants of the Great Sejm (1798-1792), the pivotal political event of Polish Enlightenment, formed the core of the Polish elite until at least 1961. Our findings further suggest that women had a higher likelihood of inheriting social status and transmitting it to their children. We investigate the impact of several occupational/social categories of intergenerational mobility. According to our results, in the investigated period, religious institutions were the major engine of social mobility. People born outside the elite had a higher chance of becoming a bishop than a successful businessman, important politician, or renowned university professor—which continued to be the case even in the communist era after WWII.

The primary limitation of our research is its focus on the top of the social hierarchy, as mass genealogical data provides far less information on the middle class and lower segments of society. However, mobility from “rags to riches”—the rise from poverty to wealth—is a powerful symbol of intergenerational mobility. In this paper, we introduce new data sources, provide estimates of

intergenerational mobility, and examine its determinants on the individual level. The study of regional variation in social mobility and the impact of institutional change (such as inheritance rules, or the emancipation of women) remain a promising path for future research endeavors.

Reference

Abramitzky, R., Boustan, L., Jácome, E. & Pérez, S. (2021a). Intergenerational Mobility of Immigrants in the United States over Two Centuries. *American Economic Review*, 111(2), 580 – 608.

Abramitzky, R., Boustna, L., Errikson, K., Feigenbaum, J. & Pérez, S. (2021b). Automated Linking of Historical Data. *Journal of Economic Literature*, 59(3), 865 – 918.

Adermon, A., Lindahl, M. & Palme, M. (2021). Dynastic Human Capital, Inequality, and Intergenerational Mobility. *American Economic Review*, 111(5), 1523 – 1548.

Alfani, G. (2021). Economic Inequality in Preindustrial Times: Europe and Beyond. *Journal of Economic Inequality*, 59(1), 3-44.

Anderson, L., Sheppard, P. & Monden, Ch. (2018). Grandparent Effects on Educational Outcomes: A Systematic Review. *Sociological Science*, 5, 114 – 142.

Atkinson, A. & Micklewright, J. (1992). *Economic transformation in Eastern Europe and the distribution of income*. Cambridge: Cambridge University Press.

Bailey, M., Cole, C., Henderson, M. & Massey, C. (2020). How Well Do Automated Linking Methods Perform? Lessons from US Historical Data. *Journal of Economic Literature*, 58(4), 997 – 1044.

Barone, G. & Mocetti, S. (2021). Intergenerational Mobility in the Very Long Run: Florence 1427–2011. *Review of Economic Studies*, 88(4), 1863 – 1891.

Beger, T., Engzell, P. & Molinder, J. (2023). Social Mobility in Sweden before the Welfare State. *Journal of Economic History*, 83(2), 431 – 463.

Berend, I. (2003). *History Derailed Central and Eastern Europe in the Long Nineteenth Century*. Berkeley: University of California Press.

Björklund, A. & Jäntti, M. (2020). *Intergenerational mobility, intergenerational effects, sibling correlations, and equality of opportunity: A comparison of four approaches*. Research in Social Stratification and Mobility, 70, 100455.

Blanden, J. (2013). Cross-national rankings of intergenerational mobility: a comparison of approaches from economics and sociology. *Journal of Economic Surveys*, 27(1), 38-73.

Bourdieu, P. (1986). The Forms of Capital. In: Richardson, J. (Ed.), Handbook of Theory and Research for the Sociology of Education, 241 – 258. Westport: Greenwood.

Buchnen, T. & Rolf, M. (2015). Eliten im Vielvölkerreich. Imperiale Biographien in Russland und Österreich-Ungarn (1850-1918). Oldenburg: De Gruyter.

Bukowski M., Kowalski, M & Wroński, M. (2024). *The economic growth in interwar Poland: regional historical accounts*. Unpublished manuscript.

Bukowski, P. & Novokmet, F. (2021). Between communism and capitalism: long-term inequality in Poland, 1892–2015. *Journal of Economic Growth*, 26(2), 187 – 239.

Bukowski, P., Clark, G., Gáspár, A. & Pető, R. (2022). Social Mobility and Political Regimes: Intergnerational Mobility in Hungary, 1947 – 2017. *Journal of Population Economics*, 35(4), 1551-1588.

Butterwick, R. (2020). *The Polish-Lithuanian Commonwealth, 1733-1795*. New Haven: Yale University Press.

Campbell, C. & Lee, J. (2011). Kinship and the Long-Termc Persistence of Inequality in Liaoning, China, 1749–2005. *Chinese Sociological Review*, 44(1), 71 – 103.

Charnysh, V. (2024). *Uprooted. How post-WWII Population Transfers Remade Europe*. Cambridge: Cambridge University Press.

Corak, N. (2013). Income Inequality, Equality of Opportunity, and Intergenerational Mobility. *Journal of Economic Perspectives*, 27(3), 79 – 102.

Clark, G. (2014). *The Son Also Rises: Surnames and the History of Social Mobility*. Princeton: Princeton University Press.

Clark, G. & Cummins, N. (2014). Surnames and Social Mobility in England, 1170–2012. *Human Nature: An Interdisciplinary Biosocial Perspective*, 517 – 537.

Clark, G. & Cummins, N. (2015). Intergenerational Wealth Mobility in England, 1858–2012: Surnames and Social Mobility. *Economic Journal*, 125(582), 61 – 82.

Clark, G. & Cummins, N. (2024). Matriline versus Patriline: Social Mobility in England, 1754-2023. Economic History Working Papers, 366, London School of Economics and Political Science.

Clark, G., Cummins, N., Hao, Y. & Vidal, D. (2015). Surnames: A new source for the history of social mobility. *Explorations in Economic History*, 55(1), 3-24.

Chetty, N., Hendren, N., Kline, P. & Saez, E. (2013). Where is the land of Opportunity? The Geography of Intergenerational Mobility in the United State. *Quarterly Journal of Economics*, 1553 – 1623.

Deutscher, N. & Mazumder, B. (2023). Measuring Intergenerational Income Mobility: A Synthesis of Approaches. *Journal of Economic Literature*, 61(3), 988 – 1036.

Dubrow, J., Slomczynski, K., Tomescu-Dubrow, I. & Kotnarowski, M. (2023). PolandThirty Years of Radical Social Change. Leiden: Brill.

Ferrie, J., Massey, C. & Rothblum, J. (2021). Do Grandparents Matter? Multigenerational Mobility in the United States, 1940–2015. *Journal of Labor Economics*, 39(3), 597 – 637.

Fourie, J., Green, E., Rijpma, A. & von Fintel, D. (2024). Income Mobility before Industrialization: Evidence from South Africa's Cape Colony. *Social Science History*, First View.

Hao, Y. (2021). Social mobility in China, 1645–2012: A surname study. *China Economic Quarterly International*, 1(3), 223 – 243.

Häner, M. & Schaltegger, H. (2024). The Name Says It All: Multigenerational Social Mobility in Basel (Switzerland), 1550–2019. *Journal of Human Resources*, 59(3), 711 – 742.

Hwang, S. & Squires, M. (2024). *Linked samples and measurement error in historical US census data*. Explorations in Economic History, 93, 101579.

Jacomy, M., Venturini, T., Heymann, S., Bastian, M. (2014). ForceAtlas2, a Continuous Graph Layout Algorithm for Handy Network Visualization Designed for the Gephi Software. PLoS ONE, 9(6), e98679.

Kaelbe, H. (1985). *Social Mobility in the 19th and 20th Centuries. Europe and America in Comparative Perspective*. Heidelberg: Berg.

Koryś, P. (2018). *Poland From Partitions to EU Accession: A Modern Economic History, 1772–2004*. Cham: Palgrave.

Koryś, P. & Tymiński, M. (2022). Economic growth on the periphery: estimates of GDP per capita of the Congress Kingdom of Poland (for years 1870–1912). *European Review of Economic History*, 26(2), 284 – 301.

Landes, D. (1969). *The unbounded Prometheus*. Cambridge: Cambridge University Press.

Long, J. & Ferrie, J. (2018). Grandfathers Matter(ed): Occupational Mobility Across Three Generations in the US and Britain, 1850–1911. *Economic Journal*, 128(612), 422 – 445.

Lindahl, M., Palme, M., Maasih, S. & Sjögren, A. (2015). Long-Term Intergenerational Persistence of Human Capital: An Empirical Analysis of Four Generations. *Journal of Human Resrources*, 50(1), 1 – 33.

Lippényi, Z., Maas, I. & van Leeuwen, M. (2013). Intergenerational class mobility in Hungary between 1865 and 1950: Testing models of change in social openness. Research in Social Stratification and Mobility, 33, 40-55.

Łoza, M. (1938). *Czy wiesz kto jest kto?.* Warszawa: Wydawnicwto Głównej Księgarni Wojskowej.

Interpress (1984). *Kto jest kim w Polsce*? Warszawa: Interpress.

Mayer, A. (1981). *The Persistence of the Old Regime: Europe to the Great War*. New York: Pantheon Books.

Malinowski, M. (2016). Serfs and the city: market conditions, surplus extraction institutions and urban growth in Poland, 1500-1772. *European Review of Economic History*, 20(2), 123 – 146.

Malinowski, M. (2019). Economic Consequences of State Failure. *Journal of Economic History* 79(3), 862 – 896.

Malinowski, M. (2024). Incredible commitment: Influence accumulation, consensus-making, and the collapse of the Polish-Lithuanian Commonwealth. *Explorations in Economic History*, In Press.

Mare, J. & Song, X. (2023). Social mobility in multiple generations. *Research in Social Stratification and Mobility*, 88, 100806.

Mejía, J. (2024). Social Networks and Elite Entrepreneurship in Latin America: Evidence from the Industrialization of Antioquia. *Journal of Economic History*, First View.

Minakowski, M. (2016). Modelowanie rozkładu kapitału ekonomiczno-społeczno-kulturowego poprzez genealogię masową. *Przeszłość Demograficzna Polski*, 38(4), 63 – 88.

Minakowski, M. (2017). Sieć społeczna wokół Kuriera Warszawskiego na podstawie jego nekrologów z lat 1821–1861. *Przeszłość Demograficzna Polski*, 39, 209 – 251.

Minakowski, M. (2018). *Genealogia masowa - metodologia tworzenia i publikacji bazy danych*. In: Sikorska-Kulesza, J. (Ed.). Edytorstwo wobec masowości źródeł najnowszych. Warszawa: Wydawnictwo Uniwersytetu Warszawskiego

Minakowski, M. (2019). House of Networks: the Polish-Lithuanian Senate (1569–1795) as Parliamentary Representation of the National Social Network (of Women?). *Przeszłość Demograficzna Polski*, 41, 33 – 56.

Minakowski, M. (2023). Sex and Mortality: Changes in the Age Distribution of the Deceased According to Polish Press Obituaries, 1845–1939. *Przeszłość Demograficzna Polski*, 45, 101-125.

Mogstad, M. & Torsvik, G. (2023). Family background, neighborhoods, and intergenerational mobility. *Handbook of the Economics of the Family*, 327-387. Elsevier.

Piketty, T. (2014). *Capital in the Twenty-First Century*. Cambridge, MA: Harvard University Press.

Popovici, V., Velková, A. & Klečacký, M. (2024). *Climbing up the Social Ladder? Social Mobility of Elites in East-Central Europe in the Long 19th Century*. Oldenburg: De Gruyter.

Röskau-Rydel, I. (2011). *Niemiecko-austriackie rodziny urzędnicze w Galicji 1772-1918 : kariery zawodowe, środowisko, akulturacja i asymilacja*. Kraków: Wydawnictwo Naukowe Uniwersytetu Pedagogicznego.

Rotberg, R. (2000). S*ocial mobility and modernization : a Journal of Interdisciplinary History Reader.* Cambridge: MIT Press.

Santavirta, T. & Stuhler, J. (2024). Name-Based Estimators of Intergenerational Mobility. *Economic Journal*, 134(663), 2982 – 3016.

Scheidel, W. (2017). *The Great Leveler: Violence and the History of Inequality from the Stone Age to the Twenty-First Century*. Princeton: Princeton University Press.

Scheidel, W. (2024). *Inequality reduction between tragedy and progress: The Great Leveler and recent scholarship, 2017-2024*. Available at ResearchGate: https://www.researchgate.net/publication/383949183_Inequality_reduction_between_tragedy_and_progress_The_Great_Leveler_and_recent_scholarship_2017-2024_Walter_Scheidel.

Schifano, S. & Paccoud, A. (2024). The Distribution of Land in Luxembourg (1766–1872): Family-Level Wealth Persistence in the Midst of Institutional Change. *Journal of Economic History*, First View.

Solon, G. (1992). Intergenerational Income Mobility in the United States. *American Economic Review*, 82(3), 393 – 408.

Solon, G. (2002). Cross-Country Differences in Intergenerational Earnings Mobility. *Journal of Economic Perspectives*, 16(3), 59 – 66.

Solon, G. (2018). What Do We Know So Far about Multigenerational Mobility? *Economic Journal*, 128(612), 340 – 352.

Sosnowska, A. (2019). *Explaining Economic Backwardness. Post-1945 Polish Historians on Eastern Europe*. Budapest: Central European University Press.

Torche, F. & Corvalan, A. (2018). Estimating Intergenerational Mobility With Grouped Data: A Critique of Clark's the Son Also Rises. *Sociological Methods & Research*, 47(4), 787 – 811.

van der Weide, R., Lakner, Ch., Maher, D., Narayan, A. & Gupta, R. (2024). Intergenerational mobility around the world: A new database. *Journal of Development Economics*, 166, 103167.

Ward, Z. (2023). Intergenerational Mobility in American History: Accounting for Race and Measurement Error. American Economic Review, 113(12), 3213 – 3248.

Wroński, M. (2023). Wealth inequality in interwar Poland. *Economic History of Developing Regions*, 38(1), 1-40.

Wroński, M. (2024a). Intergenerational Educational Mobility in Poland in the Long Run: Education as a Positional Good. *Eastern European Economics*, 62(3), 317 -339.

Wroński, M. (2024b). The full distribution of adult height in Poland: Cohorts born between 1920 and 1996. The biological cost of the economic transition. *Economics & Human Biology*, 50, 101261.

Zhu, Z. (2024). Like Father Like Son? Intergenerational Immobility in England, 1851–1911. *Journal of Economic History*, First View.

Appendix

Table A1. The distribution by the first letter of surname: PESEL (national identifier) database vs. our sample.

Stat	PESEL 2024	PSB 1800	PSB 1823	PSB 1846	PSB 1869	PSB 1892	PSB 1915	PSB 1938	PSB 1961	PSB 1984
A	1.5%	1.3%	1.4%	1.2%	1.1%	1.5%	0.7%	0.1%	0.2%	0.1%
B	7.4%	8.8%	9.8%	10.5%	8.9%	7.5%	5.2%	0.5%	0.6%	0.9%
C	4.0%	6.1%	6.2%	4.7%	5.0%	6.1%	3.6%	0.3%	0.3%	0.3%
D	4.2%	5.3%	6.1%	4.7%	5.2%	6.1%	4.4%	0.7%	0.4%	0.3%
E	0.2%	0.8%	0.9%	1.2%	1.1%	0.9%	0.7%	0.3%	0.1%	0.3%
F	1.8%	1.2%	1.8%	2.2%	2.1%	2.2%	1.7%	0.9%	0.3%	0.1%
G	5.7%	6.6%	7.1%	6.3%	5.8%	7.0%	6.7%	4.3%	0.6%	0.4%
H	1.8%	2.6%	2.9%	2.9%	2.2%	2.7%	3.6%	2.6%	0.5%	0.4%
I	0.5%	0.2%	0.3%	0.2%	0.4%	0.4%	0.3%	0.4%	0.0%	0.0%
J	3.5%	3.3%	3.2%	4.0%	4.2%	3.7%	4.2%	3.1%	0.5%	0.3%
K	14.4%	11.8%	12.7%	13.6%	13.3%	12.3%	13.3%	13.9%	6.7%	0.9%
L	4.0%	4.6%	4.2%	4.5%	4.8%	4.5%	5.3%	5.6%	2.8%	0.5%
M	8.1%	8.3%	7.3%	6.8%	7.4%	8.0%	8.4%	9.6%	7.7%	0.5%
N	2.5%	2.6%	2.5%	1.6%	2.0%	2.0%	3.3%	3.8%	2.4%	0.1%
O	2.2%	3.4%	2.3%	2.2%	2.1%	2.2%	2.6%	2.8%	2.2%	0.1%
P	7.7%	8.8%	6.9%	7.6%	7.4%	6.7%	9.1%	11.9%	11.8%	0.7%
Q	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
R	3.7%	5.5%	5.1%	6.3%	6.4%	6.6%	7.5%	10.2%	11.3%	4.8%
S	12.9%	14.4%	15.7%	16.3%	17.5%	16.8%	16.9%	25.0%	44.4%	74.7%
T	2.7%	2.8%	2.5%	2.1%	2.5%	2.2%	2.0%	3.4%	6.2%	12.8%
U	0.5%	0.1%	0.1%	0.0%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%
V	0.4%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.0%
W	6.4%	0.9%	0.5%	0.4%	0.2%	0.2%	0.1%	0.2%	0.5%	1.1%
X	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Y	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Z	3.8%	0.4%	0.3%	0.4%	0.3%	0.2%	0.2%	0.2%	0.4%	0.3%

Source: Authors' own estimation.

Table A2. Matching rates of our sample

	Matched to father	Matched to mother	Matched to both parents
1800	0.7796	0.6249	0.6249
1823	0.8267	0.6577	0.6577
1846	0.8635	0.7612	0.7605
1869	0.8803	0.7892	0.7887
1892	0.8986	0.8289	0.8289
1915	0.9134	0.8547	0.8547
1938	0.9649	0.9280	0.9280
1961	0.9896	0.9596	0.9593
1984	0.9987	0.9731	0.9731

Source: Authors' own estimation.

Table A3. Any past kin (up to the 6th degree of kinship) included in Polish Biographical Dictionary, different sides and total (binary variable).

	Our definition	Our as total	Father	Mother	Spouse	Siblings	Child	Total
1823	0.3832	0.7773	0.2368	0.1862	0.2540	0.2196	0.2745	0.4930
1846	0.3387	0.7834	0.2010	0.1402	0.2091	0.1725	0.2047	0.4324
1869	0.3747	0.7900	0.1921	0.1559	0.2282	0.1952	0.1795	0.4743
1892	0.3936	0.7914	0.2148	0.1536	0.2152	0.1920	0.1741	0.4973
1915	0.3614	0.8046	0.1977	0.1514	0.1843	0.1700	0.1231	0.4491
1938	0.3116	0.8270	0.1581	0.1222	0.1541	0.1230	0.0644	0.3768
1961	0.2785	0.8399	0.1388	0.0844	0.1401	0.1062	0.0322	0.3316
1984	0.1653	0.8662	0.0659	0.0484	0.0901	0.0363	0.0108	0.1909

Note: The table present the mean of binary variable equal to 1 if in the previous generation there is at least kin kinship included in the PSB in a given category. Therefore, the columns do not sum up to total.

Source: Authors' own estimation.

Table A4. Number of past kin (up to the 6th degree of kinship) included in Polish Biographical Dictionary, different sides and total, only if there is at least 1 past kin (zeroes are excluded)

	Our definition	Our as total	Father	Mother	Spouse	Siblings	Child	Total
1823	9.0871	0.7467	4.6682	5.1387	5.5890	4.1373	5.8627	12.1703
1846	5.8095	0.7679	4.0185	3.3097	3.3294	3.4604	3.4515	7.5653
1869	5.3063	0.7730	3.4837	3.5960	3.3249	3.0526	3.7413	6.8644
1892	4.3255	0.7528	2.6468	2.8841	3.2104	2.6149	3.7489	5.7455
1915	3.6206	0.8037	2.2885	2.5290	2.5685	2.2226	2.7372	4.5049
1938	3.2207	0.8486	2.1803	2.4405	2.3402	2.1297	2.5542	3.7952
1961	3.2395	0.8604	2.2557	2.3785	2.3369	2.0366	2.4049	3.7650
1984	2.7029	0.8816	2.0352	2.0965	2.0953	1.8313	2.1515	3.0658

Note: The table present the mean of variable if there is at least one past kin up to the 6th degree of kinship included in the PSB. Therefore, the columns do not sum up to total.

Source: Authors' own estimation.

Table A5. Any future kin (up to the 6th degree of kinship) included in Polish Biographical Dictionary, different sides and total (binary variable).

	Our definition	Our as total	Father	Mother	Spouse	Siblings	Child	Total
1800	0.5158	0.9129	0.1970	0.1758	0.2743	0.3587	0.3036	0.5651
1823	0.5156	0.9448	0.1668	0.1529	0.2637	0.3703	0.2487	0.5457
1846	0.5006	0.9129	0.1824	0.1433	0.2481	0.2940	0.2574	0.5484
1869	0.4810	0.8982	0.1510	0.1313	0.2184	0.2550	0.2434	0.5355
1892	0.4841	0.8822	0.1544	0.1227	0.2175	0.2655	0.2399	0.5488
1915	0.4332	0.8536	0.1264	0.1196	0.1917	0.1911	0.2125	0.5075
1938	0.2245	0.7776	0.0706	0.0530	0.0961	0.0702	0.1035	0.2887
1939	0.0583	0.7956	0.0130	0.0059	0.0248	0.0143	0.0225	0.0733

Note: The table presents the mean of a binary variable equal to 1 if in the next generation there is at least one kinship included in the PSB in a given category. Therefore, the columns do not sum up to total: For example, if there is only 1 person in all categories the total still equals to 1.

Source: Authors' own estimation.

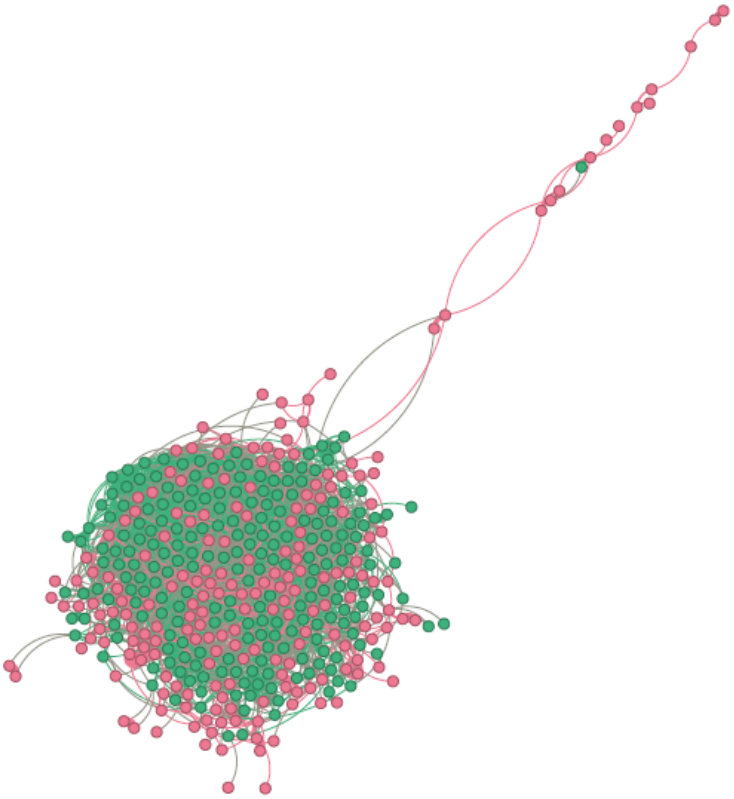
Table A6. Number of past kin (up to the 6th degree of kinship) included in Polish Biographical Dictionary, different sides and total, only if there is at least 1 past kin (zeroes are excluded)

	Our definition	Our as total	Father	Mother	Spouse	Siblings	Child	Total
1800	10.4682	0.9051	3.0417	3.0533	5.5000	6.8268	4.7490	11.5664
1823	8.5887	0.8230	3.7161	4.2324	4.8327	5.8547	3.9654	10.4359
1846	6.6406	0.8045	4.0136	3.2814	3.3625	4.8101	4.1783	8.2545
1869	5.2563	0.8550	2.7189	2.6905	2.8691	4.4063	3.1963	6.1476
1892	4.6035	0.8849	2.1704	2.3722	2.6584	3.7259	2.7565	5.2024
1915	3.3006	0.8527	2.1085	2.2431	2.2804	2.7016	2.2426	3.8709
1938	1.9139	0.8908	1.5593	1.5188	1.5892	1.6165	1.5800	2.1485
1939	1.2235	0.9659	1.1750	1.0556	1.0921	1.0909	1.2754	1.2667

Note: The table presents the mean of variable if there is at least one past kin up to the 6th degree of kinship included in PSB. Therefore, the columns do not sum up to total.

Source: Authors' own estimation.

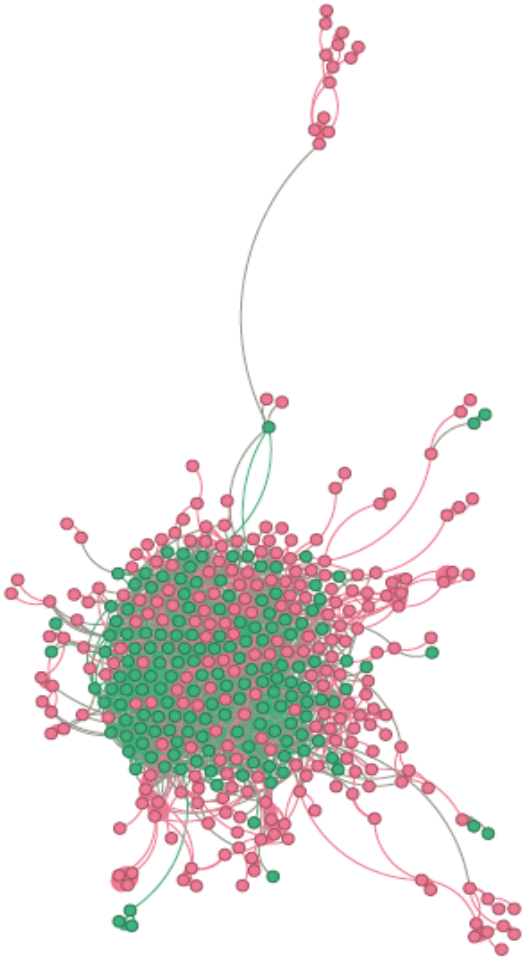
Figure A1. The core of the elite (PSB) network: 1800.



Note: The graph presents only the part of the sample connected to the central graph. The green dots represent the people who are the descendants of the Great Sejm's deputies, the red dots are people who are non-descendants. Non-connected people are omitted to preserve readability. Networks alternative to the central network include only a few people. The graph was using ForceAtlas2 algorithm (Jacomy, et al., 2014). The graph presents only kinship up to the 6th degree and includes only people of a given generation. The full high-quality scalable graph is included in the replication package.

Source: Authors' own estimation.

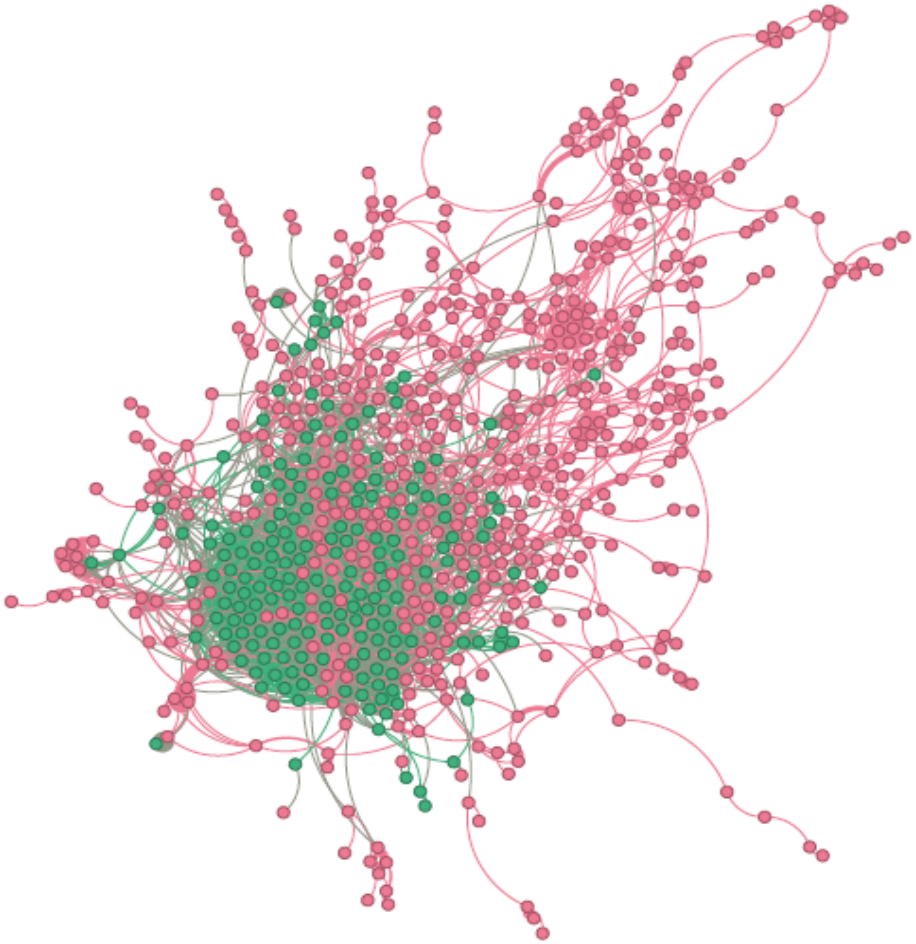
Figure A2. The core of the elite (PSB) network: 1823.



Note: The graph presents only the part of the sample connected to the central graph. The green dots are people who are the descendants of the Great Sejm's deputies, the red dots are people who are non-descendants. Non-connected people are omitted to preserve the readability, networks alternative to the central network include only few people. The graph was using ForceAtlas2 algorithm (Jacomy, et al., 2014). The graph presents only kinship up to the 6th degree and includes only people of a given generation. The full high-quality scalable graph is included in the replication package.

Source: Authors' own estimation.

Figure A3. The core of the elite (PSB) network: 1846.



Note: The graph presents only the part of the sample connected to the central graph. The green dots are people who are the descendants of the Great Sejm's deputies, the red dots are people who are non-descendants. Non-connected people are omitted to preserve the readability. Networks alternative to the central network include only few people. The graph was made using ForceAtlas2 algorithm (Jacomy, et al., 2014). The graph presents only kinship up to the 6th degree and includes only people of a given generation. The full high-quality scalable graph is included in the replication package.

Source: Authors' own estimation.

Figure A4: The core of the elite (PSB) network: 1869.

Note: : The graph presents only the part of the sample connected to the central graph. The green dots are people who are the descendants of the Great Sejm's deputies, the red dots are people who are non-descendants. Non-connected people are omitted to preserve the readability. Networks alternative to the central network include only few people. The graph was made using ForceAtlas2 algorithm (Jacomy, et al., 2014). The graph presents only kinship up to the 6th degree and includes only people of a given generation. The full high-quality scalable graph is included in the replication package.

Source: Authors' own estimation.

Figure A5: The core of the elite (PSB) network: 1892.

Note: : The graph presents only the part of the sample connected to the central graph. The green dots are people who are the descendants of the Great Sejm's deputies, the red dots are people who are non-descendants. Non-connected people are omitted to preserve the readability. Networks alternative to the central network include only few people. The graph was made using ForceAtlas2 algorithm (Jacomy, et al., 2014). The graph presents only kinship up to the 6th degree and includes only people of a given generation. The full high-quality scalable graph is included in the replication package.

Source: Authors' own estimation.

Figure A6: The core of the elite (PSB) network: 1915.

Note: : The graph presents only the part of the sample connected to the central graph. The green dots are people who are the descendants of the Great Sejm's deputies, the red dots are people who are non-descendants. Non-connected people are omitted to preserve the readability. Networks alternative to the central network include only few people. The graph was made using ForceAtlas2 algorithm (Jacomy, et al., 2014). The graph presents only kinship up to the 6th degree and includes only people of a given generation. The full high-quality scalable graph is included in the replication package.

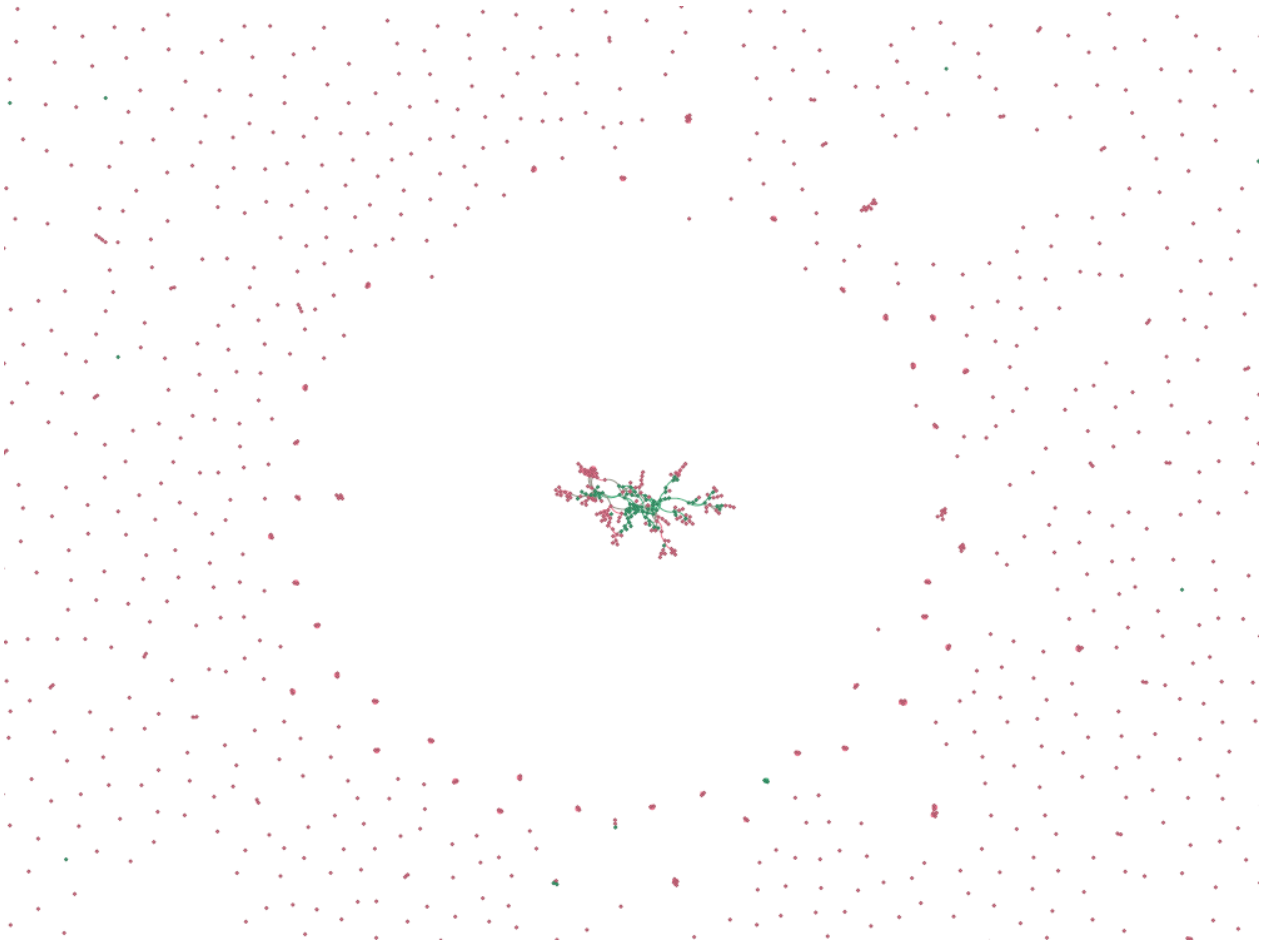
Source: Authors' own estimation.

Figure A7: The core of the elite (PSB) network: 1938.

Note: : The graph presents only the part of the sample connected to the central graph. The green dots are people who are the descendants of the Great Sejm's deputies, the red dots are people who are non-descendants. Non-connected people are omitted to preserve the readability. Networks alternative to the central network include only few people. The graph was made using ForceAtlas2 algorithm (Jacomy, et al., 2014). The graph presents only kinship up to the 6th degree and includes only people of a given generation. The full high-quality scalable graph is included in the replication package.

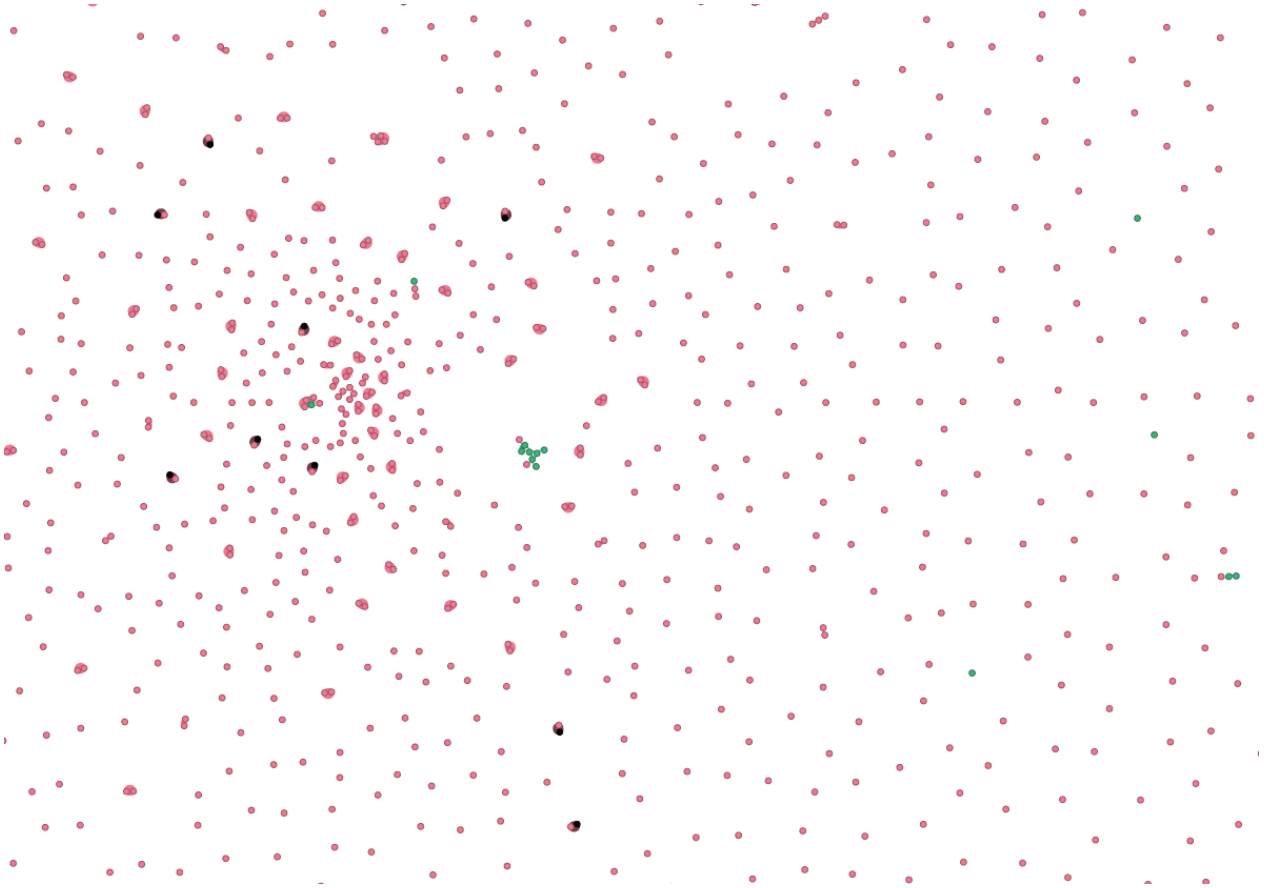
Source: Authors' own estimation.

Figure A8: The core of the elite (PSB) network: 1961.



Note: Only the central part of the graph is presented. The green dots are people who are the descendants of the Great Sejm's deputies, the red dots are people who are non-descendants. Non-connected people are omitted to preserve the readability. Networks alternative to the central network include only few people. The graph was made using ForceAtlas2 algorithm (Jacomy, et al., 2014). The graph presents only kinship up to the 6th degree and includes only people of a given generation. The full high-quality scalable graph is included in the replication package.

Figure A9: The core of the elite (PSB) network: 1984.



Note: Only the central part of the graph is presented. The green dots are people who are the descendants of the Great Sejm's deputies, the red dots are people who are non-descendants. Non-connected people are omitted to preserve the readability. Networks alternative to the central network include only few people. The graph was made using ForceAtlas2 algorithm (Jacomy, et al., 2014). The graph presents only kinship up to the 6th degree and includes only people of a given generation. The full high-quality scalable graph is included in the replication package.

Figure A10: The core of the elite (Who is who) network: 1938.

Note: Only the central part of the graph is presented. The green dots are people who are the descendants of the Great Sejm's deputies, the red dots are people who are non-descendants. Non-connected people are omitted to preserve the readability. Networks alternative to the central network include only few people. The graph was made using ForceAtlas2 algorithm (Jacomy, et al., 2014). The graph presents only kinship up to the 6th degree and includes only people of a given generation. The full high-quality scalable graph is included in the replication package.