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A SURNAME APPROACH

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Elite Persistence and Social Mobility in 20th and 21st Century Russia

A Surname Approach

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Abstract

This paper adds to the research on social mobility and elite persistence by using the methods of Clark (2015) on 20th and 21st century Russia and the Soviet Union. The main goal was to find the intergenerational correlation of status for the period 1919-2019, a period of many transitions in the region. Based on the previous work of Clark (2015), the expected persistence of status would be 0.7-0.8, even through periods of transition. Other authors, like Scheidel (2018) would expect a lowered persistence of status because of these transition periods. This paper has found a persistence of status of 0.4 for the period 1918-2019, which is still quite low compared to Clark's findings. However, for the period 1918-1945, a persistence of status of 0.1 is estimated. This would imply very high levels of social mobility as a result of the Bolshevik, Communist Revolution and the subsequent creation of the Soviet Union. Several high and low status subgroups for 20th century Russia have been identified, as well as possible reasons for their respective level of status.

Foreword

From its inception in late September 2019, the goal of this thesis has always been to find out what levels of social mobility are reached during times of transition. There were perhaps easier subjects than twentieth century Russia, but it was probably the most interesting one.

Many people deserve thanks for helping me in this endeavour. First of all - and in no particular order -, Prof. dr. Koen Schoors and dr. Tom Eeckhout. The former for pointing me to the broader literature surrounding social mobility and elite persistence and the latter for guiding me through the dark jungle of Python data analysis.

Special thanks to Prof. dr. Piet Van Poucke of the Russian section of the department of Translation, Interpreting and Communication of Ghent University, who was kind enough to help out a student from a different faculty. One suggestion in particular, the book Russian Surnames by Unbegaun (1972), has transformed the scope (and hopefully accuracy) of this thesis.

Prof. Gregory Clark also deserves my gratitude. First for writing the book most of this thesis was based on, but secondly for answering questions from a student of a different university on a different continent.

Finally, Sam Devinck for teaching me the basics of LaTeX and providing well needed emotional support during these past few months. Yaroslav Orlov also deserves thanks for proofreading parts of this paper.

My parents deserve thanks as well, for letting me extend my time as a student for another three and a half years.

Arthur Timmerman, 6 January 2020.

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Chapter 1

Introduction

A surname can say a lot about a person. It can reveal where someone's family is from, whether they are of noble birth, what the name of their great-great-grandfather is and so much more. Nowadays we use surnames only to provide identification both to you and to the institutions around us. We could however use them in a different way: Economic research on social mobility and elite persistence. However, this is a novel thing. Classic economic research on social mobility has focussed on intergenerational elasticity of income or some other parameter. In such studies, a researcher would typically look at the correlation between a parent's income (Corak, 2006; Dearden et al., 1997; Jantti et al., 2006), wealth (Adermon et al., 2018; Charles & Hurst, 2003) or schooling (Hertz et al., 2007; Holmlund et al., 2011) and that of (one of) their children. These have traditionally given estimates of a correlation between 0.1 and 0.5, making economists quite optimistic on social mobility[1]: The closer the correlation is to 0, the less a family's background would matter in the adult outcomes of their children[2].

More recently, Clark (2015) has pointed out that there is a different - he might say better - way of studying social mobility. Namely, by finding out how socially immobile or persistent certain elites are. In his research, Clark has innovated on two fronts. He opens up the intergenerational correlation to the whole family, thus taking into account the status of uncles and nephews. The other innovation is that he used the correlation across generations of status, not income or wealth, because historical data for the latter are sparse and often incorrect[3]. According to Clark, this type of research gives a much more pessimistic view on social mobility. His findings point to an intergenerational correlation in the range of 0.75-0.85. The most surprising part of his research is that his findings are consistent not only geographically, but also over time. He finds the same results for Sweden (1700-2012), the U.S. (1920-2011), both Medieval and Modern England (1170-2012), India (1860-2011), China (1820-2011), Taiwan(1820-2011), Japan (1900-2012), Korea (1955-2000), and Chile (1920-1979). Serious questions have to be raised when the redistributive welfare state of today's Sweden has the same intergenerational correlation as eighteenth century Sweden, thirteenth century England or today's United States. You could even conclude, as Clark suggests (but eventually decides not do), that all welfare spending is useless in increasing social mobility.

Luckily, Scheidel (2018) has found a better way to induce higher social mobility and decrease inequality: war, revolution, the collapse of states and natural disasters. Cheekily called the "four horsemen", he shows that only real and heavy shocks to the system can lead to meaningful change.

[1] Although here we assume social mobility is generally good for society, it could also have some downsides. Social mobility might lead to dislocation as people move away from their family and friends to richer areas. Secondly, it could lead to unhappiness as you only have yourself to blame for your place in a perfectly mobile hierarchy. Lastly, the basis on which one can rise in a socially mobile society could raise ethical concerns. In our society, generally, a good banker has a higher position than a good cleaner. We therefore choose some traits over others in a system with high social mobility.

[2] If the intergenerational correlation is 1, a poor or uneducated (depending on what is being measured) child would become a poor or uneducated adult. If the correlation is 0, a poor or uneducated child has exactly the same chance of ending up poor as they do of ending up rich

[3] This might not be much of an intended innovation, but more of a necessity when using historical data.

Especially (the violence of) the communist revolutions of the twentieth century have lead to a "great levelling" of wealth and inequality. It might be terrible news for the Jacobins of the 21st century, but Clark (2015) does not find the same results for Communist China. Perhaps the wealth was levelled and inequality decreased, but the elites of previous regimes are still in high positions of power and status. However, this is only one case and one time frame; more research in this field is required.

This raises an interesting question: Do periods of transition lead to more social mobility and less elite persistence? An extreme example of transition in recent history can be found in twentieth century Russia. Going into the first World War as an empire under tsar Nicholas II Romanov, Russia underwent a civil war between the reds and the whites, eventually leading to the victory of the red faction and the creation of the Soviet Union (SU) under Lenin. Further expanding its borders and zones of control into eastern Europe between 1922 and 1945, thus incorporating new nationalities and its elites. When Stalin took over the reigns of power after Lenin's death in 1924 - as if the region had not yet known enough hardships -, the rapid industrialisation and collectivisation led to the famine(s) of 1932-1933. In Ukraine, the famines hit especially hard, now being remembered as the Holodomor (Sakwa, 2005). Also, in an effort to cement his position as leader, Stalin instigated a purge (approximately from 1936 until 1938) of the communist party (some 300,000 (Sakwa, 2005)), the intelligentsia, the army, and some nationality groups (Khlevniuk, 2015). Although the SU gave the official death count of 681,692 by execution and 136,520 by way of the Gulag, estimates of the total death count range from 950,000 to 1,200,000 (Khlevniuk, 2015). In less than three years after the purge, Operation Barbarossa started and dragged the SU into the second World War. Between 1941 and 1945, the Soviets would suffer 26.6 million deaths. Of those, 'only' 8,668,400 were military deaths (Ministry of Defense of the Russian Federation, 2017). Though calmer, the post-WW2 Soviet Union Khrushchev, Brezhnev and Gorbachev eras were periods of considerable economic and social changes, ending in the dissolution of the USSR and the birth of (among others) the modern nation of the Russian Federation under Yeltsin, and later Putin.

As asserted by Scheidel (2018), we would expect these immense changes in the social, political and economic structure of Russia to produce a very high level of social mobility and thus very low elite persistence. We would expect the (pre-)WW1 elites to have lost their privileged place in society or their possessions, even migrated or died out. On the other hand, we would predict a poor factory worker in 1910 to mostly benefit from the Soviet system. This paper aims to tackle exactly this problem: Are Russian and Soviet elites persistent during and after the transitions of the twentieth century?

Methodologically, this paper used two databases, provided by dr. Tom Eeckhout and Prof. dr. Koen Schoors. The first contains information on all WW1 military units consisting of the full name and rank. The second database contains information on NKVD officers (1930s), WW2 high ranking officers, doctors and engineers; possession of a car in the post-WW2 SU (1980s), possession of a luxury car in the Russian Federation (1995-2005), shareholders in Russian banks and publicly traded companies (1995-2004), and lawyers, doctors & notaries in Russia today (2013-2019).

The structure of the work goes as follows. First, the methodological basis of this paper will be explained by looking at the method of Clark (2015). Further, the way in which this method is used on the dataset is shown. After the possible limitations of this paper are mentioned, the results are revealed and interpreted. Finally, the general conclusion will tie the whole paper together by showing the overarching conclusions that can be drawn for elite persistence and social mobility in Russia.

Chapter 2

Setup and Methodology

In this section, an explanation will be given for the method used - namely that of Clark (2015) -, but first a quick overview of conventional models for social mobility will be given. Afterwards, we will show how this paper implements Clark's method. Lastly, a quick look at the limitations of this setup will be given.

2.1 Clark (2015)'s method

2.1.1 From traditional methods to Clark (2015)

The traditional way of showing social mobility for a society, would be a transition matrix where the letters refer to the status of the job (from high to low, A to D) based on the standard occupational classification used in the UK[1].

	Sons			
Fathers	A	B	C	D
A	0.5	0.2	0.2	0.1
B	0.1	0.6	0.2	0.1
C	0.1	0.3	0.4	0.2
D	0.0	0.1	0.3	0.7

Table 2.1: Example of a transition matrix

Though useful, it is not easy to compare different societies (Clark, 2015). Another method, mostly favoured by economists and psychologists, is to rank multiple factors (such as income, education, etc.) on a numerical scale. In the example below, the measure of status is given by y, the persistence of status over a generation by b, and the component of randomness by v.

$$y_{t+1} = a + by_t + v_t \tag{2.1}$$

If b is equal to zero, there is no persistence of status at all. On the other hand if b is greater than zero, we find some persistence of status. Unfortunately we can only use this model to measure mobility for one generation. Further, we will alter the model so we can measure social mobility across generations.

$$\begin{aligned} y_{t+1} &= by_t + v_t \\ y_t &= by_{t-1} + v_t \\ &= b^2 y_{t-2} + bv_{t-1} + v_t \\ &= b^n y_{t-n} + v*_n \end{aligned} \tag{2.2}$$

[1] A being highest status managerial positions, B intermediate managers, C skilled or professional workers, and D semiskilled and unskilled manual workers

Here again y is the measure of status, v the random component, and b the intergenerational correlation or persistence of status over a generation. Assuming all information that is useful to predict the outcomes of children is provided solely by the status of the parents (thus making the status of children independent from the status of grandparents and earlier generation[2]), the mobility process is an AR(1) process. However, if we then use conventional estimates for social mobility of b = 0.5, we get an extremely high social mobility. The intergenerational correlation between children and their grandparents is only 0.25, but between children and their great-grandparents just 0.125. To further illustrate this point, let's say we follow two families: Family A which owns twelve times the average wealth and family B which owns exactly the average amount of wealth. With a b = 0.5 and after five generations, the descendants of these two families (by then the great-great-great-grandchildren) will have an expected wealth equal to the average wealth (Clark, 2015).

In empirical studies on social mobility across generations we do not find this to be the case. These studies also suggest that grandparents seem to have an independent influence on grandchild outcomes. You could then assume for simplicity's sake that grandparents do not inherently influence the outcomes of their grandchildren once we have full information on their parents. We define the measured status y and the underlying status x:

$$\begin{aligned} y_t &= x_t + u_t \\ x_t &= bx_{t-1} + e_t \end{aligned} \tag{2.3}$$

We can then use the OLS estimate β the theory of ordinary least squares to calculate the expected (OLS estimated) influence of grandparents and great-grandparents on their grandchildren. We find that β_{t-2} and β_{t-3} have positive values, which means that even great-grandparents will exert some independent influence on great-grandchild outcomes[3].

Now that we have shown how social mobility is usually calculated, we can reveal the method this paper will follow. At the end of this paper, it will be revealed how μ values are used to estimate b for our case. Though we follow a different method from most mainstream social mobility studies, we do in the end want to estimate the same parameter; b or the intergenerational correlation (here, of status).

2.1.2 Relative representation and μ values

The first of the two concepts that we will use is relative representation. Relative representation of a group z is the share of that group z in an elite group compared to the share of group z within the general population. An easy example to explain this concept with is nobility, since their surnames were often protected by law. If we take all French nobility in 1500 as our group z and define our elite group as French lawyers today, we can - with the formula below - calculate what the share of surnames of French nobility from 1500 that are a lawyer in France today, is. Let's say this is 1%: Out of a 1000 living descendants of that French nobility, we find exactly ten lawyers. However, within the general population, the descendants of the old French nobility represent just 0.001% of the total French population today. The relative representation of the descendants of the old French nobility (and thus of surnames of group z) within French lawyers today is then 10. We have ten times as many old French nobility names as we would expect from the percentage the descendants represent within the general population.

$$\text{Relative representation of z} = \frac{\text{Share of z in elite group}}{\text{Share of z in general population}} \tag{2.4}$$

If we have social mobility in our society, we expect these relative representation values to tend towards one. This means that all groups in society eventually have equal representation to all other groups, according to the share of their group within the general population.

[2]Here y in time t is then independent from y in time t-2.

[3]The same can be said for grandparents or generations before great-grandparents.

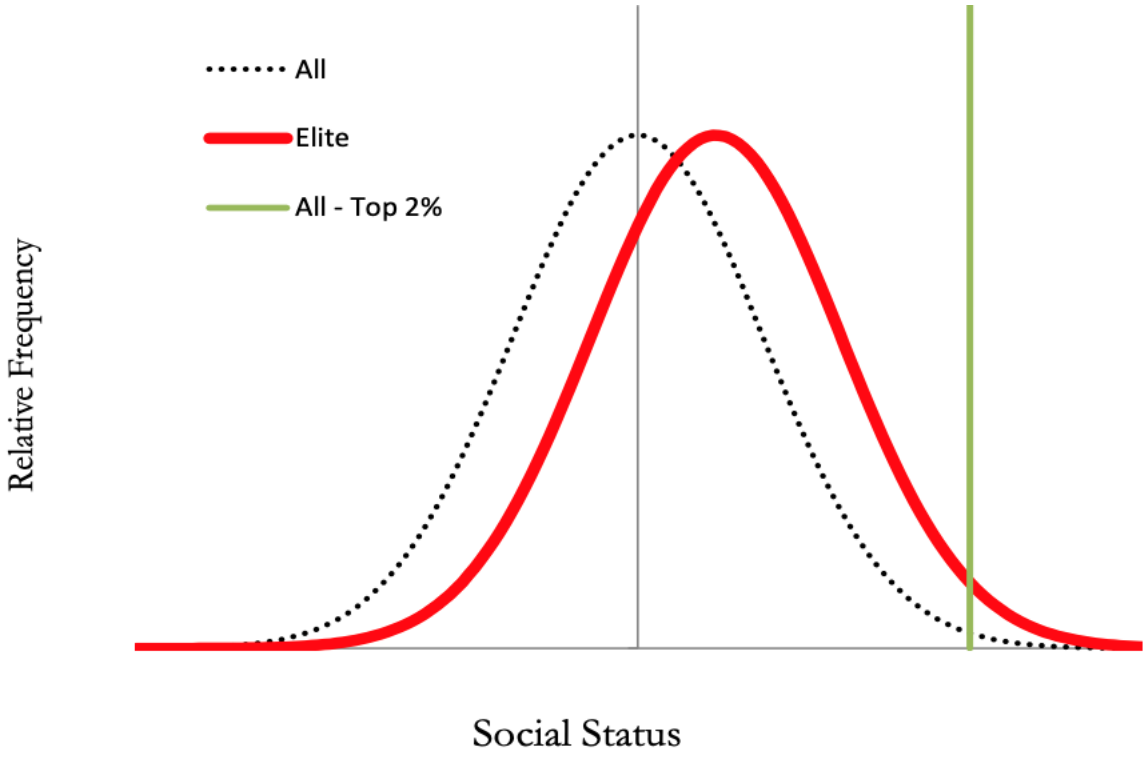

Figure 2.1: Graphical representation of the distribution of status (Hao & Clark, 2012, p. 5)

The second concept of Clark (2015) that we will use in this paper is to compare the distributions of different groups, by comparing μ values. First things first, we assume a standard normal distribution of status in society with a population mean of 0 and a variance of 1(Newbold et al., 2013, p. 209)[4]. The μ values indicate the mean status of a certain group. With this method, we can see if the mean status of a certain group is higher than that of other groups or of the whole population. Going back to the example of the descendants of 1500 French nobility: If we were to find a $\mu_{noble1500}$ of 0.8, we would know the mean status of that group is higher than that of the population, which is again 0 for a standard normal distribution. Here, εis the level of status above which an individual is included in a certain elite category E. π_α is the probability for individuals of a subgroup (or the population in the case of π_{pop}) to be included in that elite category E.

$$\begin{aligned} \pi_{pop} &= 1 - \Phi\ (\epsilon - \mu_{pop}) \\ &= 1 - \Phi\ (\epsilon) \end{aligned} \tag{2.5}$$

If we assume status follows a normal distribution within the total population, the population mean of status is 0. We can thus remove μ_{pop} from the π_{pop} equation. Below, we give the equation for π_α, the probability for individuals of a sub-population to be included in an elite group E:

$$\pi_\alpha = 1 - \Phi\ (\epsilon - \mu_\alpha) \tag{2.6}$$

After some mathematical reshuffling, we get:

$$\begin{aligned} \Phi\ (\epsilon - \mu_\alpha) &= 1 - \pi_\alpha \\ \epsilon - \mu_\alpha &= \Phi^{-1}(1 - \pi_\alpha) \\ \mu_\alpha &= \epsilon - \Phi^{-1}(1 - \pi_\alpha) \end{aligned} \tag{2.7}$$

This equation then says that the mean of the normal distribution of a certain subgroup within an elite group E is equal to the cutoff point for high status minus the inverse cumulative normal

[4]Different distributions for status could be argued for, but for simplicity's sake we will assume that status follows a standard normal distribution.

function of the probability that an individual in a subpopulation is not part of that elite group E. Above, we already established that π_{pop} is equal to 0, so we can write the following:

$$0 = \epsilon - \Phi^{-1}(1 - \pi_{pop}) \tag{2.8}$$

We can now finally form the equation we were actually looking for, a way to calculate μ_α.

$$\mu_\alpha = \Phi^{-1}(1 - \pi_{pop}) - \Phi^{-1}(1 - \pi_\alpha) \tag{2.9}$$

We can now use this formula to compute μ_α values for a few different groups and compare them. In the example of the descendants of French nobility from 1500, we could also make a group of surnames consisting of French merchants who had a royal concession in 1650 and see if their descendants have a higher mean in the elite category of French lawyers today. Perhaps a look at different immigrant groups might be revealing as well; how are Italian surnames doing in the lawyer elite today? How about individuals from former French colonies like Algeria or Senegal? Do individuals with surnames from these subgroups have a higher or lower status mean than the rest of the population within the lawyer category? Is it different when we use engineers or doctors as the elite category of today (E in the equations above)?

Now that this section has painted a clearer image of what Clark (2015)'s and this paper's methods are of calculating social mobility and elite persistence, we can continue on to the next sections on the specificities of the dataset and later the different sources for defining subgroups within Russian and Soviet society.

2.2 Defining subgroups

After the account of relative representation and mean distribution values above, the second step in computing these values for different subgroups in Russian and Soviet society, is defining the subpopulations. There are many possible ways to group different surnames together: ethnicity, class, profession, nationality, etc. In this paper, two routes are taken simultaneously.

First, we have defined three nobility groups; the first a group of the old Russian nobility, the second a group of barons of the Russian Empire (often nobility from territories that were conquered by and incorporated into the Russian Empire), and the third a group made up of all names with a hyphen (Russian Nobility Association in America, 2019; Unbegaun, 1972). The first two have been taken from the archive of the Russian Nobility Association in America (RNA) which was founded by Russian nobility who fled after the Communist Revolution. The third group has been taken based on the writings of Unbegaun (1972), an Oxford professor who - quite literally - wrote the book on Russian surnames.

Unbegaun sees two types of hyphenated (also called double-barrelled) surnames: those of Russian origin and those of Polish origin, though both are a sign of aristocracy and gentry. For the Russian origin hyphenated surnames, he explains that '[t]he oldest stratum of double-barrelled surnames consists of princely and boyar surnames' (Unbegaun, 1972, p. 403) and further that 'Old Russian princely titles and names were [...] inherited by all the sons, unlike the practice in certain other countries. This custom considerably increased the number of bearers of the same name' (Unbegaun, 1972, p. 403). The latter phenomenon is the main reason why hyphenated surnames became so widely used among the nobility, to be able to differentiate between different branches of a noble family. The same goes for the Polish origin double-barrelled surnames where the 300 or so clans (or *herb*) combined their *herb* name with the individual surname.

Second, a multitude of surname origin groups have been defined based on Unbegaun (1972).

Double-barrelled surnames	
Russian origin	Polish origin
Musin-Puškin	Abdank-Kossovskij
Suchovo-Kobylin	Dolengo-Chodakovskij
Vel'jaminov-Zërnov	Elita-Michajlovskij
Petrovo-Solovo	Kozell-Poklevskij

Table 2.2: Examples of double-barrelled surnames from (Unbegaun, 1972)

Below is a table of all surname origin groups used in this paper[5] [6]. Note that these groups are defined based on the fact that there are a sizeable amount of individuals with this surname origin in the Russian Empire and Soviet Union and that these appear in Unbegaun (1972). In the next section, we will go more in depth on the basis on which surnames were put in a particular group.

Grouping based on surname origin				
Russian	Non-Ru Slavonic	W-Europe Non-Slav	E-Europe Non-Slav	Non-Europe Non-Slav
Russian	Ukrainian	Jewish	Rumanian	Armenian
	White-Russian	German	Hungarian	Georgian
	Polish	British	Greek	Turkic
	Serbian	French	Lithuanian	Tadjik Iranian
	Bulgarian	Dutch-Flemish	Latvian	Ossetian Iranian
	Czech	Scandinavian	Finnish	Kalmuck Mongol
		Italian-Spanish	Estonian	Buryat Mongol
			East-Finnic	Mongol

Table 2.3: Surname grouping based on origin (Unbegaun, 1972)

2.2.1 Grouping of surnames by origin

In this section, the reasoning behind the grouping of surnames will be given. The surname groups are derived from one of two sources within (Unbegaun, 1972), either Unbegaun gives a list of names known to have been of a certain origin or he gives the suffixes or prefixes typical for surnames of that origin. For example, the Greek surnames famously start with the prefix Papa- as in Papadopoulos or Mavro- as in Mavrommatis. A typical Greek suffix is -idi as in Orfanidis or -opulo[7] as in Smirnopulo.

For precise tables of prefixes and suffixes on which this paper's classification of surname origin groups is based, we refer to Unbegaun (1972) and the Appendix. Note that not all surname groups have typical suffixes or prefixes. Aside from these markers for certain origins, lists of known origin surnames have also been used in the data analysis. These are not listed in the appendices, but can be found in Unbegaun (1972).

[5]Names of overarching groups have been shortened due to space constraints. Non-Ru Slavonic is Non-Russian Slavonic. W-Europe Non-Slav stands for Western-European Non-Slavonic. E-Europe Non-Slav is the same as the former but for Eastern-European. Non-Europe Non-Slav is then self explanatory.

[6]No value judgement on the westernness or easternness of these nations is being made. In an effort to make the table more concise, some adjustments had to be made to the very long European Non-Slavonic group. The same goes for the Europeanness of the first, second and last columns.

[7]Unbegaun (1972) notes that Russian surnames of Greek origin often drop the s at the end of opulos. The u in opoulos is also dropped in Russian, because there is no distinction between ou and u in Russian.

2.3 Defining elite categories

The third and final step in computing relative representation and mean distribution values is defining the elite category E. In this paper, we won't define just one elite category, but multiple ones, as Clark (2015) did, to be able to compare our values before, during and after the Soviet Union. We will be able to graphically show not only the difference between groups, but over time. We have six timeframes (and complementary elite categories) that we have adequate data for:

1. **High-ranking soldiers in the Imperial Russian Army in World War I (1914-1918)**(Russian Ministry of Defense of the Russian Federation, 2019). The cut-off point for high-rank was defined as everything above junior officer or *unter-ofizers* for the Land Army (infantry and cossacks), the Navy, the Naval Infantry, and the Naval Artillery.

2. **Officers in the NKVD (1930s)** (NKVD Memo, 2017). The NKVD (*Narodnyy Komissariat Vnutrennikh Del* in full) was the interior ministry of the Soviet Union, though its functions were much bigger than that title would suggest. The tasks of this ministry were manifold: regular police work, border patrol, labor and prisoner camps, the secret police, and executions. Seeing as the NKVD was very influential during the 1930s - they were after all an instrument in Stalin's purges mentioned in the introduction -, being an officer of the NKVD was in that time quite a high status role.

3. **Doctors, engineers, and high-ranking soldiers in the Red Army in World War II (1941-1945)**(Ministry of Defense of the Russian Federation, 2019). The cut-off point for high-rank was (again) defined as everything above junior officer or *unter-ofizers* for the Land Army (infantry and cossacks), the Navy, the Naval Infantry, and the Naval Artillery.

4. **Ownership of a car in the Soviet Union (1980s).** As it was quite difficult for someone to own a car in the Soviet Union, it is an indicator that someone had good connections and a higher status if that person was able to own a car (Chernyshova, 2013)[8], especially the nicer models. We thus use ownership of a car in the SU in the 1980s as an indicator of status, as we would owning a luxury car in the West. There were 1,353,389 government issued cars and 1,922,199 cars for civilians for a population of 286,717,000. That is just 1.14% of individuals in the Soviet Union who owned a car. Of course, some were used by whole families, but on the other hand some higher ups might have owned more than one car. Even if you assume every car was only ever used by on average families of five, car ownership still only represented about 5-6% of all Soviet citizens.

5. **Ownership of a luxury brand car in the Russian Federation (1995-2005).** After the fall of the Soviet Union, the Russian Federation tried to find its footing in the world. Safe to say that these were turbulent times politically, but especially economically. Ownership of a luxury (most of the time foreign) car was, in that time period, a very high status thing.

6. **Shareholders in banks and OAO companies (1995-2004).** The same goes for shareholders of banks or public joint-stock companies (OAO is the abbreviation of the Russian Открытое акционерное общество). If you had shares in a company in these bad times you often had quite a bit of financial wealth after the fall of the USSR.

[8]To illustrate the wealth those at the top were able to accumulate, Chernyshova (2013) starts off her book with a joke: 'A popular joke of the late Soviet period has it that the Soviet leader Leonid Brezhnev brings his elderly mother over to visit his residence for the first time since he has become the Party's General Secretary. As they walk around and he proudly shows her his luxurious cars, the rich furnishings of his dacha, his expensive suits, hunting gear, delicacies and vintage wines, he asks his mother whether she thinks he has done well for himself. "Yes", she replies, "it is all very well, Lenia, but what are you going to do if the communists come back?' (Chernyshova, 2013, p. 1)

7. **Doctors, lawyers and notaries today (2013-2019).** A classic example of high status professions in almost every society today. These professions have also been heavily used by Clark (2015), because there are often databases with surnames available from the respective professional associations.

2.4 Caveats and limitations

Before we show the results, there are a few caveats and limitations of this paper that have to be addressed.

2.4.1 Transliteration of Cyrillic

When working with a lot of data, there are likely to be some human errors being made. However, in this paper, the chances for human error are increased even further due to the fact that a lot of the data (be that the raw data or the surname subgroups) have been transcribed from the Latin alphabet into Cyrillic, sometimes even back to Latin and then Cyrillic. Below are the rules of transliteration used by Unbegaun (1972) that have been followed by this paper. Of course, a small amount of names that were manually transcribed from Unbegaun's book to Python data frames could have been either entered or transcribed incorrectly. A different issue when facing Cyrillic is that some letters in Latin script have multiple Cyrillic equivalent letters that are only discernible when spoken. The main issue was with э оборотное or *e oborótnoye* and the (to us) normal e. For a non-Russian speaker (and even for some Russian ones), it is impossible to know from the Latin transcription in what way a Latin e is supposed to be transcribed. Luckily, the surnames containing э are quite rare (only about 4,000 names out of 1.8 million). For the most frequent surnames with э[9], the origin has been dug up and the names added to the list of special surnames of that origin.

Cyrillic letter	Transcription
е	e, je after ’
ж	ž
и	i, ji after ’
й	j
х	ch
ц	c
ч	č
ш	š
щ	šč
ы	y
ь	’
э	e
ю	ju
я	ja

Table 2.4: Transliteration of Cyrillic letters

[9]These are, in descending order of occurrence in the WW2 Soviet population, полуэктов or Poluektov (most likely of genuine Russian origin), эпштейн or Epštejn (Jewish origin and the same surname as the American convicted sex offender and financier), эсаулов or Esaulov (Cossack origin, esaul being the name of an army rank), эктов or Ektov (origin not entirely clear, presumed Russian), эйдельман or Ejdel'man (probably Jewish-German origin)

2.4.2 Size of groups

Another caveat is a core shortcoming of this type of surname research, namely that in trying to identify very niche, high status groups in society, there is a high risk that some subgroups are very small. Even if the group is quite large at a certain time, there is a risk that the numbers dwindle fast. Because of the uncertain nature of civil wars and regime changes, people tend to migrate, especially the smaller groups of high status wealthy foreigners. Groups such as French, British, Flemish-Dutch, Italian-Spanish, and Scandinavian surnames are very small to begin with and only become smaller after 1945. Another curious case is the Greek origin subgroup who are quite large in the First World War, but because of reasons that will be explained in a later section rapidly become a very small group in Soviet and Russian society.

2.4.3 Limitations of the dataset

There are a few other, smaller limitations that have to be confronted. First, for the two biggest sets of data, WW1 and WW2 data, there is an even higher risk of mistakes. This is due to the electronic data files often coming from volunteers and hobbyists who manually duplicated written lists of army personnel. No official government or institution is responsible for the accuracy of this data.

Second, there are a few differences in the ways in which Russians handle surnames and we do. For us, there is no difference between a Jóhnson with the emphasis on the first o and a Johnsón with the emphasis on the second. Some families might pronounce their names differently, but they often have either the same forefather or atleast take their names from the same stem (son of John). In Russia however, there is a big difference between the Ivánovs or the Ivanóvs, although both share the meaning: son of Ivan. The data makes no distinctions between these names. Fortunately, elites tend to have very particular names and won't want to differentiate themselves from other branches of the family, so we can assume that surnames of small elite subgroups, like the nobility, come from the same forebears.

Third, and continuing on the surname differences between Russian and English or Dutch, is that there is a difference between a female or male bearer of a surname. If Ivan Ivanov has two children, one daughter Sonja and one son Vladimir, their names will be Sonja Ivanova and Vladimir Ivanov. The database does make a distinction between these names, but because for most of the data points that this paper uses, are of the army, police officers or high ranking Soviet bureaucrats and apparatchik, we can ignore female names in our computations. We will only use the male count for elite categories and population variables. Some amount of criticism on this decision is possible, but it could otherwise diminish the quality of the results quite heavily.

Chapter 3

Results

To be able to represent the data graphically, some data frames had to be dropped from most of these graphs. Below, we show which dates represent what dataset[1]. Though we will use the other data frames to compare some subgroups in more detail.

1918	WW I HR
1930	NKVD
1945	WW II HR
1980	SU Government Car
2000	Luxury Car 1996-2000
2005	Luxury Car 2001-2005
2013	Doctor 2013
2019	Lawyer 2019

Table 3.1: Date and corresponding dataset used in graphs

One detail that can be of note is our use of government issued Soviet cars as a parameter of status, instead of Soviet cars issued for civilians. For some groups, this gives a slightly different picture of relative representation at the end of the SU. We have also chosen for luxury cars right after the dissolution of the USSR instead of ownership of company shares in 1995 and banks in 2004, which could also give a slightly different conclusion. For both of these decisions, a graphical comparison will be made to show if some subgroups were negatively or positively affected by our use of particular datasets.

The first figure below gives an indication of the share of the total population the subgroups represent. This paper has been quite conservative in putting certain surnames in special subgroups. As a consequence, the share of genuine Russians in the population is probably overestimated. If an Armenian added -ov or -ev after his typical Armenian suffix -jan (thus becoming -janov or -janev), it becomes very hard to distinguish these surnames from Russian ones. The main goal of this graph is to give a broad overview of the share of foreign origin surnames within Russian and Soviet society.

3.1 Russians, Ukrainians and White-Russians

We start off by looking at the two biggest subgroups: The Russian and the Ukrainian-White-Russian origin surname groups (together more than 90% of the total population). We consider Ukrainian and

[1] An attentive reader will no doubt have noticed the date used for the First World War period is 1918 and not 1917. It is of course true that due to the Communist Revolution, an armistice was signed between the Russian Soviet state (precursor to the Soviet Union) and Germany and its allies. Technically speaking, 1918 is the year of the Brest-Litovsk Pact that formally ended Russia's involvement in World War I.

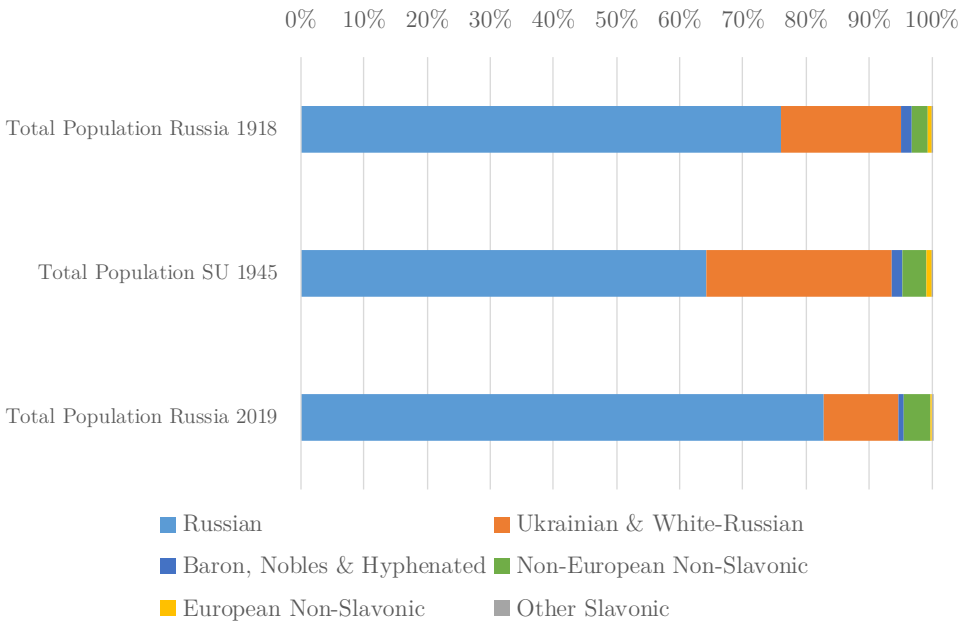

Figure 3.1: Share of Subgroups within the Total Population

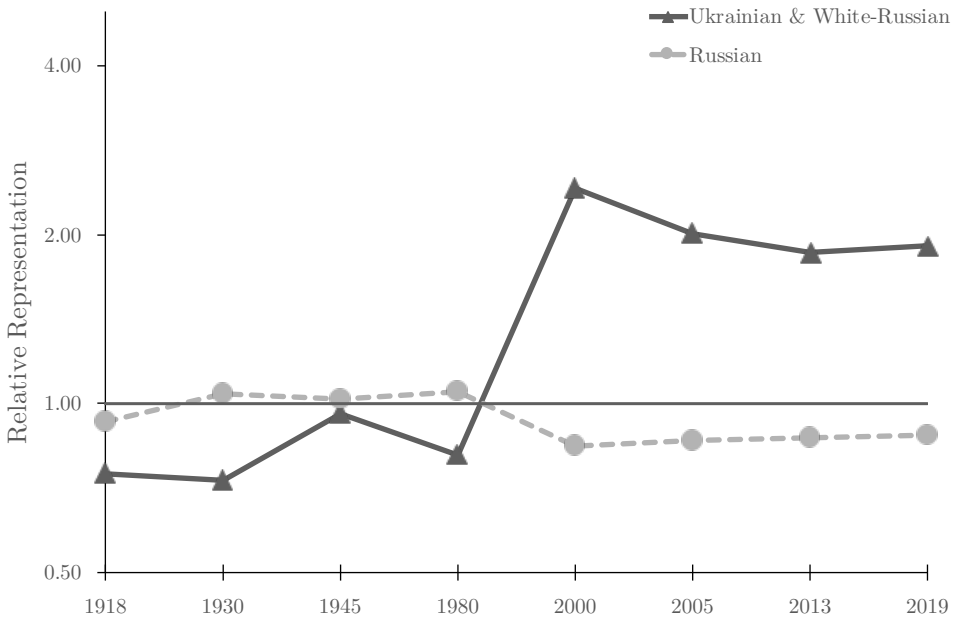

Figure 3.2: Relative representation - Russian and Ukrainian-White-Russian

White-Russian (also called Belarusians or Byelorussians) as one combined subgroup since though culturally different, there are many similarities between the two subgroups' russianized surnames. The subgroup will sometimes be shortened to UKR-BLR.

As Unbegaun (1972) notes, these two peoples have shared most of their history. They were both conquered in the early fourteenth century by the Grand Duchy of Lithuania. When the Grand Duchy transformed into the Polish-Lithuanian Commonwealth in 1569, the Ukrainian and Belarusian territories underwent a thorough Polonization. As a consequence, many ethnic Ukrainian-Belarusian people have a surname ending in -sky or -ovic, in a bid to emulate the status of the ruling Polish (and polonized Lithuanian) nobility[2]. After the Commonwealth gradually lost its control over some parts of its vast lands, the Russian Empire began to take over the Ukrainian and Belarusian lands, beginning in the seventeenth and ending in the eighteenth century (after the third Partition of Poland). This shared history has led to very similar surnames before Russian control, but especially afterwards when these already similar surnames were russianized simultaneously.

Our expectation for the Russian origin surnames would be a relative representation of 1 and thus a distribution mean of 0. The Russians will, for this reason, represent a baseline for other groups to be compared to. We can see from the graph below that this is indeed the case. The Ukrainian-Belarusian group however tells a different story. Though a low status group at first, it seems that the individuals who stayed in Russia after the collapse of the USSR, now enjoy quite a high status. They are overrepresented by a factor of two. This might be due to the fact that only the richer or higher status Ukrainians stayed in Russia and the others moved to the newly created independent states of Ukraine and Belarus. We observe a 20% point drop of UKR-BLR people within the total population going from the Soviet Union to the Russian Federation. More in-depth conclusions and possible explanations will be given in the next chapter, after we have discussed all the other subgroups.

3.2 Barons, Nobles and Hyphenated Surnames

A classic example of high status groups throughout time and place, is nobility. Russia is no different in this regard. We have been able to identify three different noble groups, as explained in the previous chapter. From Clark (2015) we expect the nobility to be overrepresented in WW I, but after the 1917 Communist Revolution to either disappear or be severely ostracised within Soviet society.

As we can see, there is one group that is (almost) consistently and highly overrepresented within Russian and Soviet society: the hyphenated surnames. This group is overrepresented by a factor of 340 in Russian doctors in 2013. This means that there are 340 times as many Russian doctors with a double-barrelled surname as we would expect from the share of this type of surnames in the general population of the Russian Federation. Our database shows that out of the 3,152 Russians with a hyphenated surname, 102 of them were doctors in 2013. Another 90 of the 3,152 were lawyers in 2019. This translates to 6% of the hyphenated surname individuals are either a doctor or a lawyer. Keep in mind that this is only 30 years after the fall of the Soviet Union.

We see a similar, though less pronounced image for the barons and the nobility. They are overrepresented in the first World War with a factor of 1.39 and 2.27 respectively. Afterwards though, there seems to be some social mobility in the Soviet Union with the old nobility reaching lower levels of overrepresentation, ultimately reaching a 1945 relative representation of 1.01 and 1.08 respectively. After the dissolution though, relative representations jumps up again, leaving them between 1.5 and 2.5 today. Why do we see such a difference between the hyphenated surnames and the official noble names? There are a few possible explanations, though it has to be noted that this is pure speculation up to this point.

[2]In our data, we can still see the -sky or -skij surnames as being high status. This is probably due to the combination of polonized UKR-BLR elites and the old Polish-Lithuanian nobility who were integrated into the Russian Empire elites.

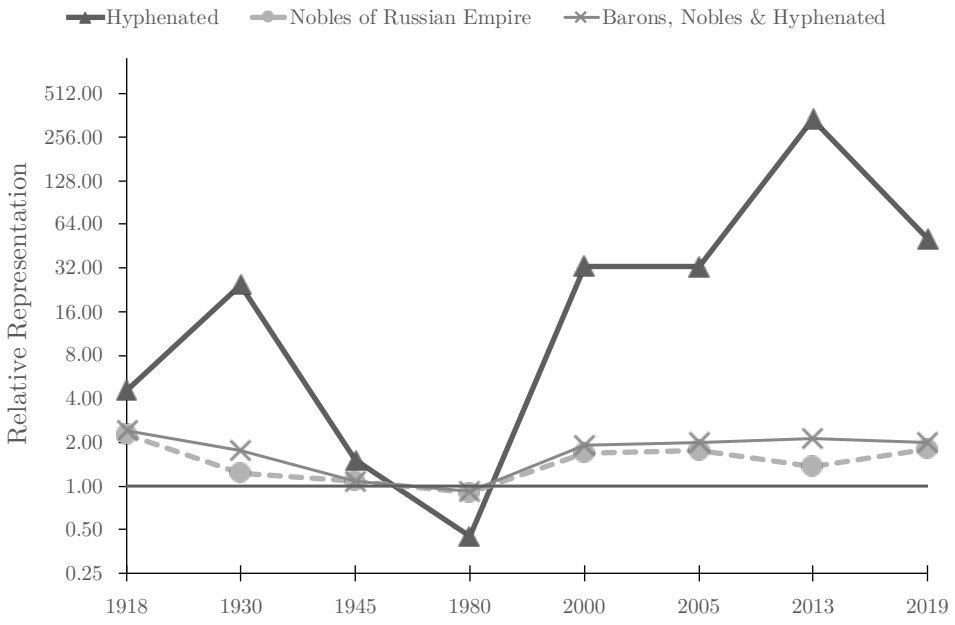

Figure 3.3: Relative representation - Nobles, Hyphenated and Baron-Nobles-Hyphenated

- Hyphenated surnames are not that common in Russian society for a very good reason: For most of history, the surname of the wife or mother was not important, reflecting the position of women. No-one would put the surname of the mother next to that of the father, although there is one exception. Men from a lesser family - perhaps not even of a noble family - who were able to marry a woman of an old noble family would want this strong surname passed on to his offspring. The woman's family would never allow for their daughters to marry a lowly born person if that person had not shown his worth in society, administration or the army. Thus individuals with hyphenated surnames are a product of women from old noble families (with many connections and often great wealth) and men who were rising stars within Russian society. A combination of old and new wealth, perhaps families that better understood the political game.

- The nature of the barons is that they are often foreign born and afterwards incorporated into the Russian Empire. The title was prevalent in Sweden, Germany, France and Poland, but not Russia. When nobles of these countries were given a noble title in Russia[3], they were often granted the title of "Baron". It could thus be that some barons with the resources to do so returned to their countries of origin. The ones who didn't have the resources stayed in the Soviet Union.

- Though not a widespread phenomenon, it could be that surnames of extinct nobility were given to newly incorporated peoples. Alternatively, after serfdom was abolished, some individuals might have taken up names of nobility that no longer existed[4]. This same phenomenon might not have happened with hyphenated surnames as they would be easily detected as being an

[3]Foreign born nobles who served the Russian Empire in some way - often through war -, were often granted a title and noble rank. The other way foreign born nobles could receive a Russian title was through incorporation of their territories into the Russian Empire, as happened with quite a few Swedish and Finnish nobles in Finland.

[4]Gagarin is one example of a once extinct noble family name. It is not possible to verify if Yuri Gagarin was actually noble, but no indications thereof exist.

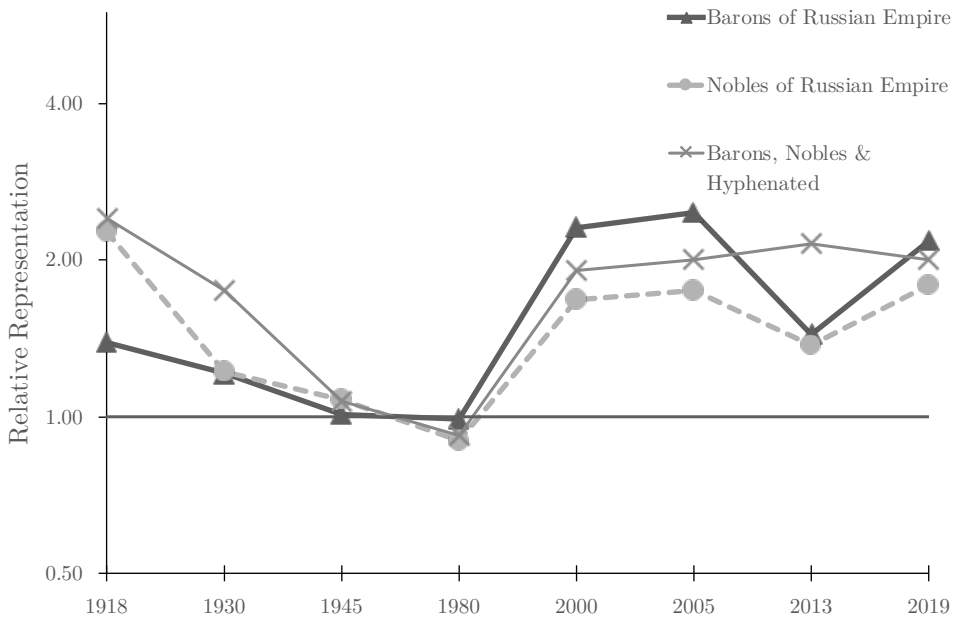

Figure 3.4: Relative representation - Barons, Nobles and Baron-Nobles-Hyphenated

elite surname, thus making the adoption of such a name by a farmer much less likely. In Soviet times, it might have been dangerous to have such a recognisably elite surname.

3.3 Jews, Germans and other Western Europeans

Although the Jewish history in Russia goes back to the Caucasus of the 700s AD (Pinkus, 1990), the - mostly Ashkenazi - Jews faced a tough history in Russia and the Soviet Union[5]. The relationship between Russia and its Jews is a difficult one. Whole books are written on the subject, so this paper will just give a very short overview: pogroms, expulsions, emigration, and *numerous clausus*. Pinkus (1990) does note that through these hardships, Jews represented 14.5% of higher education students by 1886. Impressive for a population that only represents less than 1% of Russian society. Though this number was pushed down through quotas to 7% by 1902, this goes to show that Jews represented an elite group in the Russian Empire.

In this paper, Jews are being grouped together with German origin surnames. The Yiddish language is also a Germanic language, causing the Russianization of both Jewish and German surnames to follow along the same lines. It is therefore quite hard to distinguish truly German names from Jewish ones. Lots of Jews were also heavily polonized or took influences from Lithuania, Ukraine and Belarus, making it even harder to form one group. For these reasons, it might be that Jews are included in other subgroups.

The other subgroup, Western Europeans, includes British, French, Scandinavian (excluding

[5]On the subject of maltreatment of Jews in Russia, (Pinkus, 1990, p. 7) writes: 'Thus, in 1550 when a Polish diplomatic mission to Moscow requested Ivan the Terrible to give permission for Polish Jews to visit Russia to trade there, he replied: "We have more than once written and noted the evil deeds of the Jews, who have led our people astray from Christianity, who have brought poisonous weeds into our land and also wrought much wickedness among our people"'. He further adds '[h]atred became murder during the taking of the city of Polotsk in 1563, when Ivan ordered every Jew who refused to adopt Christianity to be thrown into the river and drowned, together with his whole family'.

Finnish), Dutch-Flemish, and Italian-Spanish origin surnames. These are mostly former mercenaries, lower nobility, experts, or traders who decided to stay in the Russian Empire. The graph clearly

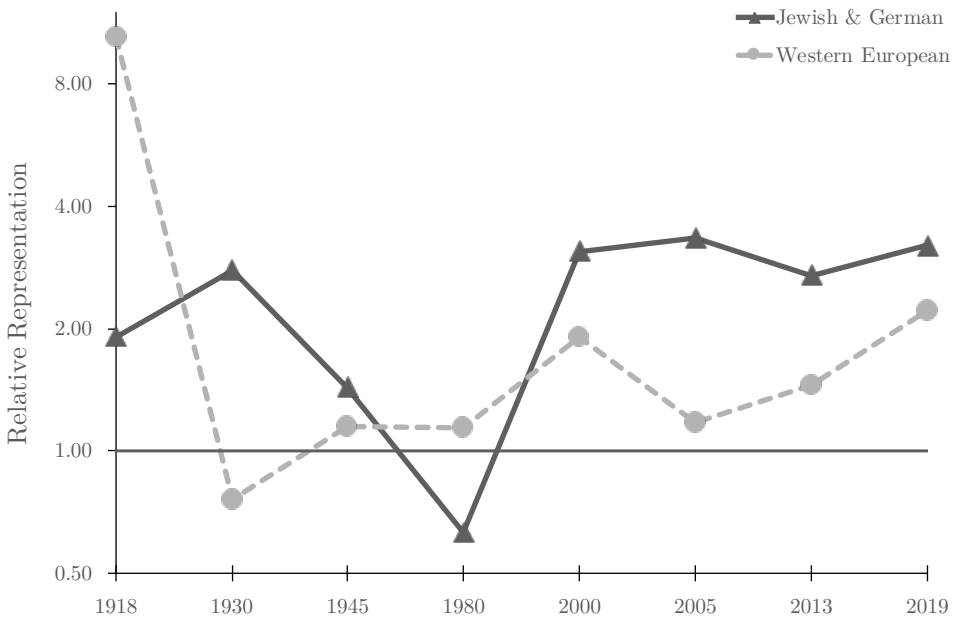

Figure 3.5: Relative representation - Jewish-German and Western European

shows both groups being consistently high status, though the Soviet Union was a tougher period for both. The number of Jews-Germans stayed quite constant over the whole period, though their % of the total population has fallen since the Communist Revolution. The creation of the state of Israel, together with Jewish success might have attracted those who could to emigrate.

3.4 Lithuanians and Latvians

Parts of the Baltic region have been under Russian administration since 1721[6]. Both Latvia and Lithuania were only fully incorporated by 1795, after the Third Partition of Poland (Lord, 1925). The move away from Moscow towards Saint-Petersburg as the capital of Russia, invoked heavy Russianization efforts by the authorities[7] This trend continued on through to the Soviet Union. For this reason, there are not that many genuinely Lithuanian and Latvian surnames in Russia anymore. If these names were not already changed due to Polonization in times of the Commonwealth, they would have probably been altered by Russianization afterwards.

Nonetheless, both the Latvian and Lithuanian subgroups have been overrepresented for most of our time periods. These two groups are consistently among the most overrepresented within Russian society. This might be because only high status individuals were able to preserve their Latvian-Lithuanian sounding surname, while lower status individuals were forced into Russification. The

[6]The Treaty of Nystad of 1721 ended the Great Northern War. As a consequence, Sweden lost its possessions in Swedish Livonia, comprising most of the territories of today's Estonia and Latvia. The transfer of the Ingria region, where Saint-Petersburg would later be built, was also part of the deal.

[7]This was not helped by the vast influence the (more liberal) Polish aristocracy had on Russian society. (Zamoyski, 2009, p. 226) notes: 'As a consequence of absorbing so much Polish territory, by 1815 no less than 64 per cent of the nobility of the Romanov realm was of Polish descent, and since there were more literate Poles than Russians, more people within it could read and write Polish than Russian. The third largest city, Wilno, was entirely Polish in character and its university was the best in the Empire'.

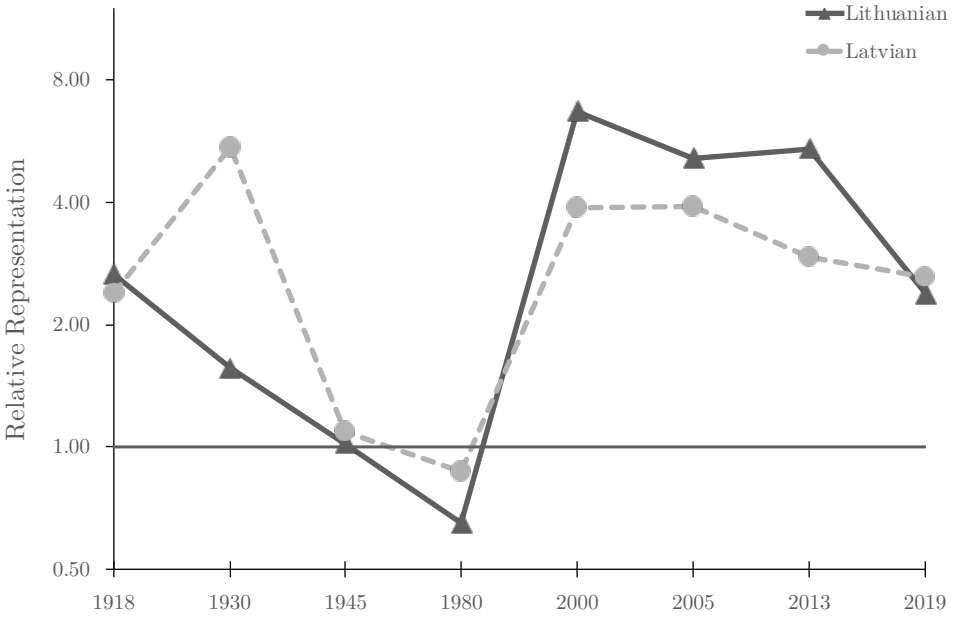

Figure 3.6: Relative representation - Lithuanians and Latvians

Latvians & Lithuanians were not overrepresented during Soviet times, but this is a trend we can observe among almost all minority groups, as is shown in other sections.

The Baltics typically include Estonians as well, but since they use a language from the Finnic language group, they were included into the Finnic category below.

3.5 Finnic

The Finnic origin surnames in Russia can be divided into two main groups: West-Finnic and East-Finnic. The best known group to Europeans is probably West-Finnic which contains Finnish and Estonian. East-Finnic is also a less numerous group compared to their western neighbours. Moreover, as Unbegaun (1972) points out, the eastern Finns - 'the Udmurt, Komi, Mari, and Mordvinians have generally adopted purely Russian surnames' (Unbegaun, 1972, p. 375). Only a small list of actual East-Finnic origin surnames is used in this paper, thus making any conclusions about this group tentative at best. Estonians also appear far less numerous, especially after the dissolution of the USSR.

However, Finnish origin surnames are doing quite well, being mostly overrepresented by a factor of 1.5 to approximately 4.0. One possible - though speculative - explanation for their overrepresentation might be that the Finns have always enjoyed great autonomy within the Russian Empire. They were also able to settle the new capital Saint-Petersburg *en masse* right as it was being built ((Unbegaun, 1972, p. 372) suggests more so than the Estonians). Being this close to the centre of political and economic power of the Russian Empire will no doubt have created ample opportunities.

3.6 Armenians

Armenians are a peculiar group. They didn't play a huge role in Russian society and aren't nearly as high status as many Jews, Germans or nobility are. However, they present a different type of

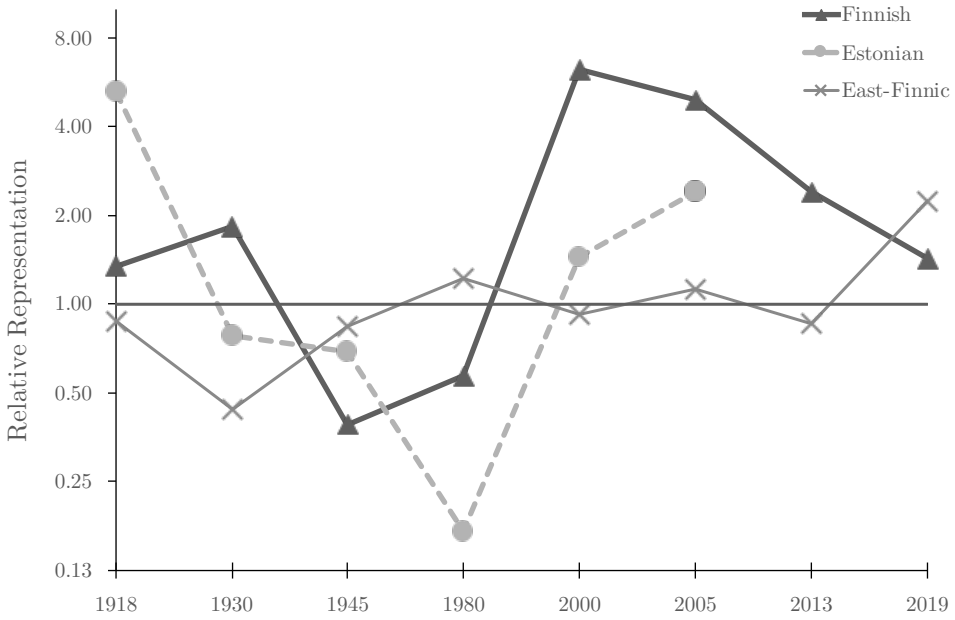

Figure 3.7: Relative representation - Finnic

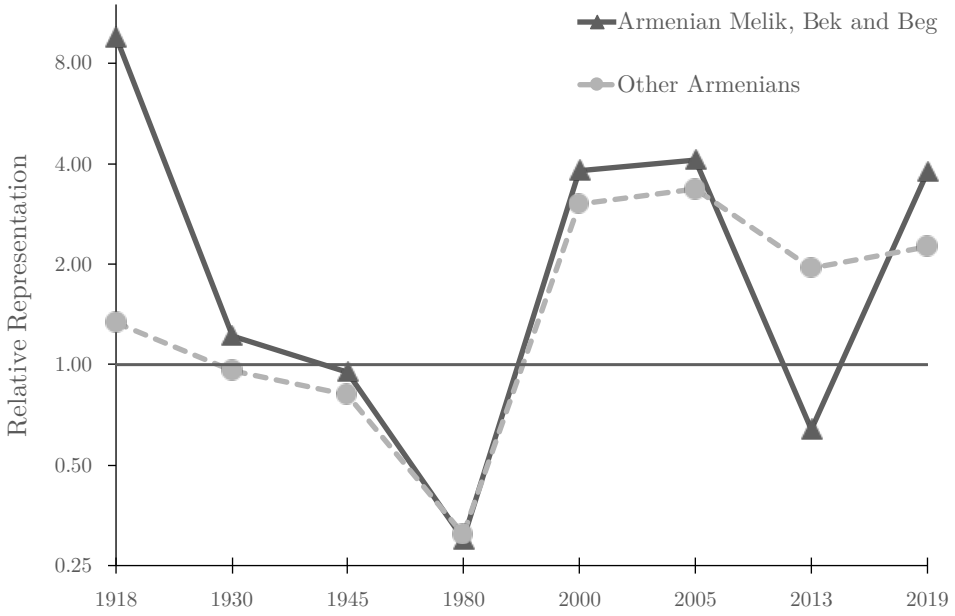

Figure 3.8: Relative representation - High and Low Status Armenians

high status group. If you look at the dashed line in the graph below, you see that Armenians are a fairly low status group for most of the twentieth century. We can again presume that after the dissolution of the USSR, only the Armenians who had the means to do so, emigrated to the new state of Armenia, or elsewhere. This would explain their apparent uptick in relative representation after 1980.

Be that as it may there is an elite group within the Armenians. These high status Armenians have one of three particular surname types, either starting with Melik- or containing -bek- or -beg- in the middle of their names - though the latter don't appear as much. A surname such as Melik-Begljarov (containing two elements), Aganbegjan, or Sarkisbekjanc point to a high status history. Melik- is a word of Arabic origin, meaning king, lord, or ruler. Bek or beg points to the same thing, but is of Turkic origin. According to Unbegaun (1972), it was a hereditary title bestowed upon Armenian village chiefs in the province of Nakhichevan during the Persian rule. Following the Russo-Persian Wars in the beginning of the eighteenth century, eastern parts of Armenia were incorporated into the Russian empire. In 1846, the holders of the title Melik, bek (or beg), and some others, were ordered to incorporate their title into their russianized surnames. In doing so, these high status Armenians would receive all the privileges of the Russian nobility (Unbegaun, 1972).

It can then be no surprise that the descendants of these local chiefs were highly overrepresented in the army during the First World War. The difference with ordinary Armenians is remarkable, but it would not last. Although this group has followed the trend of other Armenians after WW I, it is interesting to see that privileges granted in 1846 carry through until 1918. Also of note is the stark decline after the Communist Revolution. The

The general Armenian population seems to be doing quite well for itself in the last decades. They are overrepresented by margins of 2.5 to 4.0 for 2000-2019. There are about one million Armenians in the Russian Federation today, of which 16,000 are descendants of these meliks and beks.

3.7 Eastern Orthodox Peoples Around the Black Sea

The Black Sea has long been a centre of trade for the nations surrounding its waters. Having already discussed the two major ones - the Ukrainians and the Russians -, we can now see whether these neighbourly peoples have attained a high or low status in Russia. Seeing as all of the peoples that we discuss here are Eastern Orthodox, Greeks are also included in this section.

These Greeks (dashed line), have fared very well after the dissolution of the USSR. From their small share of the Russian population, they appear eight times more than we would expect them to in our four post-Soviet elite categories. They were also overrepresented in the First World War. One possible explanation could point to the main profession of many Greek immigrants. According to Unbegaun (1972), Greek immigrants (of which there was a steady stream since the 1700s) coming from Asia Minor or the newly founded Russian towns on the shores of the Black Sea and the Sea of Azov were mainly merchants and artisans. They spread into the towns of inner Russia in an effort to increase their earnings.

Another explanation could be that a lot of Pontic Greeks (living in what is now northern Turkey, around Trabzon/Trebizond) were (or at least felt) forced to flee the Ottoman Empire during the 1800s and 1900s. Perhaps in a nationalistic fervour, some decided to join the Russian Imperial Army to fight a common enemy (in this case, the Ottomans, who were on the other side during WW I). There has previously been a Greek battalion in the Russian Imperial Army during the many Russo-Turkish Wars of the eighteenth and nineteenth centuries[8] (Todorova, 1984).

Today, they only number about 14,000 within the Russian Federation, though this might have to do with a thorough Russianization of their surnames.

[8]This battalion was called the Greek Battalion of Balaklava; named after a Greek settlement in the Crimea. Other peoples such as Wallachians (Romanians) and Bulgarians might also have been allowed to join (Todorova, 1984)

The other two groups, of which the Romanians have consistently been the biggest (30,000 during WW II and 60,000 today), follow the same general trend as the Greeks, though their stories are less well known and not as well documented (probably due to their diaspora being less wealthy and influential). We can note that the Romanians and Bulgarians have in the past also been enlisted into Russian battalions to fight the Ottomans. This could explain their overrepresentation before the Communist Revolution.

As for the other two subgroups, we might have finally found a consistently underrepresented group: the Georgians. They are only fairly represented before the Second World War, which seems normal having been part of the Russian Empire since 1800. Perhaps they were shunned from Soviet power structures after their late incorporation into the Soviet Union. The Georgians, initially on the wrong side of the Communist Revolution (first supporting the social-democrat Mensheviks, instead of the Bolsheviks), were only incorporated into the Soviet Union after 1921[9].

The ethnic Iranian Ossetians on the other hand follow the usual rhythm of other minorities, being first over-, then under-, and ultimately overrepresented once again.

Due to the limited knowledge on the subject, it would be best to leave the answer as to why Georgians and Ossetians are under- or overrepresented to other researchers.

3.8 Turkic

Contact between Russians (Muscovites) and Turkic nations goes back to the tenth century. Though the first observable influence from the Turks on the Russians originates from the Tatar (Mongol) rule in Russia from approximately 1240 until 1480. Tatars (or again, Mongols) were the small ruling elite of an otherwise Turkic administration. This Tatar elite was eventually absorbed into the Turkic mass, thus becoming Turkic themselves. After the conquests of the Khanates of Kazan and Astrakhan during the sixteenth century, much of the old Tatar elite were incorporated into the Russian nobility and given the same privileges. In contrast to the Armenian Melik case above, the surnames of this Tatar-Turkic elite were heavily Russianized. For this reason, many of their names end in -ov or -ev. Examples are: Karataev, Baskakov, Saltanov, Muratov, and Achmatov.

What is described in the corresponding graph as 'Recent Turkic' points to the numerous array of nationalities that were eventually gobbled up by the Russian Empire in their further conquest and colonisation eastwards. Many of these peoples hail from the Caucasus or the plains of Central Asia, the vast land that is now referred to as Siberia. The main nations within this Turkic group are: Uzbeks, Kazakhs, Turkmens, Kirghiz, Azerbaijani, Bashkirs, and Chuvashes (Unbegaun, 1972, p. 389). In stark contrast to their Tatar cousins, these recent Turkic peoples have only begun engaging in Russian society in the 1800s.

The descriptions given above are almost perfectly reflected in their respective relative representations in the First World War. Old Tatar-Turkic is overrepresented by a factor of three, while the more recent Turkic arrivals are underrepresented by a factor of 0.5. The main reason would probably be the role of Cossacks within the Russian Imperial Army, where these special steppe troops were considered a separate category within the infantry branch. Even more fascinating though, is the fact that these old Tatar-Turks never seem to be underrepresented for the whole of the twentieth century, ignoring the usual Soviet dip in relative representation most minority groups deal with. We might therefore identify this Tatar-Old Turkic group as one of the most high status groups within Russian and Soviet society. Though the recent Turkic group is not doing bad either, going from under- to overrepresented within two generations.

[9]The Red Army invasion of Georgia in early 1921 was led, among others, by Georgian-born Joseph Stalin. His Georgian name was Ioseb Besarionis dze Jughashvili, russianized into Iosif Vissarionovich Dzhugashvili

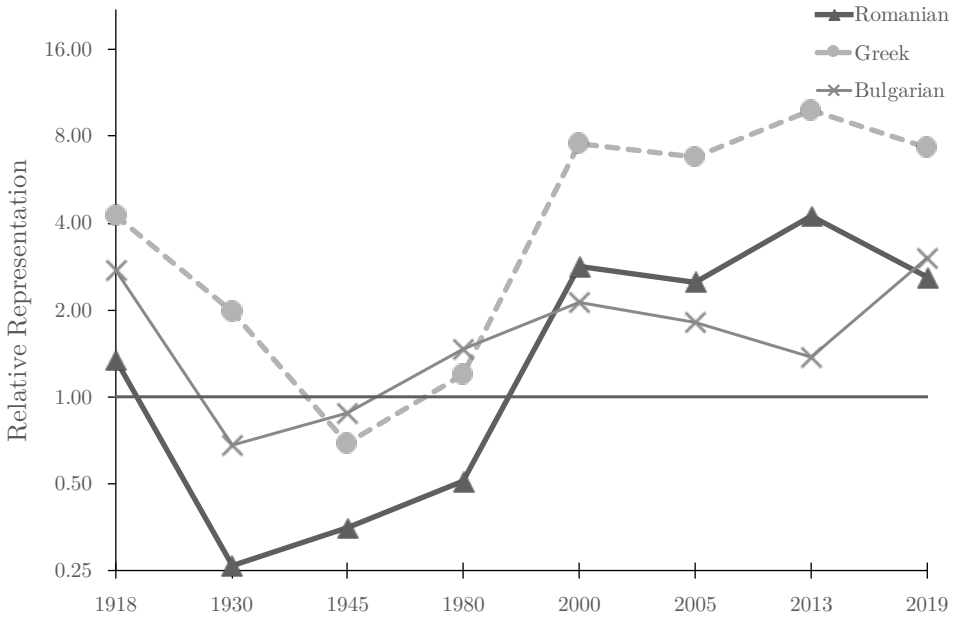

Figure 3.9: Relative representation - Romanians, Greeks and Bulgarians

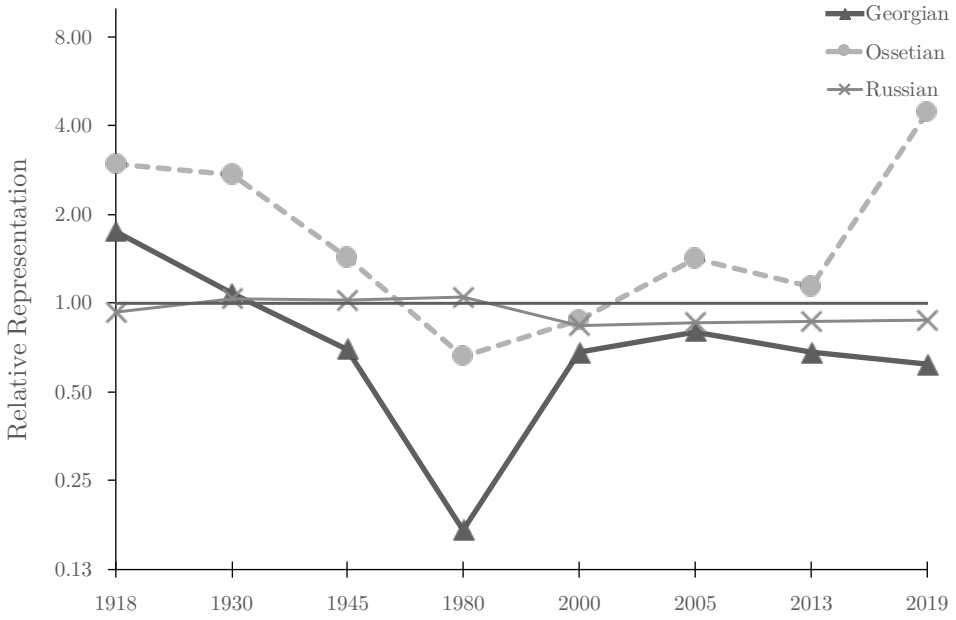

Figure 3.10: Relative representation - Georgians, Ossetian Iranians and Russians

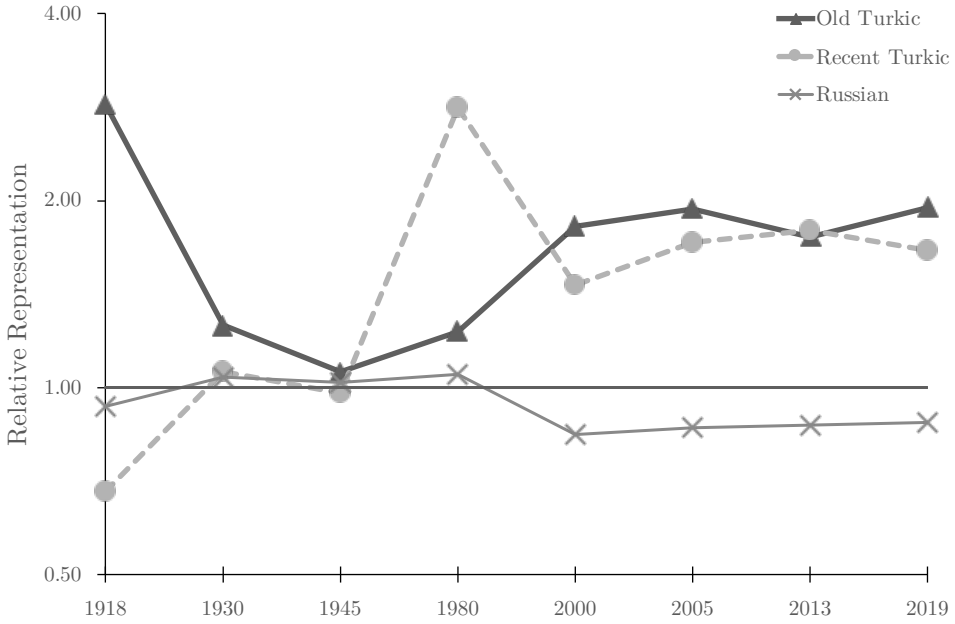

Figure 3.11: Relative representation - Old and Recent Turkic

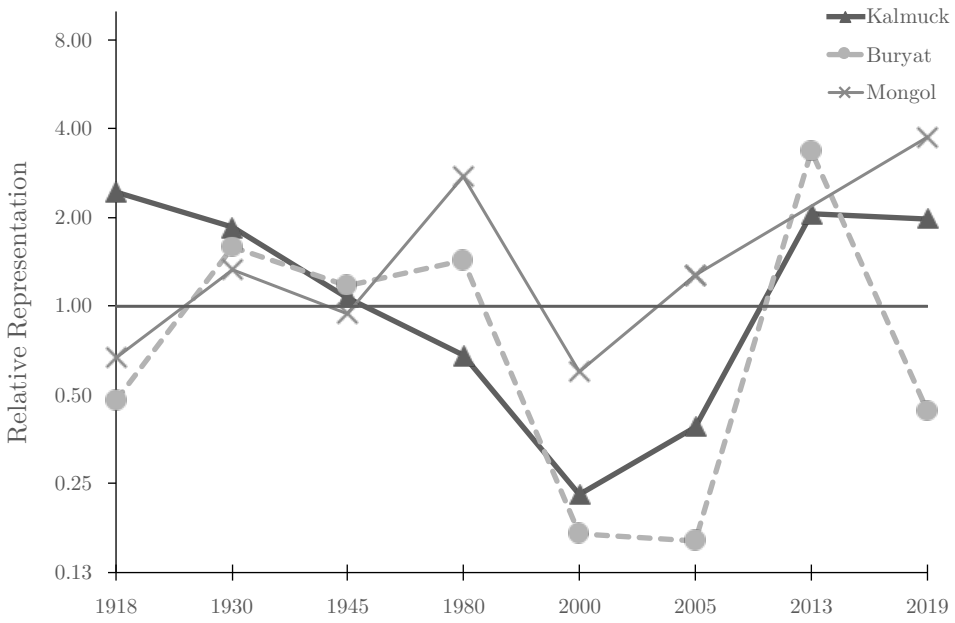

Figure 3.12: Relative representation - Mongolian

3.9 Mongolian

Mongols are perhaps best known because of Genghis Khan and his (and his descendants') conquest of large parts of the world. The Mongols expanded their borders westwards in the 1100-1300s, thus settling many parts of Central Asia and the surrounding regions, even ruling over the Russian states as described above. Since the sixteenth century though, the Muscovite-Russians have expanded in the eastern direction. It is then no surprise that Mongol peoples have ended up in the Russian Empire and Soviet Union. The main three groups are: Kalmuck (from the lower Volga), Buryat (from region of Lake Baikal), and the 'proper' Mongols of the original Mongolian steppes.

As for relative representation, these three groups are quite middle of the road. Following much of the same flow as other subgroups described above and achieving values close to 1.

3.10 Iranians

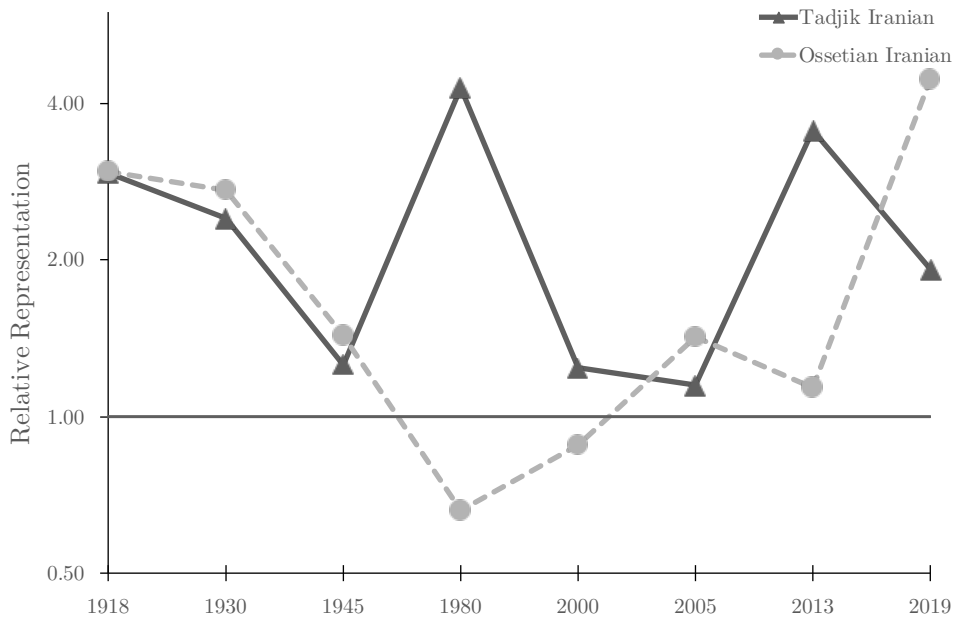

Figure 3.13: Relative representation - Iranians

The two biggest Iranian nationalities present in Russia are the Tadjik Iranians from Central Asia and the less numerous Ossetian Iranian from the Caucasus region. Although a limited knowledge of both this paper's author and Unbegaun (1972) prevents any sensible explanations for it, we observe a strong overrepresentation of the Tadjik people throughout time. The drop in 2019 could be exaggerated because of the data we used (see section below). They do not experience the Soviet dip like their Ossetian cousins, even achieving their highest overrepresentation in the Soviet Union.

3.11 Different Data

3.11.1 Russian Federation Lawyers and Notaries in 2019

In order to check whether our previous conclusions might have been induced by the data we chose, we have to compare the relative representation values for different datasets of the same period.

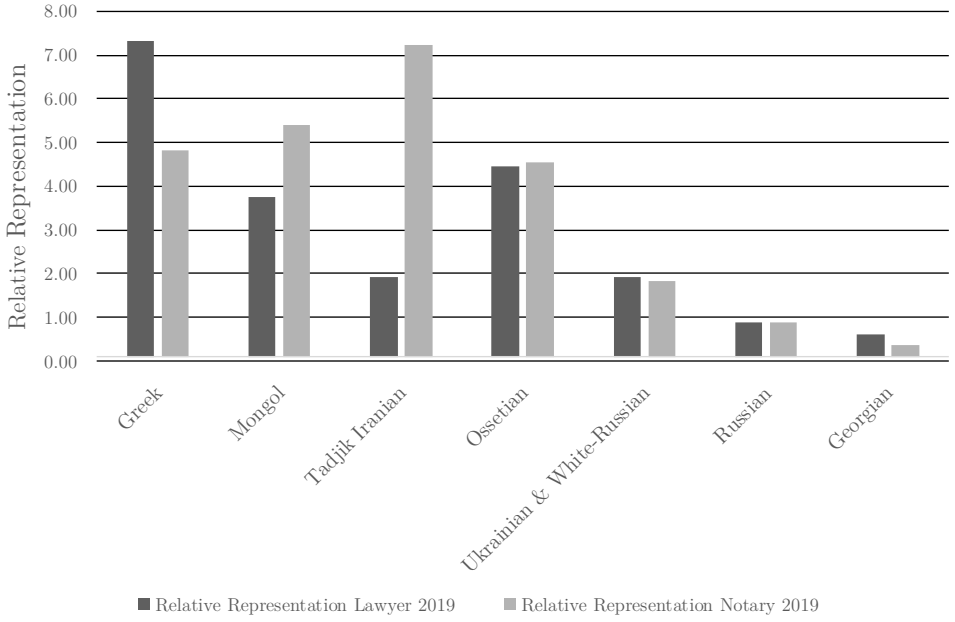

Figure 3.14: Relative representation - Lawyers and Notaries in the Russian Federation in 2019

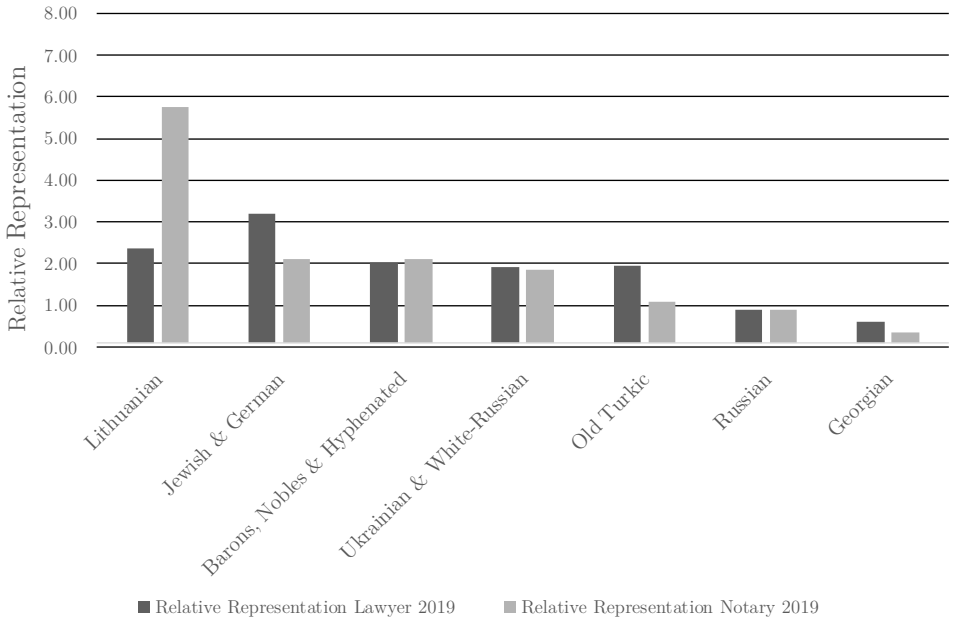

Figure 3.15: Relative representation - Lawyers and Notaries in the Russian Federation in 2019 (2)

The graphs below will not be displayed in a logarithmic scale (as we have done before), because the differences between the different relative representation values are (mostly) not that significant. Also of note is that the non-logarithmic scale of the y-axis will remain the same for all of these relative representation comparisons, so as to better show the range of differences. The x axis is ordered from biggest difference between the two datasets to the lowest, with Russians as a baseline.

We first show the difference between relative representation for the 2019 data on lawyers (dark grey) and on notaries (light grey). Because notaries are such a small elite category, many smaller subgroups have already been filtered out. The subgroups shown here have the biggest differences between the relative representation for lawyers compared to that of notaries. Included both times are the Russian and Georgian subgroups, as a comparison to respectively middle and low status groups.

The main difference when using notaries as a high status group is that Tadjik Iranians and Lithuanians have an even higher relative representation, thus confirming our preliminary conclusions in the previous sections.

It seems our relative representation values for 2019 are not too dependent upon the chosen dataset and instead reflect the true status of our subgroups.

3.11.2 Soviet Government and Civilian Cars in 1980s

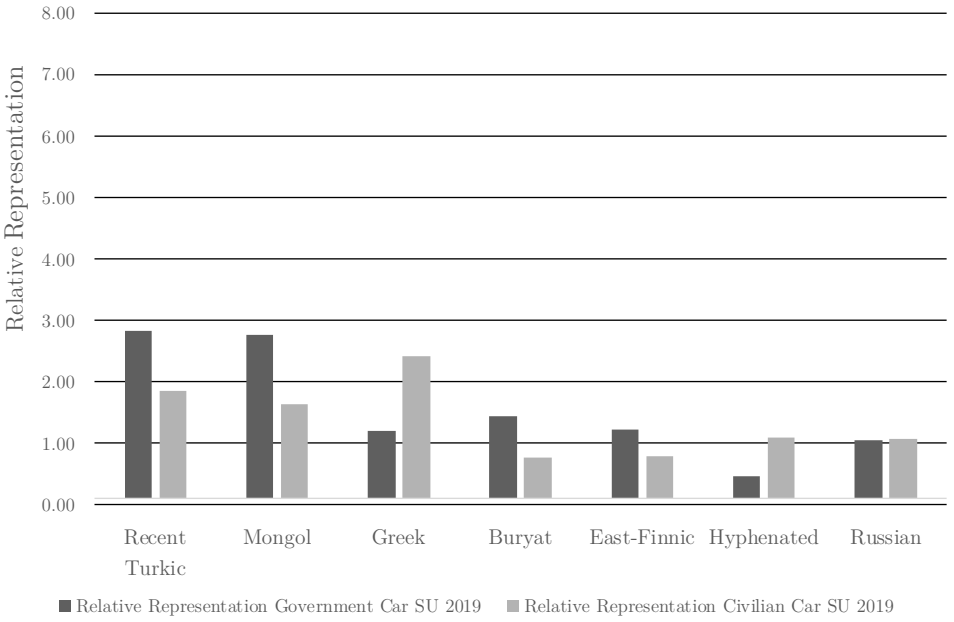

Figure 3.16: Relative representation - Government and Civilian Car in the Soviet Union in the 1980s

3.11.3 Owners of a Luxury Car and Shareholders in 1995-2005

The biggest change when changing between our luxury car data and the data of bank shareholders in 1995, is that most high status groups we have defined see a severe drop in their relative representation. Greek origin surnames fall to a relative representation of 5.0, while Lithuanians fall to "just" 4.0. Armenians and Romanians aren't even overrepresented anymore.

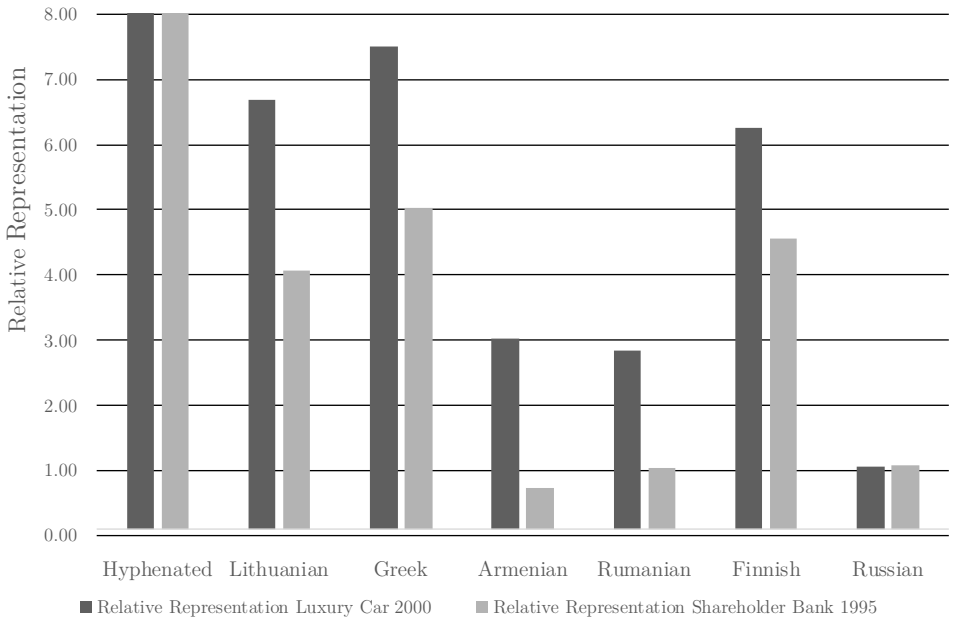

Figure 3.17: Relative representation - Luxury Cars and Shareholders in Banks in the Russian Federation in 1995-2000

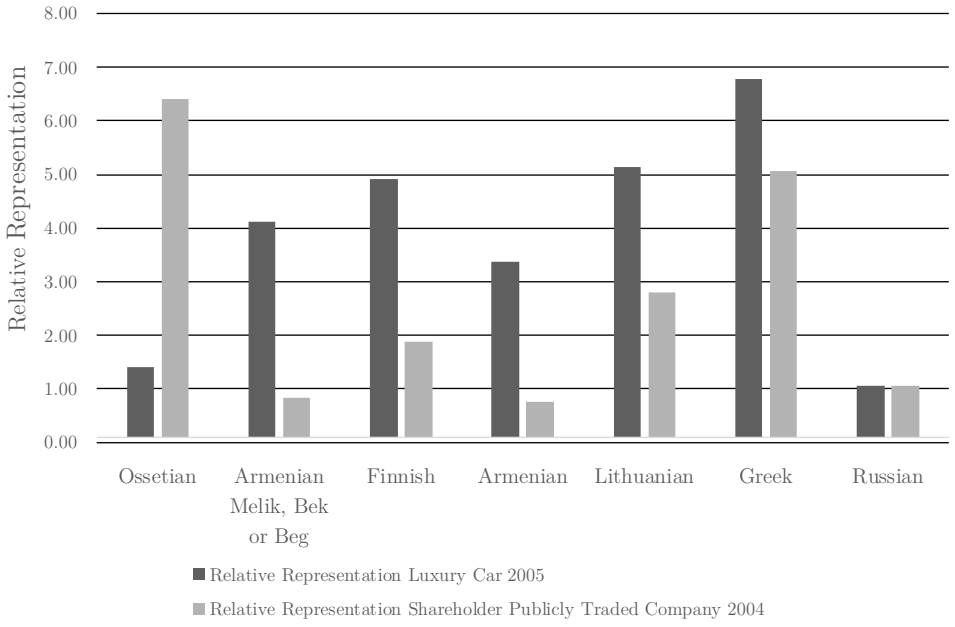

Figure 3.18: Relative representation - Luxury Cars and Shareholders in Publicly Traded Companies in the Russian Federation in 2001-2005

The only subgroup that would benefit from the use of this dataset is the hyphenated surname group. Though not clearly shown on our graph (due to the use of a non-logarithmic scale in this section), the relative representation of this group rises from 32.9 to an astonishing 42.62 relative representation rate. There can be no doubt that this hyphenated group is one of the most elite groups in Russia.

When comparing the two different datasets for the 2001-2005 period, there are again some significant changes. Ossetians are doing even better than reported above, with their relative representation rising to approximately 6.4. However, the other main differences are drops in relative representation. The same three subgroups were overestimated in the other datasets: Finns, Lithuanians, and Greeks. Though the Greek and Lithuanian subgroups are still highly overrepresented.

What is more peculiar is the way in which all Armenians, whether they are descendants of village chiefs or not, face a severe drop in their relative representation when we switch to shares of publicly traded companies. In that category, Armenians even become underrepresented.

3.12 Distribution Mean Values

3.12.1 Relative Representation and Distribution Mean Values

	1918	1930	1945	1980	2000	2005	2013	2019
Hyphenated	0.55	1,03	0.12	-0.22	0.90	0.90	1.65	1.03
Jewish & German	0.22	0.38	0.13	-0.16	0.37	0.40	0.32	0.39
Greek	0.41	0.18	-0.09	0.04	0.54	0.51	0.62	0.54
Lithuanian	0.29	0.13	0.01	-0.12	0.53	0.45	0.47	0.23
East-Finnic	-0.03	-0.22	-0.05	0.06	-0.02	0.03	-0.04	0.22
Georgian	0.21	0.03	-0.13	-0.62	-0.14	-0.08	-0.14	-0.18
Buryat	-0.18	0.11	0,04	0.09	-0.44	-0.46	0.33	-0.21
Russian	-0.19	0.09	0.04	0.12	-0.51	-0.45	-0.42	-0.40

Table 3.2: Distribution Mean Values of Certain Subgroups

Although not the primary use of the mean distribution values (see below), we can give more credence to our relative representation curves by also showing these μ values. The four highest mean μ values groups (above horizontal line) seems to correspond with our previous relative representation findings. Remember that for these mean distribution values, the population mean is 0; everything higher than 0 corresponds to a higher distribution mean, lower than 0 is lower mean distribution than the population average.

The systematically overrepresented groups, such as the hyphenated, Jewish-German, Greek, and Lithuanian groups, have a consistently high mean distribution value. Their normal distribution of status curves have a higher mean and thus a higher percentage of their subgroup are in elite categories.

The exact opposite is true for the four (below horizontal line) lowest mean μ values groups: East-Finnic, Georgian, Buryat, and Russian. Their mean distribution value is almost always lower than the population distribution mean.

3.12.2 Estimating Social Mobility from Distribution Mean Values

The final part of this paper will attempt to connect what we have already calculated, back to our initial problem: Measuring social mobility. That is where our distribution mean or μ values come

into play. To measure social mobility from one generation to the next, we would use the following formula:

$$\begin{aligned} y_t &= by_{t-1} + v_t \\ &= b^2 y_{t-2} + bv_{t-1} + v_t \\ &= b^n y_{t-n} + v_n^* \end{aligned} \tag{3.1}$$

We know the values for y_t, which are our μ values for 2019. These are the distribution mean status value for different subgroups at generation t in 2019. Going back one generation, approximately 30 years, we end up around 1980, for which we also have a μ value. Going back another generation, we end up at 1945. Just one generation further and we arrive at 1918. The y_{t-n} values are then equal to our distribution mean values for different periods.

Assuming the error term tends to zero, the only part of the equation that does not yet have a value is b. This is the b that points to the intergenerational correlation of status. To estimate this b value, we have to check if different values for b match the data better. As we have explained in the Setup & Methodology chapter of this paper, b is a measure for the persistence of status (or the intergenerational correlation of status). The closer b is to 0, the less persistent status is. The closer b is to 1, the more persistent status is. From our relative representation values, we have seen that most groups tend to experience a dip in their relative representation during Soviet times. We can thus expect to see a high amount of social mobility reflected in the b value for the 1918-1945 period - with a b close to 0. When comparing the persistence of status over three generations however - from 1918-2019 -, we would expect less social mobility. This would then result in a b that is higher than the b for 1918-1945.

Value for t	Corresponding period
t	2019
t-1	1980
t-2	1945
t-3	1918

Table 3.3: Different Values for t and Corresponding Periods

We will start by estimating the b for the 1918-1945 period. To begin this calculation, we first compute what we would expect y_{1945} for different groups to be. We can do this by taking y_{1918} and multiplying by our persistence of status parameter, b. Because we don't know what b's value actually is, we have tried out different values for b, ranging from 0.1 to 1.0[10]. We then get a value that is supposed to represent the expected distribution mean values for 1945, given a variable social mobility factor.

$$\mu_{1945} = b^1 \mu_{1918} \tag{3.2}$$

The next step is to compare our computed expected distribution mean or μ values with the actual μ values for 1945. We calculate the absolute difference between these values for every subgroup and every b value, giving us the table in the Appendix. Afterwards, the sum of these absolute differences can be computed per b value. Remember that the goal of this was to find the b that delivers the smallest difference between the μ values that we find and the ones we would expect to find. The table shows us that the smallest sum of absolute differences is given by b = 0.1. This paper thus finds a very low level of elite persistence for the period between 1918 and 1945. Conversely, the social mobility rate for this period is very high.

[10]For obvious reasons, a b value of 0.0 was not tested, as this would result in all y values having to be 0 as well. The closest approximation of full social mobility, is thus given by b = 0.1.

$$\mu_{2018} = b^3 \mu_{1918} \tag{3.3}$$

The same process is repeated for the 1918-2019 period. The main difference between the calculation of this b and the one above, is that we have to use b^3 instead of just b, because we calculate the intergenerational correlation over three generations. With this b^3 we multiply our y_{1918} values to again find the expected distribution mean values for 2019, given different values of b. The same method as above is used and we get the absolute differences between the expected and the actual mean distribution values for 2019. Taking the sum of these differences then reveals the smallest difference between these two values is b = 0.4. The persistence of status over three generations is thus higher for the period 1918-2019 than it was for just one generation for 1918-1945. Though this b value is much lower than what Clark (2015) has found for most countries in most timeframes. We will explain this further in the General Conclusion chapter of this paper.

Chapter 4

General Conclusion

The central question of this paper is whether Russian and Soviet elites are persistent during and after the transitions of the twentieth century. After having analysed and interpreted the data, that question can now be adequately answered.

First, the many transitions of the twentieth century have indeed had an effect on social mobility and elite persistence. The Communist Revolution (s)(or perhaps the civil war and other *four horsemen of the apocalypse* type instances) seem(s) to have led to much higher rates of social mobility. When looking at relative representation, we consistently find a large dip during the Soviet period. For the initially overrepresented, high status groups, we find an overall U-shape for 1918-2019. Their dip in representation during Soviet times are often done away with after the dissolution of the USSR, afterwards reaching even higher levels of relative representation in the Russian Federation. This paper has already presented a few possible explanations for individual subgroups, but overall there do seem to be some similarities:

- Emigration after the dissolution of the Soviet Union might have been a better option for low status individuals as they would have less to lose by leaving. Higher status individuals within subgroups that were underrepresented in Soviet society might have decided to stay, while lower status individuals within that same group might have (more easily) decided to emigrate. When the Russian economy stabilised again around 2000, these subgroups - now consisting of a higher percentage high status individuals - were then easily overrepresented. If the Greek population consisted of 1000 people, of which 10 were high status (1%), and 500 low status Greeks left Russia after the dissolution, but no high status Greeks did. This would leave the Greek origin surnames in Russia as now being 2% high status, which might give a high relative representation if their share of the population is small enough.

- The initial overrepresentation of some particular surname origins might have been due to heavy Russification in the Russian Empire. Russianization of surnames leads to these surnames being put in the Russian category in this paper. It might have been beneficial to them to do so, opening up more opportunities in life. Low status individuals from the Armenian subgroup for example, have more incentive to alter their name to appear more Russian if this would mean easier access to trade, schooling or general advancement in life. High status Armenians like the Melik, Bek and Beg group would have less incentive to Russianize their surname. They already have the same privileges of Russian nobility and are respected among their own people.

- The Soviet Union has also promoted Russification in many areas in order to promote one Communist identity. Either by sending Russian colonists to live among Estonians, Latvians, Khazaks, etc.; or by suggesting that people from different nationalities adopt Russian (sounding) surnames, the Russification of many surnames continued. It might once again have been the case that high status individuals had less incentive to alter their surname, while low status individuals could in so doing choose a path towards a higher status.

The second main conclusion of this paper is the appearance of relatively high social mobility in Russia throughout the 1900s and early 2000s. As was shown in the last section of the Results chapter, this paper finds a b = 0.1 for the period 1918-1945. The intergenerational correlation of status between the 1918 generation and their (or their families') offspring in 1945 is 0.1; a very high level of social mobility.

$$y_{1945} = (0.1)y_{1918} + v_t \tag{4.1}$$

The intergenerational correlation of status between the 1918 generation and the 2019 generation - three generations apart - is higher. This paper finds a b = 0.4, still comparatively a high level of social mobility compared to the results of Clark (2015).

$$y_{2019} = (0.4)^{0.33}y_{1918} + v_t \tag{4.2}$$

For the Russian case of 1918-2019, this paper does not find the same results as Clark (2015) has of a b equal to 0.7-0.8. We can't however say with certainty that Clark's hypothesis does not apply to Russia as we have only calculated elite persistence over a period of 100 years, while Clark has often done so for 300 years. Further research is required to see if the intergenerational correlation of status parameter b is higher when looking at the period 1700-2000. The limited consistency between the different datasets used in this paper might have altered the results as well. Going from high ranking soldiers in WW I to NKVD officers, then again high ranking soldiers, but in the Red Army of WW II, and further car ownership and professions; further research would find more consistent datasets, like admissions into Russian universities over the past 250-300 years. This line of research would be tough for Russia, as this paper has not been able to find these datasets.

The third main conclusion of this paper is the discovery of a few consistent high status groups in Russian and Soviet society: the old nobility (barons, nobles, but especially hyphenated surnames), Jewish-German, Greek, Lithuanian, Latvian, Armenian Meliks, and the two Turkic groups. Other groups like the Western European origin surnames are also high status at different time periods, but are too small of a group to have consistent data on. Some other higher status origin surnames not discussed in this paper are Polish and Serbian surnames. One could make an argument that many Polish and Western European surnames are found within the baron, nobles, and hyphenated surname subgroups, thus removing the need for extensive sections of their own.

Fourth and finally, this paper has observed a few consistent low status groups: Georgians, East-Finnic, Buryat, and Kalmuck. Further research should see whether this result for these groups is found over longer periods of time. What most of these groups have in common, is that they were comparatively "recently" introduced into Russian society. This might be the main reason why these groups are, on average, of a lower status.

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Appendices

Appendix A: Tables of subgroup suffix and prefix categories

Ukrainian & White-Russian origin	
-iv	-ив
-enko	-енко
-čenko	-ченко
-ščenko	-щенко
-šenko	-шенко
-enkov	-енков
-uk	-ук
-juk	-юк
-čuk	-чук
-ščuk	-щук
-ik	-ик
-čik	-чик
-jak	-як
-čak	-чак
-ak	-ак
-ka	-ка
-anko	-анко
-onko	-онко
-ečko	-ечко
-ec	-ец
-chno	-хно
-ura	-ура
-jura	-юра
-as	-ас
-as’	-ась
-us	-ус
-us’	-усь
-ys’	-ысь
-aš	-аш
-ica	-ица
-at	-ат
-čat	-чат
-jat	-ят
-ar’	-арь
-arev	-арев
-arëv	-арёв
-išin	-ишин
-nyj	-ный
-ženko	-женко
-ko	-ко
-an	-ан
-an’	-ань
-ij (without -skij or -ckij)	-ий

bilo- (no -ov)	било-
červono- (no -ov)	червоно-
černo- (no -ov)	черно-
rjabo- (no -ov)	рябо-
siro- (no -ov)	сиро-
žovto- (no -ov)	жовто-
krivo- (no -ov)	криво-
licho- (no -ov)	лихо-
tovsto- (no -ov)	товсто-
tverdo- (no -ov)	твердо-
velik- (no -ov)	велик-
semi- (no -ov)	семи-
bez- (no -ov)	без-
bes- (no -ov)	бес-
-ënok	-ёнок
-enok	-енок
-onok	-онок
-anok	-анок
-janok	-янок
-enja	-еня
-sik	-сик
-čik	-чик
-ar	-ар
-arov	-аров
-un	-ун

Polish origin	
prži-	пржи-
prže-	прже-
dlu- & -ovič	длу-, -ович
dlu- & -kij	длу-, -кий
čar- & -ovič	чар-, -ович
čar- & -kij	чар-, -кий

Serbian origin	
-adovič	-адович

Jewish origin	
-kind	-кинд
-son	-сон
-zon	-зон
šejn-	шейн-

Romanian (Rumanian) origin	
-esku	-ску
-esko	-ско
-eskul	-скул
-escul	-сцул
-eskol	-скол
-ul	-ул
-u	-у

Greek origin	
-idi	-иди
-idis	-идис
-adi	-ади
-adis	-адис
-odi	-оди
-aki	-аки
-oglo	-огло
papa-	папа-
mavro-	мавро-

Lithuanian origin	
-unas	-унас
-enas	-енас
-ajtis	-айтис
-onis	-онис
-anis	-анис
-elis	-елис
-ajt	-айт
-ejt	-ейт
-mont	-монт
-mantas	-мантас
-tovt	-товт
-tauta	-таута
-tautas	-таутас
-vid	-вид
-vydas	-выдас
-ello	-елло
-illo	-илло
-ajlo	-айло
-auskas	-аускас
-vičjus	-вичюс

Latvian origin	
-nek	-нек
-ing	-инг
-etis	-етис
-itis	-итис
-ajs	-айс

Finnish origin	
-anen	-анен
-inen	-инен
-onen	-онен
-unen	-унен
-janen	-янен
-lajnen	-лайнен
-ljajnen	-ляйнен

Estonian origin	
-sepp	-сепп
-sep	-сеп
-ste	-сте
-mjagi	-мяги
-maa	-маа

High Status Armenian origin	
melik-	мелик-
-bek-, -jan	-бек-, -йан
-bek-, -janc	-бек-, -йанц
-beg-, -jan	-бег-, -йан
-beg-, -janc	-бег-, -йанц

Low status Armenian origin	
ter-	тер-
-jan	-йан
-janc	-йанц

Georgian origin	
-adze	-адзе
-jadze	-ядзе
-idze	-идзе
-asvili	-асвили
-jasvili	-ясвили
-isvili	-исвили
-eli	-ели
-ali	-али
-jali	-яли
-ani	-ани
-jani	-яни
-ati	-ати
-jati	-яти
-eti	-ети
-iti	-ити
-ia	-иа
-ija	-ия
-aia	-аиа
-jaia	-яиа
-aja	-ая
-jaja	-яя
-ua	-уа
-jua	-юа
-ava	-ава
-java	-ява
-uri	-ури
-juri	-юри
-uli	-ули
-juli	-юли
-nti	-нти
-dzev	-дзев
-ba	-ба

Recent Turkic origin	
-ulin	-улин
-ullin	-уллин
-ullaev	-уллаев
-aliev	-алиев
-baev	-баев
-bekov	-беков
-berdyev	-бердыев
-berdiev	-бердиев
-chanov	-ханов
-chodzaev	-ходзаев
-dinov	-динов
-žanov	-жанов
-džanov	-джанов
-kulov	-кулов
-nazarov	-назаров
-nijazov	-ниязов
abd-	абд-
bek-	бек-
bik-	бик-
nur-	нур-
said-	саид-
seid-	сеид-
seit-	сеит-
sejt-	сейт-
ša-	ша-
šach-	шах-

Tadjik Iranian origin	
-zade	-заде
-zoda	-зода

Appendix B: Mean distribution values comparison 1918 - 1945

Difference with 1945 for different b values	1,20	1,10	1,00	0,90	0,80	0,70	0,60	0,50	0,40	0,30	0,20	0,10
Baron	0,13	0,12	0,11	0,10	0,09	0,07	0,06	0,05	0,04	0,03	0,01	0,00
Nobility	0,34	0,31	0,28	0,25	0,22	0,19	0,16	0,13	0,09	0,06	0,03	0,00
Hyphenated	0,54	0,49	0,43	0,38	0,32	0,27	0,21	0,16	0,10	0,05	0,01	0,07
Barons, Nobles & Hyphenated	0,43	0,39	0,35	0,31	0,27	0,24	0,20	0,16	0,12	0,08	0,05	0,01
Ukrainian & White-Russian	0,20	0,18	0,16	0,14	0,12	0,10	0,08	0,06	0,04	0,02	0,00	0,02
Polish	0,52	0,47	0,42	0,37	0,32	0,26	0,21	0,16	0,11	0,06	0,00	0,05
Bulgarian	0,33	0,31	0,28	0,26	0,23	0,21	0,18	0,16	0,13	0,11	0,08	0,06
Czech	0,54	0,49	0,45	0,41	0,36	0,32	0,28	0,24	0,19	0,15	0,11	0,06
Slavonic	0,54	0,49	0,44	0,39	0,34	0,28	0,23	0,18	0,13	0,08	0,02	0,03
Jewish	0,10	0,08	0,06	0,04	0,02	0,00	0,02	0,04	0,06	0,08	0,10	0,12
German	0,60	0,55	0,50	0,45	0,40	0,35	0,30	0,25	0,19	0,14	0,09	0,04
Jewish & German	0,13	0,11	0,09	0,07	0,05	0,02	0,00	0,02	0,04	0,06	0,09	0,11
British	0,63	0,57	0,52	0,47	0,41	0,36	0,31	0,26	0,20	0,15	0,10	0,04
Scandinavian	0,51	0,46	0,40	0,34	0,29	0,23	0,17	0,12	0,06	0,00	0,06	0,11
Western European	0,16	0,13	0,11	0,09	0,06	0,04	0,01	0,01	0,03	0,06	0,08	0,11
Western European Without Jewish-German	0,69	0,63	0,57	0,51	0,45	0,39	0,33	0,27	0,21	0,15	0,09	0,03
Romanian	0,42	0,41	0,40	0,39	0,38	0,37	0,36	0,36	0,35	0,34	0,33	0,32
Greek	0,58	0,54	0,50	0,46	0,42	0,38	0,34	0,30	0,25	0,21	0,17	0,13
Lithuanian	0,34	0,31	0,28	0,25	0,22	0,19	0,16	0,14	0,11	0,08	0,05	0,02
Latvian	0,30	0,28	0,25	0,22	0,20	0,17	0,14	0,12	0,09	0,06	0,03	0,01
Finnish	0,34	0,33	0,32	0,31	0,30	0,30	0,29	0,28	0,27	0,26	0,26	0,25
East-Finnic	0,01	0,02	0,02	0,02	0,03	0,03	0,03	0,04	0,04	0,04	0,04	0,05
European Non-Slavonic	0,27	0,25	0,22	0,19	0,17	0,14	0,11	0,09	0,06	0,03	0,00	0,02
Armenian Melik, Bek and Beg	0,72	0,66	0,60	0,54	0,48	0,42	0,36	0,31	0,25	0,19	0,13	0,07
Other Armenians	0,20	0,19	0,18	0,17	0,16	0,15	0,14	0,13	0,12	0,11	0,10	0,09
Armenian	0,22	0,21	0,20	0,19	0,18	0,16	0,15	0,14	0,13	0,12	0,10	0,09
Georgian	0,38	0,36	0,34	0,32	0,30	0,28	0,26	0,24	0,21	0,19	0,17	0,15
Old Turkic	0,36	0,33	0,30	0,27	0,24	0,20	0,17	0,14	0,11	0,08	0,04	0,01
Recent Turkic	0,17	0,16	0,14	0,13	0,11	0,10	0,08	0,07	0,05	0,04	0,02	0,01
Tadjik	0,25	0,23	0,20	0,17	0,15	0,12	0,10	0,07	0,04	0,02	0,01	0,03
Ossetian	0,25	0,22	0,19	0,16	0,13	0,11	0,08	0,05	0,02	0,01	0,03	0,06
Kalmuck	0,24	0,22	0,20	0,18	0,16	0,13	0,11	0,09	0,07	0,05	0,02	0,00
Buryat	0,26	0,24	0,22	0,20	0,18	0,17	0,15	0,13	0,11	0,09	0,08	0,06
Mongol	0,10	0,09	0,08	0,07	0,06	0,05	0,04	0,03	0,02	0,01	0,00	0,01
Russian	0,27	0,25	0,23	0,21	0,19	0,17	0,15	0,14	0,12	0,10	0,08	0,06
Sum	13,02	11,92	10,81	9,70	8,60	7,49	6,43	5,42	4,45	3,48	2,71	2,33

Appendix C: Mean distribution values comparison 1918 - 2019

Difference with 2019 for different b values	1,20	1,10	1,00	0,90	0,80	0,70	0,60	0,50	0,40	0,30	0,20	0,10
Baron	0,13	0,14	0,14	0,14	0,15	0,15	0,16	0,16	0,17	0,18	0,19	0,20
Nobility	0,11	0,10	0,09	0,08	0,07	0,06	0,04	0,03	0,01	0,01	0,04	0,08
Hyphenated	0,45	0,46	0,48	0,50	0,52	0,54	0,57	0,59	0,62	0,66	0,71	0,77
Barons, Nobles & Hyphenated	0,13	0,12	0,11	0,10	0,08	0,07	0,05	0,03	0,01	0,01	0,05	0,09
Ukrainian & White-Russian	0,65	0,65	0,64	0,63	0,63	0,62	0,61	0,60	0,59	0,57	0,56	0,53
Polish	0,16	0,15	0,13	0,11	0,09	0,07	0,05	0,02	0,01	0,04	0,08	0,15
Bulgarian	0,01	0,02	0,03	0,04	0,05	0,06	0,07	0,08	0,10	0,11	0,13	0,16
Czech	0,30	0,28	0,27	0,26	0,24	0,22	0,20	0,18	0,16	0,13	0,09	0,04
Slavonic	0,19	0,18	0,16	0,14	0,12	0,10	0,08	0,05	0,02	0,01	0,05	0,12
Jewish	0,21	0,21	0,22	0,23	0,23	0,24	0,25	0,26	0,27	0,29	0,30	0,33
German	0,38	0,37	0,35	0,33	0,31	0,29	0,27	0,25	0,22	0,18	0,14	0,08
Jewish & German	0,16	0,16	0,17	0,18	0,19	0,19	0,20	0,21	0,23	0,24	0,26	0,29
British	0,38	0,37	0,35	0,33	0,31	0,29	0,27	0,24	0,21	0,18	0,13	0,07
Scandinavian	0,20	0,18	0,16	0,14	0,12	0,10	0,07	0,04	0,01	0,03	0,07	0,14
Western European	0,14	0,14	0,15	0,16	0,17	0,18	0,19	0,20	0,21	0,23	0,25	0,28
Western European Without Jewish-German	0,44	0,42	0,40	0,38	0,36	0,33	0,31	0,28	0,24	0,20	0,15	0,08
Romanian	0,17	0,18	0,18	0,18	0,19	0,19	0,19	0,20	0,20	0,21	0,22	0,23
Greek	0,10	0,12	0,13	0,14	0,16	0,18	0,19	0,21	0,24	0,26	0,30	0,35
Lithuanian	0,08	0,07	0,06	0,05	0,04	0,03	0,02	0,00	0,02	0,04	0,06	0,09
Latvian	0,04	0,03	0,02	0,01	0,00	0,01	0,02	0,04	0,05	0,07	0,09	0,12
Finnish	0,01	0,01	0,01	0,01	0,02	0,02	0,02	0,03	0,03	0,04	0,04	0,05
East-Finnic	0,25	0,25	0,25	0,25	0,25	0,25	0,25	0,24	0,24	0,24	0,24	0,23
European Non-Slavonic	0,10	0,11	0,12	0,13	0,14	0,15	0,16	0,18	0,19	0,21	0,23	0,26
Armenian Melik, Bek and Beg	0,28	0,26	0,24	0,22	0,20	0,17	0,15	0,12	0,09	0,05	0,00	0,07
Other Armenians	0,20	0,21	0,21	0,21	0,22	0,22	0,23	0,23	0,24	0,24	0,25	0,26
Armenian	0,19	0,20	0,20	0,20	0,21	0,21	0,22	0,22	0,23	0,24	0,25	0,26
Georgian	0,40	0,40	0,39	0,38	0,38	0,37	0,36	0,35	0,34	0,32	0,30	0,28
Old Turkic	0,13	0,12	0,11	0,10	0,09	0,07	0,06	0,04	0,03	0,01	0,02	0,06
Recent Turkic	0,38	0,37	0,37	0,36	0,36	0,35	0,35	0,34	0,33	0,32	0,31	0,29
Tadjik	0,10	0,09	0,08	0,07	0,06	0,05	0,04	0,03	0,01	0,01	0,03	0,06
Ossetian	0,12	0,13	0,14	0,15	0,16	0,17	0,18	0,20	0,21	0,23	0,26	0,29
Kalmuck	0,04	0,04	0,03	0,02	0,01	0,01	0,00	0,01	0,03	0,04	0,06	0,09
Buryat	0,02	0,02	0,03	0,04	0,04	0,05	0,06	0,07	0,08	0,09	0,10	0,13
Mongol	0,44	0,43	0,43	0,43	0,42	0,42	0,41	0,41	0,40	0,40	0,39	0,38
Russian	0,20	0,20	0,21	0,22	0,22	0,23	0,24	0,25	0,26	0,27	0,29	0,31
Sum of absolute values	7,29	7,18	7,06	6,93	6,80	6,67	6,54	6,40	6,29	6,35	6,65	7,23