Ethnic Intermarriage in Russia: The Tale of Four Cities

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Abstract

Background

Across most Western societies, trends towards increased ethnic intermarriage have been observed across the second half of the 20th century. Whether such trends hold across the multi-ethnic society of Russia is not known.

Objective

We describe levels and trends in ethnic intermarriage rates in four highly different regions of Russia.

Methods

We analyse census data from Moscow, Kazan, Makhachkala, Vladikavkaz, calculate odds ratios for ethnic intermarriage and fit log-linear and log-multiplicative models to test for trends in intermarriage. We use age as a proxy for marriage/cohabitation cohorts.

Results

We find no change in ethnic intermarriage in Moscow, but more intermarriage in younger cohorts in the other three cities. However, in Kazan and Vladikavkaz the trend is towards more intermarriage between Russians and Tatars, and between Russians and Ossetians, respectively, while in Makhachkala, where there are few ethnic Russians, the trend is towards more intermarriage between indigenous Muslim peoples.

Conclusions

Levels and trends in ethnic intermarriage vary substantially throughout Russia by locality and ethnic group. There is no evidence for a trend towards increased intermarriage in Moscow.

Contribution

We provide new insight into ethnic intermarriage in Russia. More generally, our study highlights how trends in intermarriage can vary within a society, and how the local, historic context may play an important role.

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1. Introduction

Who marries whom is a classic issue in the study of ethnic relations; intermarriages rates are seen as important indicators of the social distance between groups, of the interactions between groups, and also of the strength of ethnic boundaries or identities more generally (Kalmijn and van Tubergen 2010; Drachsler 1921; Gordon 1964). Some relations have received lots of attention such as Black-White marriage in the US (Schwartz 2013), or, more recently, intermarriage of 'natives' and migrant groups in Western Europe (Drouhot and Nee 2019; Hannemann et al. 2018). A central idea in this literature is that with modernisation, especially in the form of educational expansion and urbanisation, ethnic groups tend to open up and boundaries become less rigid (Alba and Foner 2015; Schwartz 2013; Drouhot and Nee 2019). Hence, intermarriage rates go up, both in absolute and relative terms. In other words, if one were to predict trends in ethnic intermarriage, overall one would expect a tendency towards openness, for most groups, in most places, across the last half-century.

Does this expectation hold for Russia? Intermarriage in Russia has not received much attention recently. During Soviet times a number of studies published in Russian examined changes in marriage rates between groups. While much of this was driven by Soviet ideology – the communist ideal where ethnicity was no longer relevant and the mixing of the different peoples in the Soviet Union that stretched beyond the Russian Federation – Russia is an inherently interesting case for ethnic intermarriage as it has long been a multi-ethnic state. Within this large federal state, we find variations in the relations between ethnic Russians, the Russian state, and other ethnic groups. Does the seemingly universal trend towards more intermarriage hold across Russia too, or does it depend on the local context? We address this question by analysing census data from four highly distinct cities in Russia.

2. Ethnic intermarriage in Russia

According to the latest Russian census (2010), Russia is populated by almost 200 ethnic groups; 41 of them number over 100,000 people. However, ethnic intermarriage in Russia has received surprisingly little attention in the recent literature. Part of the reason for this is data availability. Research on intermarriage requires large sample sizes, and in fact, the only possible data source for high-quality research in this area is census data. Getting access to and working with these data is possible, but it is less straightforward than with survey data and requires more effort.

The first census after WWII was conducted in the USSR in 1959, following by the censuses in 1970, 1979, and 1989. Except for 1989, primary data from these censuses have never been available to researchers outside of the Soviet statistical office. Soviet demographers

published several studies of ethnic intermarriage, mainly reporting the percentages of mixed marriages in the USSR as a whole and separately in Soviet republics (Susokolov 1987; Volkov 2014 (1989); see Gorenburg 2006 for a comprehensive review). The main finding was an increase in ethnic intermarriage. In the Russian Federation, in 1959 8.3% of all households were ethnically mixed; in 1970 this number increased to 10.7%, in 1979 to 12% and in 1989 to 14.7% (Volkov 2014 (1989); Botev 2002)[3]. Some of these early analyses also looked at gender asymmetry in intermarriage across ethnic groups, stated ethnicity of children in ethnically mixed families, and ethnic intermarriage as a measure of social distance between ethnic groups (Volkov 2014 (1989)).

Botev (2002) analysed the 5% sample from the 1989 census using log-linear models, a method that is common in the intermarriage literature and that allows researchers to account for the ethnic population structure and model joint distributions of intermarriage by ethnic group and several other predictors (Botev looked at four macro-regions in Russia, birth cohort, and settlement type). Ethnic Russians were the least endogamous group, while Chechens, Jews and Bashkirs were most endogamous. Intermarriage varied across four macro-regions, which is not surprising given geographical differences in the ethnic population structure and historical legacies. Endogamy decreased over time, with the younger people most likely to intermarry, although this trend was less consistent in Western Russia (mostly including ethnic Russian heartlands with a predominantly ethnic Russian population) compared to other macro-regions.

In post-Soviet Russia, there were two censuses, in 2002 and 2010, with the next one scheduled for 2020. The data were available to researchers mostly in official publications as cross-tabulations at the national and regional levels; data on intermarriage were not published. However, recently the Russian Statistical Office provided access to individual-level census data (see details below in the Data section) making the analysis of ethnic intermarriage possible. We are aware of only one publication that used this opportunity (Soroko 2014; also see Soroko 2018). In this paper, Soroko provided data on the percentage of ethnically mixed marriages in Russia as a whole and separately by ethnic group. In 2010, 12% of all marriages in Russia were ethnically mixed. Note a decrease in this percentage compared to 1989 (14.7%), although the 1989 data refer to ethnically mixed households rather than couples and the numbers are not directly comparable. He also looked at gender asymmetry in intermarriage across ethnic groups and calculated a matrix of distances between ethnic groups, based on the differences between the observed frequencies in the contingency table of marital partners' ethnicities and the frequencies expected under the condition of independence. Time trends in intermarriage and the differences across cohorts were not analysed.

[3] Note that these data refer to the percentages of ethnically mixed households rather than couples.

A number of studies examined ethnic intermarriage in the former Soviet states that during the Soviet period experienced high in-migration of ethnic Russians. In post-Soviet Latvia, the intermarriage between ethnic Russians and Latvians increased (Monden and Smits 2005; also see Kronenfeld 2005), while in Estonia the intermarriage rates between ethnic Russians and Estonians remained constant (Puur et al. 2018; van Ham and Tammaru 2011). Kozlov (2017) analysed distances between ethnic groups in Kazakhstan and Estonia, but not time trends in intermarriage. While the findings in these states cannot be extended to Russia, the difference in trends between Latvia and Estonia suggests that local and historical context may have a significant impact.

3. Research design

One of the central questions in the intermarriage literature is to what extent a decrease in ethnic endogamy can be explained by structural factors (such as migration or urbanisation that increase contact between members of different ethnic groups) and by changing preferences of marital partners (Kalmijn 1998). It is difficult to separate these factors empirically and even conceptually. More frequent contact between ethnic groups may contribute to the change in preferences (this is the central argument of Allport's contact hypothesis, see Allport 1954; Pettigrew and Tropp 2006), whereas changing preferences may trigger higher migration.

The studies of intermarriage in Russia mostly looked at the country as a whole or split it into several macro-regions. This is problematic because many ethnic groups are very unevenly spread across Russia. Chechens constitute 95% of Chechnya's population, and their opportunities for interethnic contact are much more limited there compared to Chechens living in other Russia's regions. Using Russia's federal regions as units of analysis hardly solves this problem. For example, in the Republic of Tatarstan, the population in some areas in the North is over 90% ethnically Tatar, whereas in some Southern areas ethnic Russians are a majority. Thus, the analysis of intermarriage at the aggregated regional level would confuse the effects of opportunities for interethnic contact and preferences of marital partners from particular ethnic groups.

To address this problem, we look at intermarriage trends at the city level. Arguably, people living in the same city have a higher probability of contact, although this is also affected by ethnic residential segregation and the ethnic structure of social networks. Even given these limitations, we argue that trends of intermarriage at the city level better reflect changes in preferences of marital partners rather than simply opportunities for interethnic contact. To exclude immigrant couples (who made their marital choice in a different context), we include in the sample only locally born women.

4. Four cities, four distinct cases

We focus on four cities – Moscow, Kazan, Makhachkala, and Vladikavkaz – that represent four distinct cases. Moscow is a mostly ethnically Russian city, the capital of the Russian state located in the ethnic Russian heartlands. We compare it with three cities in the titular ethnic republics: Kazan (Muslim indigenous population, contentious relations with the Russian state going back to the 16th century), Makhachkala (Muslim indigenous population, more recent contentious relations with the Russian state starting in the 18th and 19th century), and Vladikavkaz (mostly Orthodox Christian indigenous population, more amicable relations with the Russian state). Below we provide brief information about each case to justify their selection.

Moscow. Moscow (population 12.6 million, 2019) is not only Russia's capital and the largest city but also historically the founding city of the Russian state. It is located in the ethnic Russian heartlands (as opposed to colonised territories) and is mostly populated by ethnic Russians. According to the 2010 census, 92% of the city's population are Russian. However, this number is probably overestimated and Moscow is also home to many other ethnic groups, some of them of recent immigrant origin and poorly accounted in the census data. The largest ethnic minorities are Tatars and Ukrainians, as well as ethnic groups from Central Asia and the Caucasus.

Kazan. Kazan (population 1.2 million, 2019) is the capital of the Republic of Tatarstan in the Volga region. In the Middle Ages, it was the centre of the Kazan khanate, conquered by the Russian state in the 16th century. At that time, Kazan was populated by mostly Muslim ethnic groups of Turkic and Finno-Ugric origin (Romaniello 2012). After the initial slaughter of the conquered city, the Russian state started colonising the region, and by the end of the 19th century, the population was divided between ethnic Russians and Tatars. According to the 1897 census, 74% of Kazan's population spoke Russian and 22% spoke Tatar as their mother tongue. The proportion of Tatars in the city's population increased during the Soviet period, mostly because of migration from the countryside, and in the 2010 census, 49% of the population self-identified as ethnic Russians and 48% as Tatars. Most Tatars are Muslim, although many do not practice religion actively (Lehmann 1997) and adhere to a more 'tolerant' Tatar version of Islam (Yusupova 2016).

Makhachkala. Makhachkala (population 0.6 million, 2019) is the capital of the Republic of Daghestan in the North Caucasus, bordering Azerbaijan and Georgia. Dagestan is a uniquely ethnically and linguistically diverse region. It is home to over 30 different ethnic groups, each with their own language (Comrie 2008). About half of Daghestan's territory is mountainous, populated since the early Neolithic times by ethnic groups from the Nakh-Daghestanian linguistic family. According to genetic research, these groups (Avars, Dargins, Lezgians, Lakis, etc.), although descending from a common origin about 6,000 years ago, have been genetically isolated from each other for a very long time and have a very low

level of within- and a high level of between-population genetic diversity (Karafet et al. 2016). The plains in the north of Daghestan are home to Kumyks and Nogais, two Turkic ethnic groups who emerged in Daghestan in the Middle Ages. Daghestan also has communities of Azeris, Chechens, ethnic Russians, and Mountain Jews (who moved to the region in the early Middle Ages from Persia).

The Russian state conquered Daghestan in the 19th century, overcoming fierce resistance of the locals in a military campaign that lasted for almost 50 years. Makhachkala was founded as a Russian fortress called Petrovsk in 1844 and was renamed to Makhachkala in 1921 (Ware and Kisriev 2014). Originally the city's population was mostly ethnically Russian; the Russians started leaving the region, mostly for economic reasons, as early as the 1960s and this process intensified after the dissolution of the Soviet Union. In 1959, 51% of Makhachkala's population were ethnic Russians, compared to 38% in 1970, 21% in 1989, and 5% in 2010. Over the same period, the population of the city grew from 120,000 in 1959 to 600,000 in 2019, both because of high birth rates and migration from the villages in the mountains that intensified in the post-Soviet time (Eldarov et al. 2007). The main ethnic groups in the city's population now are Avars, Kumyks, Dargins, Lezgians, and Lakis. The majority of Daghestanis are Sunni Muslims, and Islam generally plays a greater role in Makhachkala compared to Kazan (Ware and Kisriev 2014).

Traditionally, Daghestani ethnic groups are characterised by very high endogamy. Karafet et al. (2016) note that the high levels of genetic isolation of native ethnic groups can only be explained by many generations of endogamous marriages, usually concluded within the same clan and village. In an early study of ethnic intermarriage in Makhachkala, Evstigneev (1972) showed some increase in ethnic intermarriage in the 1950s and 1960s, albeit from a very low base. In 1940, not a single woman from indigenous Daghestani groups in Makhachkala entered an ethnically mixed marriage.

Vladikavkaz. Vladikavkaz (population 0.3 million, 2019) is another city in the North Caucasus and the capital of the Republic of North Ossetia. The Ossetians are descendants of the Alans, an Iranian speaking people who began to settle in the Caucasus around the 1st century BC (Nasidze et al. 2004; Forsyth 2013). Contrary to most peoples in the North Caucasus who are Muslim, most Ossetians are Orthodox Christians (Christianity was adopted by the Alans in the 10th century and further re-introduced in the late 18th century by the Russian Orthodox Church). Perhaps as a consequence of belonging to the same religion, Ossetians were treated favourably by the Russian imperial administration and in the late 18th century many Ossetian communities willingly swore allegiance to Russia (Forsyth 2013). Vladikavkaz was founded in 1784 as a Russian military outpost. North Ossetia was the only part of the North Caucasus where a system of Russian-language schools was established by the early 20th century; nowadays, many Ossetians speak Russian

as their first language. According to an expert assessment, North Ossetia is "the most favourable place for Russians in the North Caucasus" (Galyapina and Lebedeva 2016).

Similar to Makhachkala, originally ethnic Russians were the majority in Vladikavkaz, while most Ossetians lived in the countryside and in smaller towns. According to the 1897 census, 66% of the Vladikavkaz' population were Russian speakers. In 1959 the proportion of ethnic Russians was 59%. Starting from the 1960s and similar to Daghestan, ethnic Russians started leaving the region, and by 1970 their share in the population of Vladikavkaz decreased to 49%, further dropping to 36% in 1989, 28% in 2002, and 25% in 2010. The share of Ossetians in 2010 was 64%. Between 1959 and 2019, the population of the city increased about two-fold.

In the online Appendix, we present data and analysis for two more cities: Rostov (mostly ethnically Russian city with the trends in intermarriage similar to Moscow) and Ufa (the capital of the Republic of Bashkortostan with the mixed Russian/Tatar/Bashkir population and with the trends similar to Kazan).

5. Data

Our data come from the most recent Russian census, conducted in 2010.[4] We made use of access to individual level census data that was provided by the Russian Statistical Office via a web API.[5] The data include complete records from the census; a small number of observations were randomly added to the cells of generated contingency tables for the anonymization purposes. Theoretically, researchers could request any number of variables, but in practice, the IT system could not handle requests for large data volumes. Therefore, we limited our requests to three variables for each city: the ethnicity of wives and husbands and the age of wives.

The census question on ethnicity was based on self-identification and was open-ended so that people who were interviewed could provide any response. Our data include both married and cohabiting couples. The data do not distinguish marriages from cohabitations, and for the sake of brevity we use the term "marriage" for both. We limited the data to the couples where wives (but not necessarily husbands) were born locally. The justification for this was excluding immigrant couples who got married elsewhere thus focussing the study on local marriage markets. Following this logic, we kept in the data immigrant men married to locally born women.

Russian census data have some known biases, such as undercounting of newborn children, double counting of internal migrants, etc. (Andreev 2012). Data collection was organised as face-to-face interviews at the place of residence, and non-response rates were high,

[4] The next census is scheduled for 2020, but individual level data will not be available to researchers until 2024.
[5] See https://vpnmicrodata.gks.ru/webapi/ (at the time of preparing this paper the website was undergoing technical maintenance).

especially in Moscow. When interviewers could not achieve a response, it was allowed to enter information from the housing registration data. The result of this was undercounting of recent immigrants (mostly from Ukraine and Central Asian states), many of whom were not registered. For example, the 2010 census counted about 300,000 Uzbeks and 200,000 Tajiks in Russia, while police data about the number of foreign passport-holders for December 2012 (based on migration cards completed while crossing the Russian border) included 2.3 million Uzbek nationals and 1.1 million Tajik nationals (Bessudnov 2016). This problem was likely to be more severe in Moscow, where immigrants constituted a larger share of the population, and less severe in other regions, for ethnic groups that were indigenous or represented earlier immigration waves, and for older cohorts.

For each city, we have a contingency table with three variables: the ethnicities of husband and wife, and wife's age. We keep as separate categories the ethnic groups that counted over 3,000 locally born women in Moscow and over 1,000 women in the other three cities, recoding the remaining ethnic groups as "other". Wife's age is a categorical variable with three levels: 16 to 35 years, 36 to 50 years and over 50 years.

The main purpose of this paper is to study trends in ethnic intermarriage, and we use wife's age to approximate marriages and cohabitations started in different periods. This is a rough proxy, and incidence measures of intermarriage (i.e. registration data by year) would be preferred to prevalence measures (based on the current stock of marriages) (Kalmijn 1998). However, incidence data are not available for Russia, and prevalence data from the census are the only data source available to study ethnic intermarriage in Russia, especially at the local level. The sample sizes in household surveys such as the Russian Longitudinal Monitoring Survey are not large enough for this purpose. As usual, prevalence data introduce some bias to the study of intermarriage, such as selective divorce. It is possible that the probability of divorce is higher for ethnically heterogeneous than ethnically endogenous couples. We discuss later how these limitations could affect our findings.

6. **Measures and statistical modelling**

As a measure of ethnic endogamy, we report both the percentages of people married within their ethnic group and logged odds ratios, a measure that is independent from the population shares of ethnic groups (Kalmijn 1998). Odds ratios can be calculated for the chances of a member of an ethnic group to marry within the group rather than outside the group; larger odds ratios indicate stronger endogamy.

We can also calculate the odds ratio for two specific groups (for example, for the odds of an ethnically Russian man to marry a Russian rather than a Ukrainian woman, as compared to the odds of a Ukrainian man to marry a Russian rather than a Ukrainian woman). In this case, larger odds ratios indicate less intermarriage and more social distance between two groups.

For two ethnic groups A and B, the odds ratio is

$$OR = \frac{n_{aa}n_{bb}}{n_{ab}n_{ba}}$$

i.e. the product of the numbers of ethnically homogeneous marriages divided by the product of the numbers of ethnically heterogeneous marriages between two groups. Since odds ratios for intermarriage can be quite large, it is easier to use logged odds ratios.

To introduce the third variable in the analysis, wife's age, we apply log-linear models. To model whether the association between wife's and husband's ethnicities is independent from wife's age we fit the constant intermarriage model:

$$\log N = \{WH, WA, HA\}$$

where W is wife's ethnicity, H is husband's ethnicity and A is wife's age.

To test whether there is a time trend in intermarriage we apply UNIDIFF models, originally developed for the social mobility research (Goldthorpe and Erikson 1992; Xie 1992). These models assume that the strength of the association between marital partners' ethnicities changes over time, but the change between two periods can be described by one parameter (in other words, the pattern of association remains stable over time, but the strength of the association changes uniformly across all cells of the contingency table). The UNIDIFF model takes the following form:

$$\log N = \{WA, HA, \beta_A WH\}$$

where the parameter β_A is the UNIDIFF coefficient for wife's age A.

When selecting between different specifications of log-linear and log-multiplicative (such as UNIDIFF) models it is customary to test whether the difference in the fit across two models is statistically significant according to a likelihood-ratio test. This approach does not work well with census data with a large number of observations, as even minor and trivial improvements in the model fit will be statistically significant. The Bayesian Information Criterion (BIC) that partially solves this problem by penalising for adding extra parameters in the model has several shortcomings (Weakliem 1999) and, perhaps more importantly, does not have an intuitively clear interpretation. We report these criteria, but our preferred tool for model selection is the dissimilarity index (Δ), a measure that varies from 0 to 1 and represents the proportion of cases that need to be moved to a different cell for the model to fit perfectly. The dissimilarity index is a measure of practical rather than statistical significance, and "with huge samples, it is better to focus on estimation rather than hypothesis testing" (Agresti 2013, p.352). With population data, this statement is even more relevant.

We analyse the data for each city separately.

7. Results

7.1. Ethnic endogamy and intermarriage

We begin with presenting the distribution of marriages by ethnic group in four cities as heat maps in Figure 1. The heat maps also help us visualise the ethnic structure of the cities' populations. In Moscow, endogamous marriages between ethnic Russians are by far most frequent. In Kazan, where the population is split about equally between ethnic Russians and Tatars, most people marry within their ethnic groups (cases on the main diagonal), but intermarriages between ethnic Russians and Tatars are also numerous. In Vladikavkaz, we observe a similar pattern for Ossetians and ethnic Russians, although ethnic intermarriages seem to be less frequent compared to Kazan. Finally, in Makhachkala, the heat map is dominated by the cases on the main diagonal, indicating a very high propensity for ethnic endogamy.

(Figure 1 about here)

In Table 1 we report the percentages married within their ethnic group, separately for men and women, and the odds ratios for ethnic endogamy (calculated as the ratio of the odds to marry within the ethnic group vs all other groups).

Table 1. Percentages of endogamous marriages and odds ratios for ethnic endogamy

City	Ethnic group	% among women (in our data)	% endogamous marriages (women)	% among men (in our data)	% endogamous marriages (men)	Log odds ratio for ethnic endogamy
Moscow	Ethnic Russian	95	94	91	98	3.3
	Tatar	0.9	58	1.1	51	5.6
	Jewish	0.5	55	0.7	36	5.6
	Ukrainian	0.2	17	1.3	2	2.8
	Armenian	0.1	57	0.5	15	5.7
Kazan	Ethnic Russian	53	81	52	83	3.0
	Tatar	46	80	45	82	3.1
	Chuvash	0.3	26	0.6	13	4.2
Vladikavkaz	Ossetian	66	93	68	91	4.1
	Ethnic Russian	26	75	23	85	4.1
	Armenian	2.8	62	3.3	53	4.6

	Georgian	1.8	53	2.1	45	4.5
Makhachkala	Avar	24	93	25	88	5.7
	Kumyk	22	91	22	92	6.2
	Dargin	15	90	15	88	6.2
	Lezgian	13	88	13	89	6.1
	Laki	13	88	13	88	6.1
	Ethnic Russian	6	71	4.7	92	6.4
	Tabasaran	1.8	85	1.9	82	7.4
	Nogai	1.2	86	1.2	90	8.6
	Rutulian	1.1	81	1.2	76	7.3
	Aghul	0.9	86	0.9	83	8.3
	Azerbaijani	0.7	73	0.8	61	6.7
	Tsakhur	0.3	95	0.4	85	10.3

In Moscow over 90% of ethnic Russians married endogamously, which is not surprising given that they are by far the largest ethnic group. However, when we look at the odds ratio for ethnic endogamy, a measure that is independent from the ethnic population structure, we see that ethnic Russians in Moscow had a lower propensity for ethnic endogamy than Tatars, Jews or Armenians, although a higher propensity compared to Ukrainians (only 2% of Ukrainian men and 17% of Moscow-born Ukrainian women were married to other Ukrainians).

In Kazan, about 20% of the ethnic Russian and Tatar populations are intermarried, and the odds ratios for endogamy are lower in Kazan than in Moscow for both ethnic groups. We also observe considerable intermarriage between Ossetians and ethnic Russians in Vladikavkaz, although the odds ratios for endogamy are higher there than in Kazan. Finally, in Makhachkala, despite the ethnic diversity of the city's population, for most ethnic groups around 90% of all marriages are endogamous. As an extreme example of ethnic endogamy, Tsakhur women only constitute around 0.3% of Makhachkala's population, and yet 95% of them are married to Tsakhur men.

Table 1 also shows gender asymmetry in intermarriage across ethnics groups, but these data are difficult to interpret substantively as our data exclude couples where women were not born locally.

In the appendix, we report pairwise symmetric odds ratios between all ethnic groups in all the cities. These data can be interpreted as a measure of social distance between the groups.

7.2. Change in ethnic endogamy over time

Next, we explore how ethnic endogamy changed over time. We approximate the trends in intermarriage by looking at the odds ratios for ethnic endogamy for three cohorts of women, aged 16 to 35, 36 to 50 and over 50 at the time of the 2010 census. The assumption is that marriages and cohabitations for these three cohorts started in different periods. Of course, there are many deviations from this assumption. Younger cohorts may have started cohabitating later than older cohorts. Some women from the older cohorts married more recently, and divorce rates could vary for endogamous and interethnic couples. However, even given all these limitations and sources of potential bias, large changes in the odds ratios across the three cohorts are highly likely to reflect time trends in intermarriage.

(Figure 2 about here)

Figure 2 shows log odds ratios for ethnic endogamy for three cohorts. The trends in odds ratios vary across four cities. In Moscow, the odds ratios are constant for ethnic Russians, slightly decreased in younger cohorts for Tatars, and increased over time for Jews and Armenians. For these two groups (and for a lesser extent, for Ukrainians) the chances of intermarrying decreased over time.

Contrary to this, in Kazan and Vladikavkaz, we observe a strong trend towards more intermarriage in younger cohorts. Both for ethnic Russians and Tatars in Kazan, and for ethnic Russians and Ossetians in Vladikavkaz, the chances of marrying outside their own group greatly increased over time. In Makhachkala the trend is similar. Younger people are relatively more likely to be married outside their own group, although ethnic endogamy remains very high even in younger cohorts. However, the trend towards greater intermarriage applies only to the indigenous Daghestani ethnic groups, and not to ethnic Russians, for whom the odds ratios for endogamy are the same across all three cohorts.

To test this more formally, we applied log-linear and log-multiplicative models, as described in the previous section. We show the results in Table 2. For each city, we fitted two models: the constant intermarriage model that implies no change in the odds of intermarriage across three cohorts and the unidiff model that allows for change across the cohorts, but implies a uniform pattern of change in the local odds ratios that is described by a single parameter for each cohort. We then report deviance (G^2), BIC and dissimilarity index for each model, and the deviance and p-values coming from the likelihood ratio tests comparing the unidiff vs constant intermarriage models.

Table 2. Log-linear and log-multiplicative models for intermarriage

city	model	G^2	p-value	BIC	Dissimilarity index (0 to 100)
Moscow					
	constant	863		1962	0.19
	unidiff	824		1933	0.15
	unidiff vs. constant	38.5	<0.001		
Kazan					
	constant	3331		3834	3.01
	unidiff	190		701	0.30
	unidiff vs. constant	3141	<0.001		
Vladikavkaz					
	constant	1100		1818	2.84
	unidiff	254		981	0.84
	unidiff vs. constant	846	<0.001		
Makhachkala					
	constant	1538		3051	1.67
	unidiff	578		2101	0.64
	unidiff vs. constant	960	<0.001		

As already noted, working with the census data means that all statistical tests are likely to return statistically significant results, and parsimonious models will be rejected. Indeed, according to both the likelihood ratio tests and BIC, the unidiff model shows a better fit for all four cities. The constant intermarriage model provides a reasonably good fit for Moscow, where it misclassifies only about 0.2% of the cases. The unidiff model improves the fit only marginally, further reducing the percentage of misclassified cases to 0.15%. Contrary to this, in the other three cities the constant intermarriage model does less well, misclassifying 3% of cases in Kazan and Vladikavkaz and 2% in Makhachkala, while the unidiff models improve the fit reducing the proportion of misclassified cases to under 1%.

To illustrate this further, we show the coefficients from the unidiff models in Figure 3. The oldest cohort is our reference group, and for Kazan, Vladikavkaz and Makhachkala the strength of the association between men and women's ethnicities decreases in younger cohorts. In Moscow, the pattern is different and the unidiff coefficients do not show a trend towards more intermarriage in younger cohorts.

(Figure 3 about here)

We conclude that in Moscow the constant intermarriage model describes the data well, while in the other three cities the unidiff model clearly provides a better fit.

8. Discussion and conclusion

In this paper we document trends in ethnic intermarriage in four Russian cities. Our general conclusion from this analysis is that there is no universal trend for ethnic intermarriage in Russia. We observe specific local trends in our four cases, driven by the ethnic composition of the populations, history of interethnic relations and religious differences between ethnic groups.

When considering intermarriage, we need to take into account both the baseline odds ratios for endogamy and the trend. In Moscow, a mostly ethnically Russian city, ethnic Russians are quite open to intermarriage, with the log odds ratio (OR) for endogamy of about 3.3. Although one needs to be careful when comparing odds ratios across different countries and ethnic groups, we can draw some international parallels, although at the national rather than city level. For Britain, Muttarak and Heath (2010; calculated from Table AII) reported the log OR of 6.2 for the White British with the aggregated data for 1988-2006. In the USA, the log OR for endogamy for Whites was about 7 in 1980 and 4.5 in 2005 (Rosenfeld 2008, Figure 1).

Contrary to Whites in the USA and Western Europe, for ethnic Russians in Moscow there is no trend towards greater intermarriage in younger cohorts. This difference is likely due to the differential history of racial and ethnic relations in the USA, Western Europe and Russia. In the USA, the increase in intermarriage reflects the erosion of racial barriers in the 20th century, mostly starting from the 1960s (Rosenfeld 2008). In Western Europe, it shows greater acceptance of (often non-White) immigrants from outside of Europe, especially in the second generation (Drouhot and Nee 2019). In Moscow, the non-ethnically Russian groups are mostly White and some of them (such as Ukrainians) are culturally close to ethnic Russians, often sharing the same language and religion. The main ethnic minorities (Armenians, Jews, Tatars, Ukrainians) originate either in other Russian regions or in former Soviet republics and have a long history of co-existence with ethnic Russians in the Russian empire and the USSR. The Soviet state from its very origins promoted ethnic mixing (Gorenburg 2006). Moscow did experience mass immigration from perhaps more culturally distant Central Asian states in the late 2000s and 2010s, but this is not reflected in the 2010 census data we used. While the USA and Western Europe originally had low levels of intermarriage between White and non-White groups that have improved since the 1960s, in Moscow, because of the lower social distance between ethnic Russians and other groups, odds ratios for endogamy for ethnic Russians have always been lower and there was only limited room for further change.

Another factor is the attitudes of ethnic Russians in Moscow towards other ethnic groups, which vary from more positive for the groups of European origin (such as Ashkenazi Jews or Ukrainians) to more negative for the groups of Southern origin (such as Armenians or Tatars) (Bessudnov 2016; Bessudnov and Shcherbak 2019). Perhaps all these factors explain both the relative openness of ethnic Russians in Moscow to intermarriage and the lack of a trend towards more intermarriage over time.

For Jews and Armenians in Moscow endogamy is fairly high, and it increased in younger generations. It is hard to interpret these findings without qualitative data, but perhaps we observe some strengthening in the ethnic and cultural identity of these groups in the post-Soviet period. Contrary to this, endogamy for Ukrainians in Moscow is very low (even lower than for ethnic Russians), although with some tendency to increase slightly in younger generations. Given the cultural proximity between these two groups, it may indicate a greater probability of assimilation of Ukrainians who live in Russia into Russians. For Tatars, endogamy in Moscow is at about the same levels as for Jews and Armenians, with some decrease between the oldest (on the one hand) and the middle and youngest (on the other hand) generations.

Rostov, another mostly ethnically Russian city, shows results that are similar to Moscow (the data for Rostov are presented in the Appendix). Ethnic Russians have low endogamy (log OR = 3.1, about the same as in Moscow) that does not change across generations. Two largest minorities, Tatars and Armenians, have higher endogamy that has been stable for Armenians and decreased for Tatars in the youngest generation.

Other two cities, Kazan and Vladikavkaz, demonstrate a different dynamics of ethnic intermarriage. Both cities are capitals of titular ethnic republics, with mixed ethnically Russian and non-Russian populations (Tatar in Kazan, Ossetian in Vladikavkaz). In both cases, we observe a rapid decrease in endogamy both for ethnic Russians and titular ethnic groups across three generations. In Kazan, endogamy is lower than in Vladikavkaz, despite Tatars being Muslim (although many are non-practising) and Ossetians Orthodox Christian. Having a less traditional society and a longer history of being part of the Russian state in Kazan (compared to Vladikavkaz) seems to be more important for intermarriage in the Russian context than religious differences. In Kazan in the youngest generation the log OR for endogamy both for ethnic Russians and Tatars is about 2.5 (in Vladikavkaz about 3.5 both for ethnic Russians and Ossetians). This can be compared with the Latvian case where intermarriage between Latvians and ethnic Russians increased in the post-Soviet period, with the log OR for the Russian-Latvian marriages of about 2.7 in the early 2000s (Monden and Smits 2005). The data for another capital of a titular ethnic republic, Ufa, confirm these findings (presented in the Appendix). There we also observe a rapid decrease in endogamy in younger generations, both for ethnic Russians and other ethnic groups (Tatars and Bashkirs).

Makhachkala, our fourth case, exhibits a different trend. The capital of Daghestan, an ethnic republic with mostly Muslim population and often conservative social attitudes and customs, has traditionally had very high endogamy. There we do observe more intermarriage in younger cohorts as well, but mostly between indigenous Muslim ethnic groups, rather than with ethnic Russians. This may reflect the creation of a stronger pan-Daghestani (rather than ethnic) identity (Eldarov et al. 2007) that, however, may not necessarily include ethnic Russians.

More in-depth qualitative studies may be necessary to interpret these trends in intermarriage (see as an example a study of Kyrgyz-Russian marriages in rural Kyrgyzstan by Pelkmans and Umetbaeva (2018)) and it is hard to do this only having the statistical data on trends. We need to know more about social mechanisms driving intermarriage in younger generations in Russia's ethnic republics. Urbanisation and the rapid increase in titular ethnic urban population in regions' capitals may be an important factor, as well as the expansion of the educational system and the Russian language as the main language of communication for non-ethnically Russian groups.

Some limitations of this study need to be acknowledged. First of all, there might be some bias from selective migration patterns. In particular, mixed couples in older cohorts could be more likely to leave ethnic republics between the 1960s and 2010s (especially in Makhachkala and Vladikavkaz), so that endogamy in older cohorts could be exaggerated. Second, in the Russian census people can only identify as having one particular ethnicity, even if their parents were a mixed couple. People may have mixed or hierarchical identities, and may change ethnic identity depending on the context. Defining a person as belonging to only one ethnic group potentially distorts the analysis when children from mixed marriages who identify as ethnic Russians (and there are more of them in the younger generations) get married to a non-ethnically Russian person (Gorenburg 2006). Third, incidence measures of intermarriage would be preferred, but we only have prevalence data. We are not aware of incidence data for Russia currently available to academics. Finally, the probability of divorce can be higher for intermarried couples, and that would introduce downward bias in estimating intermarriage in older cohorts. The divorce differential would have to be exceptionally high to produce these results. It would not explain the lack of a trend in Moscow. Overall, while acknowledging these limitations, we believe that they are not strong enough to explain away the patterns we documented.

Data availability

The data and replication code for this study are publicly available as a replication package on SocArXiv and at https://github.com/abessudnov/ruIntermarriagePublic .

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Figures

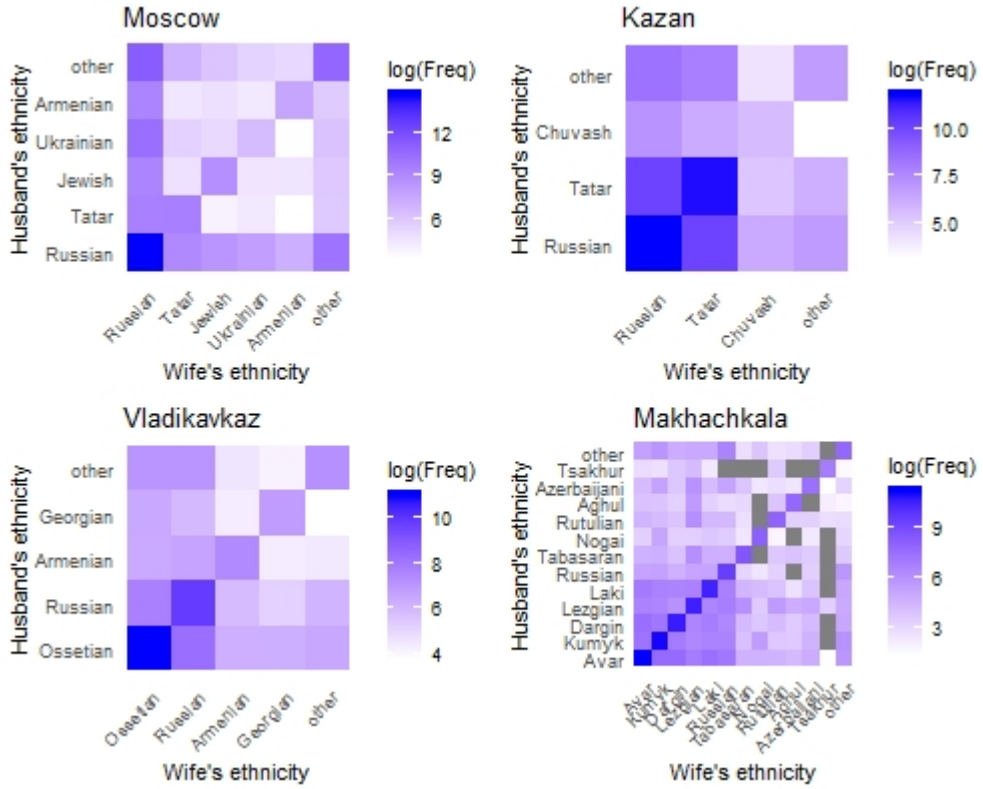

Figure 1. Distribution of marriages by ethnic group in the four cities

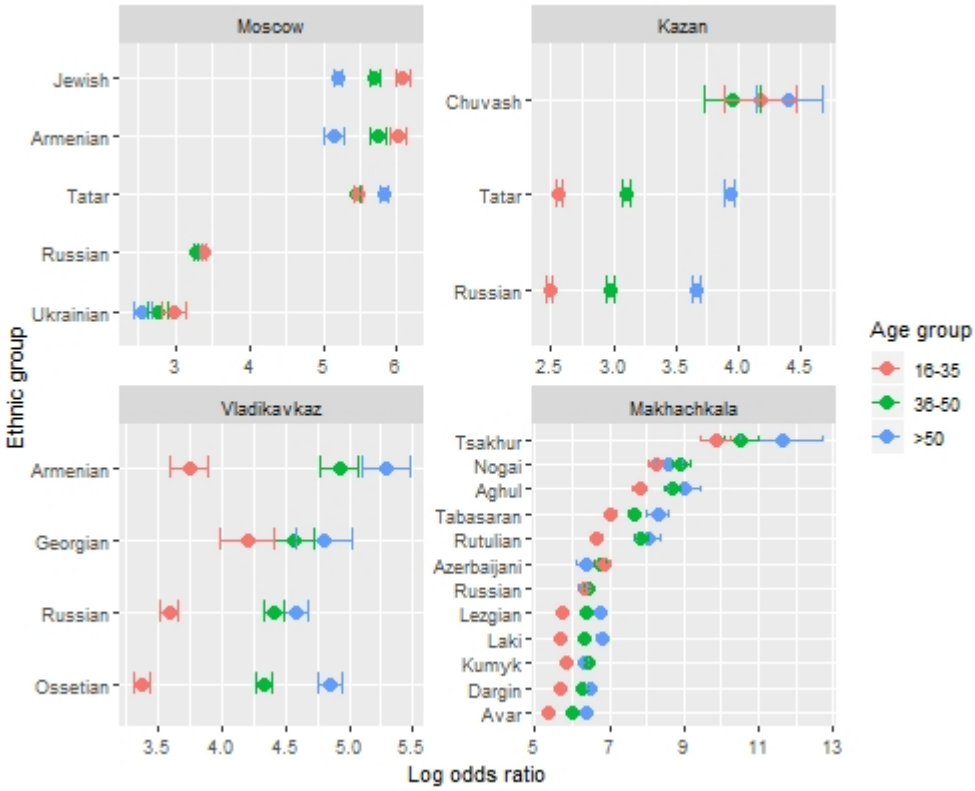

Figure 2. Change in ethnic endogamy across three birth cohorts. Log odds ratios shown with the 95% confidence intervals

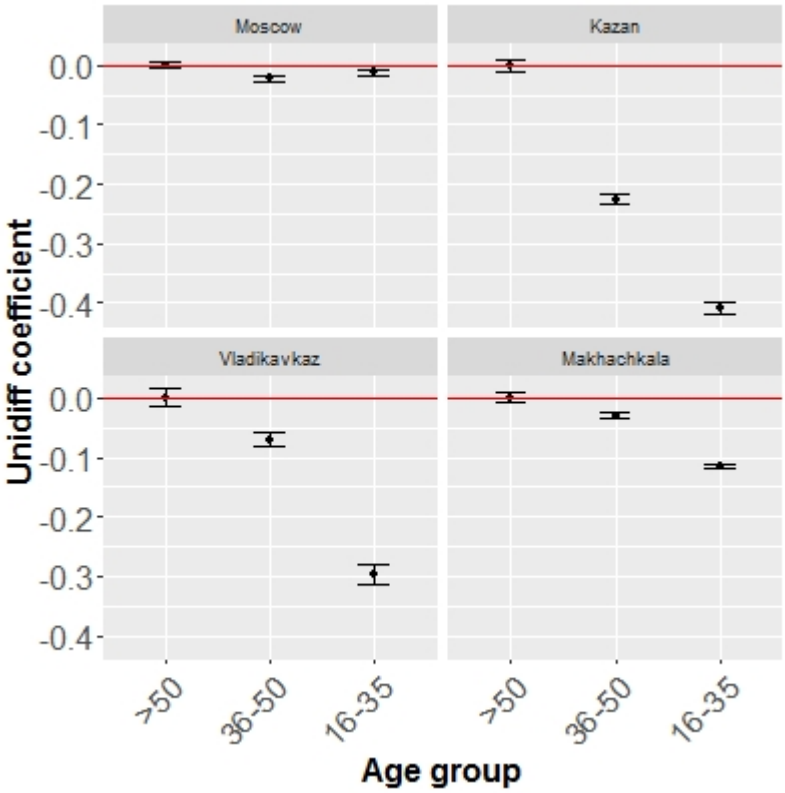

Figure 3. Unidiff coefficients for four cities

Appendix

A. Data for Rostov and Ufa

In the appendix we present the data and analysis for two more cities, Rostov and Ufa.

Rostov. Rostov (population 1.1 million, 2019) is a city in the South of European Russia. Founded in 1749, it has mostly ethnically Russian population (90%). The largest minority group are Armenians who lived in the city since the late 18th century.

Ufa. Ufa (population 1.1. million, 2019) is the capital of the ethnic republic of Bashkortostan in the Volga region, next to the republic of Tatarstan. The titular ethnic group in Bashkortostan are Bashkirs, a Muslim group that in many respects is similar to Tatars. Unlike Tatars, however, historically Bashkirs were nomads; Ufa was founded in 1574 as a Russian fortress. Nowadays the population of the city includes ethnic Russians (49%), Tatars (28%), and Bashkirs (17%).

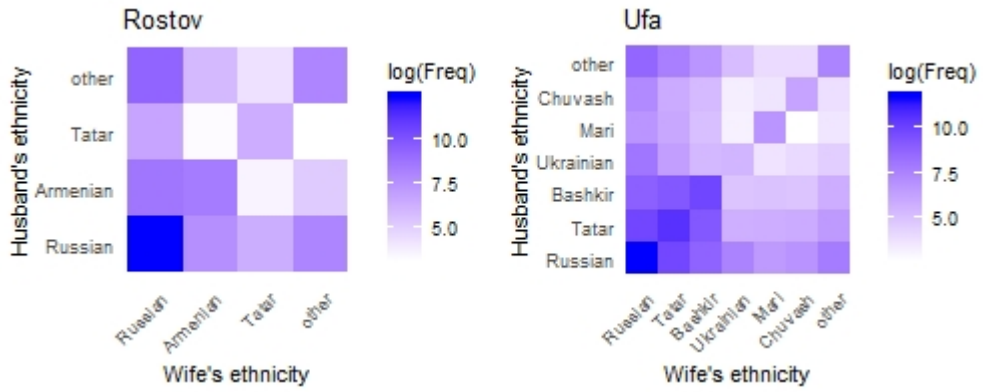

Figure A1. Distribution of marriages by ethnic group in Rostov and Ufa

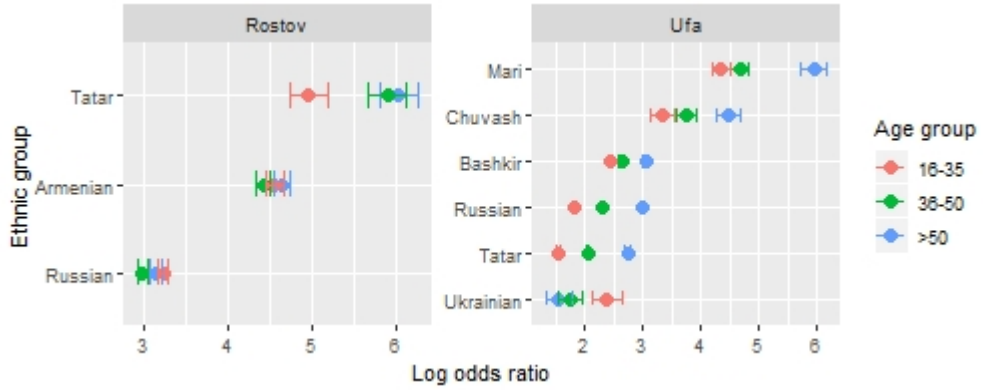

Figure A2. Change in ethnic endogamy across three birth cohorts in Rostov and Ufa. Log odds ratios shown with the 95% confidence intervals

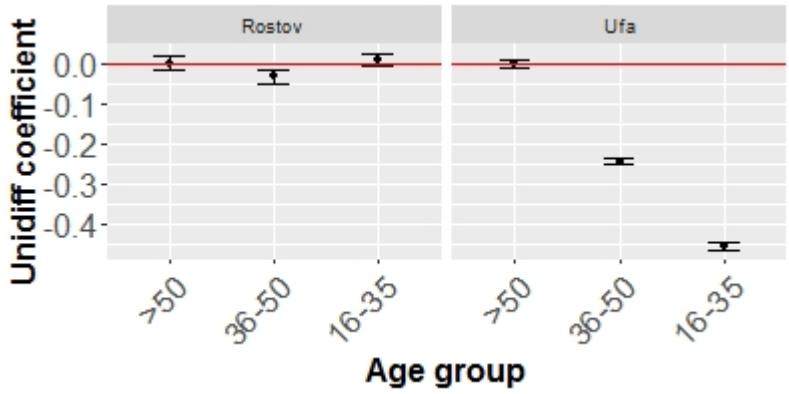

Figure A3. Unidiff coefficients for Rostov and Ufa

Table A1. Percentages of endogamous marriages and odds ratios for ethnic endogamy in Rostov and Ufa

City	Ethnic group	% among women (in our data)	% endogamous marriages (women)	% among men (in our data)	% endogamous marriages (men)	Log odds ratio for ethnic endogamy
Rostov	Ethnic Russian	95	93	91	98	3.1
	Armenian	2.4	66	3.6	44	4.6
	Tatar	0.4	46	0.5	40	5.6
Ufa	Ethnic Russian	57	77	55	80	2.3
	Tatar	26	56	25	57	2.0
	Bashkir	13	52	13	52	2.6
	Ukrainian	1	9	1.5	6	1.9
	Mari	0.8	40	0.8	36	4.8
	Chuvash	0.7	24	0.9	20	3.8

Table A2. Log-linear and log-multiplicative models for intermarriage in Rostov and Ufa

city	model	G^2	p-value	BIC	Dissimilarity index (0 to 100)
Rostov					
	constant	200		673	0.36
	unidiff	184		664	0.28
	unidiff vs. constant	16	<0.001		

Ufa					
	constant	5513		6921	4.37
	unidiff	1684		3102	1.93
	unidiff vs. constant	3829	<0.001		

The analysis shows that in Rostov, similar to Moscow, there was no change in the propensity for ethnic intermarriage across three cohorts. Contrary to this, in Ufa, similar to Kazan, the probability of ethnic intermarriage significantly increased in younger cohorts.

B. Symmetric odds ratios for six cities

The plot below reports pairwise symmetric odds ratios for ethnic intermarriage in six cities. These odds ratios can be interpreted as a measure of social distance between the ethnic groups.

Moscow. We observe low social distance between ethnic Russians and Ukrainians. The highest social distance is between Tatars and Armenians, and Tatars and Jews.

Kazan. The social distance between ethnic Russians and Tatars is relatively low, while Chuvashes are more endogamous.

Makhachkala. The odds ratios demonstrate a very high level of endogamy for all groups, and especially for smaller groups. Lezgians have relatively lower social distance with other groups from the South of Daghestan (Tabasaran, Rutulian, Aghul, Azeri).

Vladikavkaz. The social distance between all four major ethnic groups (Ossetians, Russians, Armenians, and Georgians) is approximately the same, although Georgians seem to be somewhat more endogamous.

Rostov. The social distance between Russians and Armenians is lower than in Moscow.

Ufa. Note a very low social distance between Tatars and Bashkirs, and between Russians and Ukrainians. The odds ratio for the Russian/Tatar intermarriage is low (and much lower than in other cities, except Kazan), but is higher for the Russian/Bashkir intermarriage. Chuvashes and especially Mari are more endogamous.

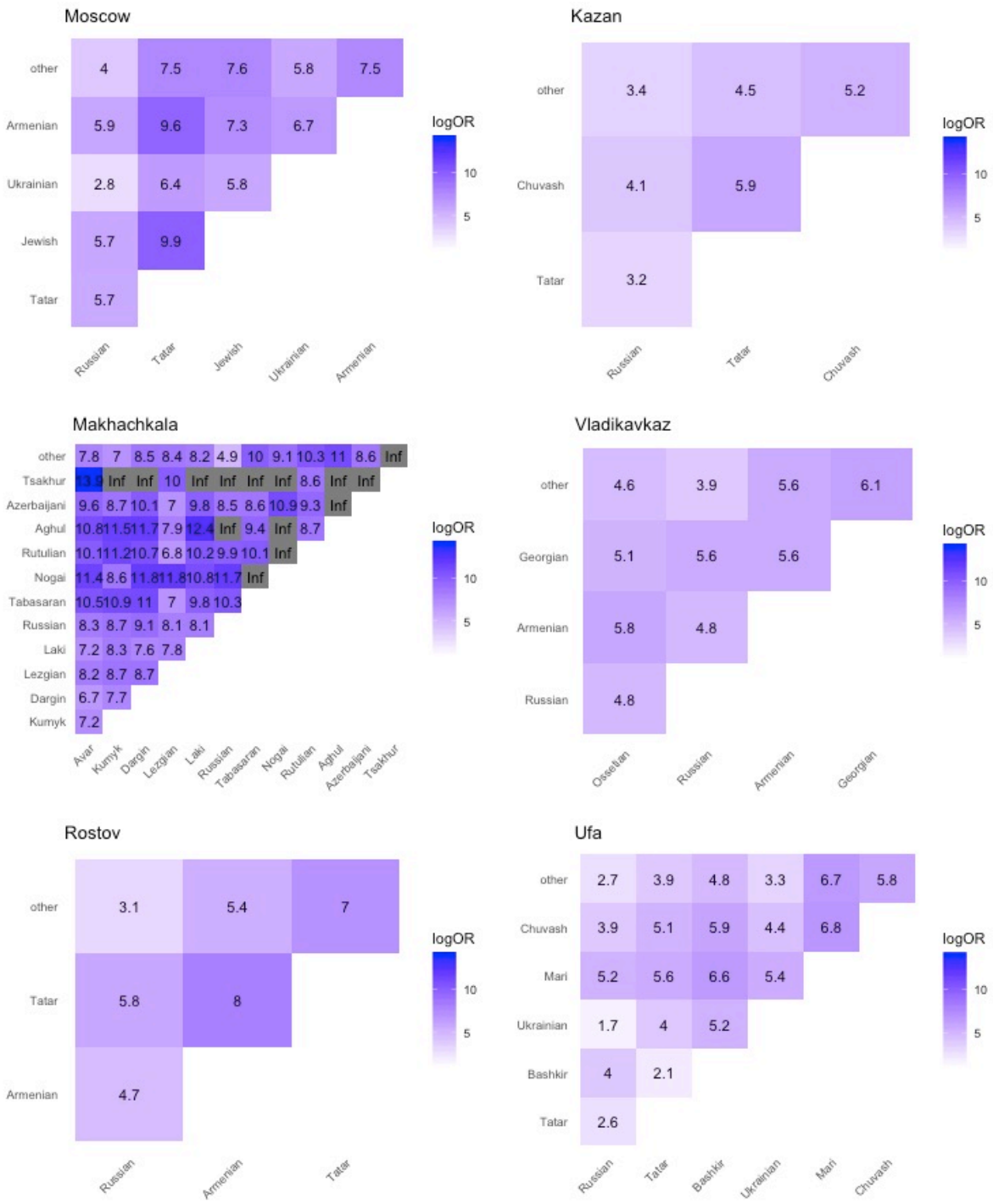

Figure B1. Pairwise symmetric odds ratios for ethnic intermarriage in six cities