Open Access Repository
www.ssoar.info

Survey Responses on Desired Fertility in Patriarchal Societies: Community Norms vs. Individual Views

Kazenin, Konstantin; Kozlov, Vladimir

Survey Responses on Desired Fertility in Patriarchal Societies: Community Norms vs. Individual Views

Konstantin Kazenin, Vladimir Kozlov

Abstract: The paper deals with a problem regularly faced by survey studies of patriarchal communities, i.e. communities with a high authority of senior generations and a low level of women's autonomy. In such communities, female respondents might give untruthful answers to survey questions in order to fit norms which are treated as obligatory or highly desirable in the community. The situation causes a "community bias" in survey results. The task of the paper is to show using the example of a survey concerning reproductive behaviour that the expected "community bias" can indeed occur in patriarchal communities. For this purpose, we suggest a relatively simple method of discovering "community bias" and apply this method to the results of a qualitative survey which we conducted in the rural part of the North Caucasus, a region of Russia where patriarchal social norms are quite strong. A characteristic of the North Caucasus which is important for our study is that its village communities, inhabited mainly by Muslims, differ considerably in the degree to which patriarchal norms are preserved there. The central idea of our method is to study the significance of community parameters of patriarchy for individual answers to survey questions. Community parameters are calculated as averages of the individual parameters of women interviewed in the same village community. Multi-level regression models are run for both the actual and the desired number of children, which allow us to distinguish between individual and community effects. In agreement with the "community bias" hypothesis, community characteristics are found to be significant for answers on desired, but not on actual, fertility. Based on this result, some tasks for future research of the "community bias" effect on answers to survey questions concerning reproductive behaviour are suggested.

1   Introduction

The paper deals with the survey behaviour of respondents to demographic surveys undertaken in communities with strong patriarchal family norms. By patriarchy, following, *Lerch* (2013), *Szołtysek et al.* (2017), we mean strict asymmetries of gender and generation roles in a family, which support the subordinate position of women and the empowerment of elder generations over younger generations (see section 2.1 for a more detailed treatment of the concept of patriarchy). In patriarchal communities, there are special reasons to assume that respondents to a survey will avoid expressing attitudes to some family matters if their attitudes fail to align with those prevailing in the community to which they belong. This tendency will be called "community bias" in this paper (see *Krumpal* 2013 for a general overview on literature on social desirability and community bias in answering survey questions, *Milewski* and *Otto* 2017 for social desirability of survey behaviour of international migrants, and section 2.1 for further details on this concept). We give empirical evidence that "community bias" is indeed observed in survey answers at least to one demographically important question, which concerns women's desired fertility.

Although no studies concentrating on the relation between patriarchy and "community bias" are known to us, there are special reasons to expect this bias in patriarchal communities. It has been shown that if the power of the elderly is present in a community, family behaviour is one of the most probable objects of influence of elder generations, so that adherence to behaviour patterns imposed by elders becomes a kind of social duty (*Mason* 2001; *Kaser* 2008). In this context, it may be socially undesirable for a respondent to report facts of his/her family life or his/her attitudes to family issues when they contradict patterns approved by elders. Also, strict gender hierarchies and the subordinate position of women in patriarchal communities may put special constraints on the survey behaviour of women, making it especially difficult for them to give answers which do not fit attitudes and values accepted in the community. A considerable number of studies have shown that strong generation and gender asymmetries of power can influence actual fertility behaviour, being related to a higher number of children or the mother's younger age at birth (cf. *Dyson/Moore* 1983 and *Malhotra et al.* 1995 for India, *Lerch* 2013 for Albania, *Dommaraju/Agadjanian* 2008 for some countries of Central Asia, and some others). If patriarchal norms in a community can be strong enough to influence actual family behaviour, it is quite natural also to expect that they can prevent a respondent to a survey from reporting something that does not align with those norms. In this case respondents may be caused to give untruthful answers. Our paper attempts to check this expectation. We study significance of community parameters of patriarchy for individual answers to survey questions. Expressed in most general terms, the central idea behind our analysis is that the significance of community parameters is an indicator of possible "community bias".

For our study, we have chosen a society where the level of patriarchy has been reported by existing studies to differ from one village community to another. As an example of a region with such variety, we take the rural part of the North Caucasus, an area of Russia mainly inhabited by indigenous peoples of Muslim origin (see sec-

tion 2.2 for some characteristics of that region). We analyse the results of a survey of women of reproductive age which we conducted in this area in 2016. The analysis has shown a significant positive relation of community patriarchy to desired fertility and a weaker relation to actual fertility. We give reasons why this difference between desired and actual fertility supports the view that "community" bias takes place during the survey.

The paper is organised as follows. In section 2.1, the concept of social desirability for survey answers is outlined. In this section, we also discuss the parameters which we use as indicators of patriarchy of a community, and explain why we expect that respondents in patriarchal communities are likely to give untruthful answers regarding desired fertility. In section 2.2, we introduce the area in which our study was undertaken. In section 3, we present our hypotheses, section 4 contains data and a method description, and section 5 demonstrates the results of the models. Section 6 discusses the results and suggests some goals for future research.

2   Background

2.1   Theoretical and methodological assumptions

a) Sensitivity of survey questions

The sensitivity of a survey question which can lead to a bias in survey results can originate from different sources. *Tourangeau* and *Yan* (2007) indicate three major sources of sensitivity. First, a question can be sensitive when it touches upon items which are too private or taboo in the respondent's culture (such questions are also termed "intrusive"). In the case of "intrusive" questions, it is expected that the proportion of respondents who refuse to answer them is too high and therefore the subgroup of those providing an answer is too "selective" to be representative of the whole population. Second, a question can be sensitive due to a "threat of disclosure". In that case, the respondent acknowledges the risk that a truthful answer to a question concerning some aspect of his/her private life could become known to somebody outside the survey setting and this could cause harm, such as job loss, family upset or even prosecution. Third, a question can be sensitive when a respondent perceives a particular answer to the question as socially desirable, and some other answer(s) as socially undesirable. A socially undesirable answer reports some attitude or behaviour of a respondent which violates certain norms existing in the society. Due to this violation, a respondent may either refuse to answer or give an untruthful answer when the truthful one is considered to be socially undesirable.

Discussing the concept of social desirability, *Randall* and *Fernandes* (1991) show that two sub-dimensions of this concept can be distinguished. One sub-dimension refers to social desirability as a stable personality characteristic, such as a constant need of a person for social approval and impression management. The second sub-dimension refers to social desirability as an item characteristic, considering various activities or attitudes to be socially undesirable for someone in a society. In other

words, the former sub-dimension concerns a way of regular survey behaviour of respondents, whereas the latter concerns behaviour expected from a potentially broad number of respondents answering only certain questions. Another important expectation regarding social desirability is that the tendency to give socially desirable responses may vary across cultural orientations. It is more probable in collectivistic cultures, as they emphasise good relationships with other group members and thus strengthen the risks of a negative outcome of reporting a socially undesired attitude (*Lalwani et al.* 2006).

b) The concept of patriarchy and its measurement

Following *Szołtysek et al.* (2017) and *Lerch* (2013) to a large extent, we take two characteristics – unequal gender relations and power of senior generations – as the key characteristics of a patriarchal organisation of a society.[1] As indicators of gender hierarchies in a society, parameters can be considered which show to what extent women's activities outside the family and household are restricted by social norms. Such parameters are often considered among indicators of women's autonomy in a society (*Morgan et al.* 2002; *Agarwala/Lynch* 2006). Of a broad range of indicators of women's autonomy suggested in the aforementioned studies, in the present study we use parameters concerning women's studies after graduating from a secondary school and having a job outside the household. Both obtaining post-school education and taking a job are not expected to be common in a society in which a strict gender hierarchy that does not support women's extra-family activities is active.[2] Therefore, despite the fact that women's autonomy and patriarchy are quite separate concepts in current sociological literature, restriction on women's access to education and work outside the household are obvious indicators of gender asymmetries and therefore also of patriarchy under the definition above. It should be noted that the two parameters which we use are by far not the only ones suggested for detecting gender hierarchies. Thus, *Morgan et al.* (2002) suggest a much broader list of indicators of what they call woman's autonomy. These indicators cover several aspects of a (married) woman's position in her family, including freedom of physical movement without her husband's permission, a wife's say in economic decisions in the family, and control upon the woman exercised by her

---

[1] In *Malhotra et al.* (1995) patrilineal transmission of status and property is acknowledged as another characteristic of patriarchy. We do not discuss this in the present study, nor do we discuss one other characteristic suggested by *Szołtysek et al.* (2017), namely son preference. Anthropological studies mentioned in section 2.2 report patrilineal transmission as almost ubiquitous in the regions under study, with the result that this parameter was not expected to produce significant community differences. As far as son preference is concerned, measuring its "actual" level was hardly possible in our study, as it would probably require data on sex selectivity in abortions, which is not available for village communities of the North Caucasus.

[2] In some societies even a lower level of women's education can be considered as a violation of patriarchal norms. We consider as such only education continued after secondary school because in the society we are dealing with in our study, completing secondary school is almost obligatory (see section 2.2).

husband. However, we use the education and labour parameters as the most "objective" ones, as the other parameters mentioned may be more dependent upon the woman's own assessment of her situation in the family and can thus themselves be biased.

As far as the generational hierarchies are concerned, we use arranged marriage as their key indicator. It has been argued in many studies that parental arrangement of marriage, or at least active parental involvement in children's marriage, is characteristic of societies where senior generations are empowered by a high degree of control over younger generations. Specifically, many scholars relate arranged marriage to patriarchy in Muslim societies (see e.g. *Moghadam* 2004; *Cohen/Savaya* 2003). Although it is widely assumed that arranged marriage will be gradually abandoned in the process of social modernisation, a number of studies demonstrate that arranged marriage may persist in some societies, even despite urbanisation and loss of the traditional economy (see *Bekker et al.* 1996 for Muslim migrants in the Netherlands and *Zang* 2008 for ethnic Uyghurs in a Chinese city).

An important reservation should be made here that we do not treat arranged marriage as an obligatory characteristic of patriarchy. Some recent studies have shown that frequency of arranged marriages may be related to rather complex conditions in different Muslim societies (see *Hamel et al.* 2012; *Milewski/Huschek* 2015; *van Zantvliet et al.* 2014). However, the complex distribution of arranged marriages across societies does not preclude its treatment as an indicator of empowerment of elder generations in those contexts where arranged marriage is present. Also, it must be noted that at least for some societies where arranged marriage has been studied, it has been shown that the arrangement of a marriage is more typical of parents of young women than of men (*Zang* 2008 for Uyghurs). Given this, arranged marriage can be an indicator not only of generational hierarchies but also of gender hierarchies. However, even when it is restricted to marrying women, it signals authority of senior generations for whom taking decisions for their daughters is culturally acceptable.

In our study, we therefore use three indicators of patriarchy: (1) low acceptability for women to get an education beyond a level which is considered obligatory; (2) low acceptability for women to have a job; (3) high acceptability of arranged marriages.

c) Measurements of community patriarchy

Since our study concerns respondents' behaviour in patriarchal communities, we need some procedure to measure community patriarchy. The procedure we suggest seems to be the most straightforward one, as it treats indicators of community patriarchy as proportions of respondents with a given characteristic in a community. Given the set of patriarchy indicators introduced above, this would be the proportion of women who have not studied after graduating from secondary school, the proportion of women not working outside the household, and the proportion of women whose marriage was arranged. Note that average characteristics of some communities or areas have been applied as explanatory parameters in several stud-

ies dealing with the relation between family organisation and fertility. Thus, *Lerch* (2013) considers some municipally specific indicators for Albania, including women's average age at marriage and percentages of economically active women in relation to fertility. *Malhotra et al.* (1995) study the relation between average patriarchy parameters and total fertility rates for regions of India. *Balk* (1994) considers the relation between a woman's fertility and the average of some parameters of women's status calculated for the village that she comes from.

To calculate community parameters in the proposed way, we need to define the limits of communities. Given that our survey was undertaken only in the rural part of the North Caucasus, we will consider each rural settlement (village) covered by the survey as a separate community. This seems justified because, as will be pointed out in section 2.2, in the region under study rural settlements, even close to one another geographically, may differ from one another in family norms.

d) Desired fertility: the concept and its problems

In our study we follow the well-known distinction between desired and intended fertility. By desired fertility, following *McCleland* (1983), we understand "the number of children parents would have if there were no subjective or economic problems involved in regulating fertility". Under intended fertility we understand a decision to have a certain number of births. In the influential Traits – Desire – Intentions – Behaviour theoretical framework of reproduction (*Miller* 2011), the desire and intentions correspond to different "steps" of the sequential process that begins from non-conscious motivational dispositions (traits) and ends up with actual fertility behaviour. Problems with distinguishing between desired and intended fertility in survey data are often acknowledged. For example, *Hayford* and *Agadjanian* (2012) point out that "demographic surveys rarely collect prospective measures of both intentions and desires and frequently use 'intentions' as a general term to refer to both concepts" (see also *Kodzi et al.* 2010). In the survey designed for our study, the question of desired fertility was put in a way which made it as separate as possible from the reproductive intentions of respondents, with respondents being asked about the number of children they "generally would like to have" (rather than "plans to have", "agreed to have with the spouse"). In this way an attempt was made to disconnect the question from any practical context and inquire about the number of children the respondent would consider the best one based on values and attitudes rather than relevant circumstances.

Studies of survey answers about desired fertility have shown that they tend to change over time for the same respondent depending upon age and current number of children (see e.g. *Williams/Abma* 2000). In our analysis below, we at least partly deal with this issue by controlling for age and parity of respondents. Another important observation on survey answers regarding desired fertility is that desired fertility stated by a woman in a survey can often have a certain dependency on her husband's views on reproduction, especially in male-dominated cultures (see e.g. *Oyediran* 2006). Since only female respondents were involved in our survey, we could not directly control for potential spousal influence upon a woman's desired

fertility. In this way, our study is limited in that it cannot discover possible "family internal" mechanisms affecting women's answers on desired fertility. We limit our study to the relation of those answers to community parameters and leave open the question about possible ways in which this relation is implemented at "family internal" level (e.g. whether it is the case that fertility views dominant in a community influence women's survey answers on desired fertility more through their husbands or more in a direct way).

2.2   Regional characteristics

We have chosen the North Caucasus, a region in the southern part of Russia bordering with Azerbaijan and Georgia, for a field study assessing the "community bias" in answers to sensitive questions in a patriarchal society. The North Caucasus comprises seven republics within Russia, situated to the north of the Caucasus mountain chain between the Black Sea and the Caspian Lake. Its total population is about seven million people, the largest republic in terms of population being Daghestan, situated in the most eastern part of the North Caucasus, and the smallest republic being Adyghea in the most western part of North Caucasus. Most of the republics are inhabited both by ethnic Russians and indigenous local peoples, but the proportion between the former and the latter varies from one republic to the other, ranging from 2 percent of ethnic Russians in the Republics of Chechnya and Ingushetia to 67 percent in the Republic of Adyghea according to the 2010 Russian population census. However, indigenous peoples form the majority in all the republics of North Caucasus except Adyghea.

In post-Soviet times, the North Caucasus has experienced a deep economic crisis and a serious political destabilisation which included a rise of inter-ethnic violence and a long-lasting war in Chechnya. Beginning in the 2000s, there has been some revival of the local economy, based mainly on subsidies from the Russian federal budget, and the political situation appears to have quietened. However, the population of the North Caucasus still has lower average incomes than the population of Russia as a whole, and registered unemployment in the republics of the North Caucasus is considerably higher than in the rest of the country (*Zubarevich* 2011).

Indigenous peoples of the North Caucasus are mostly Muslims (apart from Ossetians who make up 64.5 percent of the overall approx. 700,000 residents of the Republic of North Ossetia according to the 2010 Russian population census; among these people there is a considerable proportion of Christians, more than 50 percent according to some assessments; see *Filatov/Lunkin* 2002 for an overview of the religious situation in the North Caucasus). Local Muslim peoples adopted the Islamic religion at different historical points between the 10th and 19th centuries. Almost only Sunni Islam is present in the region. Following atheistic pressure in the time of the USSR (1930s – early 1980s), a revival of Islam has been observed in the North Caucasus since the 1990s, when freedom of religion "returned". Although the religious revival took place in all the republics, its intensity was remarkably higher in the North-East Caucasus (Republics of Daghestan, Chechnya and Ingushetia) com-

Fig. 1:   Location map including villages

Note: The map was created with QGIS 2.18 version package using the Layer Russia_
         geojson_wgs84, from the resource. Note that location of the villages was added
         to the map by the authors.

Source: Own design

pared to the North-West Caucasus (Republics of North Ossetia, Kabardino-Balkaria, Karachay-Cherkessia and Adyghea). One possible reason for these contrasts is that in the North-East Caucasus the Islamic tradition had a longer pre-Soviet history and was to some extent preserved "underground" during Soviet times. The intensive islamisation of the North-East Caucasus was indicated by an increase in the proportion of people observing Islamic norms and by a temporary revival of religious institutions such as informal Sharia courts (*Kazenin* 2017). At the same time, differences in religiosity are currently observed not just between republics but also between communities in the same republic. For example, it is quite common that rural settlements, even though geographically close to one another, differ considerably in the proportion of residents who attend the mosque and in the actual influence of religious leaders in public life (on the variety of religious contexts within one republic of the North Caucasus, Daghestan, see *Ware/Kisriev* 2000). Considerable differences in informal norms that dominate community life are also reported for rural settlements (ways of conflict resolution etc.).

At the same time, the North Caucasus has recently experienced considerable changes in its overall social organisation, but such changes were neither of the same intensity nor occurred synchronously in all republics. Intensive urbanisation

in the republics of the North-West Caucasus took place as early as the 1960-1970s, whereas in the North-East Caucasus its peak was reached only in the 1990s (for details on rural-to-urban migration in the North Caucasus, see *Eldarov et al.* 2007; *Belozerov* 2004). As argued by anthropologists studying the region, rather tight relations between members of rural communities are preserved in the North Caucasus despite intensive out-migration processes in many rural communities (see *Karpov/Kapustina* 2011 for a comprehensive analysis of qualitative field data on family and community norms and their dynamics in the recent decades in the North Caucasus). This is manifested, for example, in a high proportion of marriages between members of the same rural community, preferences of many people to maintain business relations with members of their rural community even in the case of out-migration, and regular informal meetings of elder community members where decisions on various aspects of life of the community are taken. Anthropological studies on the North Caucasus have also revealed that patriarchal norms are generally well preserved there, but with noticeable local differences (*Molodikova/Watt* 2014). One generalisation that available qualitative surveys permit is that in the North-East Caucasus women's autonomy is lower overall and the authority of senior generations is higher than in the North-West Caucasus. However, the qualitative studies summarised in *Karpov/Kapustina* 2011 as well as our own unpublished field data suggest a large amount of evidence that even village communities in the same region differ in terms of patriarchal characteristics. Specifically, village communities may be very different in the proportion of women having a job outside the household, in the average educational level of women and in the frequency of arranged marriages. Qualitative surveys have discovered villages that are geographically close to one another but differ considerably with regard to these parameters.

To conclude, the North Caucasus is a region where relations between members of rural communities generally remain tight, and elements of patriarchy are observed in the rural communities, although to different degrees from one community to another. This makes the region an adequate case for studying "community bias" in answers to sensitive survey questions. Given that the "community bias" is expected in patriarchal communities, the North Caucasus gives an opportunity to measure it in communities with different degrees of patriarchy.

Republics of the North Caucasus differ considerably in their current fertility. The differences are especially marked between republics of the North-East Caucasus (Daghestan, Chechnya, and Ingushetia) and those of the North-West Caucasus (North Ossetia, Kabardino-Balkaria, Karachay-Cherkessia, and Adyghea). In the rural part of the North-West Caucasus, which is the object of our study, fertility has been below the reproduction level (2.2) for more than two decades, whereas in the North-East Caucasus current rural fertility is still well above that level. It can be concluded that the First Demographic Transition has been completed in the rural part of the North-West Caucasus (as in most other parts of Russia) but not of the North-East

Caucasus, where signs of the First Demographic Transition stalling are currently observed (*Kazenin/Kozlov* 2016).[3]

3 The hypotheses

We now turn to the hypotheses which we expect to be confirmed if "community bias" induced by patriarchy is observed in the survey results.

We hypothesise that survey answers by women to questions about desired fertility are influenced by the degree of patriarchy in the communities to which respondents belong. There are clear reasons to assume that in a patriarchal society a woman may consider it socially undesirable to report her intention to have a number of children which is perceived as low in that society. Strong gender asymmetries make children a woman's main reason to constitute her own social status in a society where such asymmetries are active (see *Mason* 2001; *Folbre* 1983). Disclosing a low desired number of children may make a woman an outsider among her relatives and neighbours. This is highly expected particularly when an inclination by women towards education and career is not welcomed in the society. Besides, the power of senior generations in patriarchal communities often results in the intensive imposition of the family life norms of elder generations on younger generations. This can also cause a woman to follow the opinions of her senior family members, neighbours and other community members rather than her own opinion when she answers survey questions on family life. The reason why we have chosen answers to the question on desired fertility for our analysis is exactly the expectation that in patriarchal communities "community bias" can be substantial in answers to that question.

As mentioned above, to measure community patriarchy we use the percentages of women in a community with education higher than secondary school, of women with a job, and of women whose marriage was arranged. Our first hypothesis will be confirmed if these percentages have a significant negative relation to the desired number of children reported by a woman. Furthermore, if the community characteristics influence answers to survey questions on desired fertility, we expect that their influence will not depend on the respective personal characteristics of respondents as regards the woman's personal education, job experience and parental role in her marriage. Therefore, we additionally hypothesise that the community parameters will remain significant even when these personal parameters of the respondent women are included in the model.

---

[3] Another crucial element of the First Demographic Transition, namely the lowering of mortality levels and the increase of life expectancy, was attested in the North Caucasus in the 1950s-1960s according to Soviet statistics. As far as the Second Demographic Transition in the North-West Caucasus and other parts of Russia is concerned, we see that fertility levels match its typical development. The questions of marriage/fertility timing shifts and ideational changes essential for the Second Demographic Transition are, however, rather complex for the North Caucasus and are not discussed here.

However, discovering a relation between answers about desired fertility to the community characteristics of patriarchy does not allow us to distinguish between two distinct scenarios which could underlie that relation. One is the scenario we argue for, where a woman may give untruthful answers on the number of children she wants to have because of the social undesirability of having too few children in a patriarchal community. This scenario fits the idea of "community bias". The other scenario, however, is that patriarchal values of a community are adopted by a woman as her own personal values and this increases the number of children she actually wants to have. In this case, answers on desired fertility are related to community patriarchy, but they are not expected to be untruthful, thus providing no reasons to support the existence of "community bias". Note that the possibility of the latter scenario is strengthened by the findings on social interaction as a possible mechanism for community influence on fertility behaviour (*Bongaarts/Watkins* 1996; *Montgomery/Casterline* 1996; *Rossier/Bernardi* 2009). According to these findings, gaining knowledge on the fertility values of people from her network and observing their fertility behaviour can cause a woman to adopt the fertility preferences of her community. This scenario cannot be excluded in patriarchal communities, of course.

Although it is hardly possible to completely exclude each of these scenarios in any given study, we suggest an approach which can demonstrate a higher probability of the "community bias" scenario over the scenario of social interaction. This involves a study of the relation of the actual fertility of a woman, apart from the desired fertility she reports, to the patriarchal community parameters. If, via social interaction in her community, a woman adopts patriarchal values in her actual fertility behaviour rather than merely in answering survey questions, she is expected not only to report higher desired fertility but also to adjust her actual fertility to those values. In that case, the community parameters of patriarchy will be significant not just for desired fertility but also for actual fertility. If, however, the patriarchy of a community causes a woman who is a member of the community to give untruthful answers about her desired fertility rather than to actually adopt values of the community in her fertility behaviour, the community parameters of patriarchy are expected to be more significant for desired than for actual fertility.

To conclude, we assume that the "community bias" is probable in survey answers about desired fertility if the following two hypotheses are borne out:

Hypothesis 1: Level of community patriarchy is positively related to the reported desired number of children.

Hypothesis 2: Level of community patriarchy is insignificant for the actual number of children or is less significant than for the desired number of children.

4 The data and methods

4.1 The survey

Our study is based on a survey conducted among married women aged 16-39 in the North Caucasus region between June and December 2016 and covered a to-

tal of 1555 women in the respective age group. We limited the survey to married women because the gender hierarchy, an essential component of patriarchy, mainly concerns the position of women in marriage. Besides, one of the key indicators of patriarchy which we apply — i.e. arranged marriage — is defined only for women who have ever been married.

Before we proceed with the characteristics of the survey, a general note addressing the survey designed for our particular study is needed. Obviously, another possibility for studying "community bias" in survey answers was to use existing country-level sample surveys like the DHS or MICS. The majority of such surveys randomly choose primary sampling units which include households located close to one another. Moreover, studies exist which, similar to the analysis proposed in this paper, measure certain characteristics of DHS sampling units as averages of some individual parameter (e.g. years spent in school) for women of that unit, and then consider the significance of such community parameters for individual answers to other questions of the survey (cf. *Kravdal* 2002). However, we had the following reasons to undertake a separate survey for our study rather than use existing country-level surveys. First, the DHS and other similar surveys usually involve a rather limited number of parameters which are related to gender and generation relations, e.g. they normally do not include information on whether the marriage of a woman was arranged by her elder relatives, which is an important indicator of empowerment of the elder generation in the family. Second, primary sampling units in such surveys do not necessarily correlate with settlements. In our survey, we made rural settlements (villages) survey units (see below for the procedure to select villages for the sample). This solution appears justified at least for the region where rural settlements — even those situated in close proximity to one another — may be very different from one another in terms of culture and norms (see section 2.2).

The survey was undertaken in two regions of the North Caucasus: Daghestan and Karachay-Cherkessia. Daghestan is part of the North-East Caucasus, and Karachay-Cherkessia is part of the North-West Caucasus. As mentioned in section 2.2, the two parts of the North Caucasus differ considerably in current fertility levels. The regions chosen for the survey represent the two contrasting parts of the North Caucasus.

Daghestan (population over 3,085,000 on 1 January 2019 according to Rosstat) is the region in the very eastern part of the North Caucasus. Mountains constitute almost half of its territory and about 25 percent of its population reside there, although migration from the mountains to the valley has been very intensive in the last 3-4 decades, especially migration to the republic's capital Makhachkala (*Eldarov et al.* 2007). Daghestan is one of the most multi-ethnic regions of Russia: of its approximately 30 indigenous peoples, no single ethnic group constitutes more than 15 percent of the population.

Karachay-Cherkessia (population over 465,500 on 1 January 2019 according to Rosstat) is a region in the east of the North Caucasus. Like in Daghestan, nearly half of its territory lies in the mountains, but a large part of its mountains is almost depopulated. Migration to the valley and to local towns was already intensive during the Soviet time. Karachay-Cherkessia has a higher proportion of Russian popula-

tion compared to Daghestan (31.6 percent according to the Russian census 2010 compared to 5 percent in Daghestan). Apart from Russians, major peoples are Karachays (38.5 percent in 2010) and Circassians (11 percent in 2010). Several ethnic minorities related to one of these peoples are also present in the region.

The survey was conducted face-to-face in rural settlements in the two republics. The survey was undertaken in Russian (despite the wide linguistic diversity of the North Caucasus, Russian is known by most of its population along with native languages). Women were interviewed in privacy by trained residents of their region, but not of their communities. The survey questions mainly concerned items on women's biography (date and place of birth, education, job experience, migration history) and marital/reproductive behaviour (current marital status, number of children, age at marriage and at child birth, desired number of children), as well as woman's personal religiosity (performing daily prayer, practising fasting, attitude to

Tab: 1: The descriptive statistics of the villages in the survey

Name of village	Number of respondents	Share of studied after school	Share of respondents who have been working outside their household after marriage	Share of respondents acquainted with their future husband before marriage	Share of respondents whose marriage was agreed on by their parents
Daghestan					
Kalininiaul	81	0.40	0.31	0.28	0.18
Kumukh	31	0.87	0.70	0.19	0.17
Novotindi	25	0.52	0.67	0.29	0.60
Tsadakh	43	0.40	0.44	0.30	0.62
L'vovskoe	39	0.48	0.41	0.23	0.39
Mjurego	100	0.57	0.30	0.66	0.76
Sulevkent	105	0.42	0.47	0.03	0.67
Karabudakhkent	98	0.92	0.82	0.25	0.42
Novyj Kostek	125	0.05	0.03	0.00	0.40
Kubachi	82	0.33	0.49	0.22	0.18
Urma	99	0.48	0.52	0.63	0.65
Tarki	71	0.68	0.49	0.38	0.57
Karachay-Cherkessia					
Schastlivoe	100	0.74	0.45	0.95	0.24
Novaja Dzheguta	109	0.71	0.51	0.80	0.20
Krasnyj Kurgan	100	0.85	0.68	0.91	0.12
Uchkulan	40	0.83	0.59	0.82	0.21
Aki-Berdukovskij	100	0.95	0.84	1.00	0.01
Ersakon	57	0.96	0.88	0.95	0.00
Starokuvinsk	62	0.98	0.87	1.00	0.02

Source: Data of the survey

practices prescribed or prohibited by Islam) and cultural characteristics of her family (as an indicator of the authority of senior generations in their families, women were asked whether they took the decision to get married on their own or whether the marriage was arranged by their senior relatives).

Our method of discovering "community bias" used community averages of parameters that indicate patriarchy. Therefore, the number of respondents in each community had to be large enough to obtain statistically significant averages. We included 12 rural communities of Daghestan and 7 of Karachay-Cherkessia in our survey (the higher number of communities from Daghestan corresponds to its higher population). The number of respondents in each community varied between 25 and 125 depending on the number of residents, which ranges from about 800 to 5000. In each republic, rural settlements were selected randomly within three geographical zones (mountains, foothills, valley). If a zone was multi-ethnic (which was the case for all the zones in Daghestan and for all the zones except the mountains in Karachay-Cherkessia), rural settlements in that zone were divided into groups so that in each of the groups one people constituted the majority (this procedure was possible because most of the villages in the region are mono-ethnic or at least have more than 50 percent of residents of one ethnic origin; the groups were only built for 2-3 major peoples of each area). Then one settlement was randomly chosen from each of those groups. For each geographical zone, the sample of rural settlements included in the study reflected the ethnic variety which is present in that zone.

4.2   Model design

The desired number of children was used as the dependent variable in the first group of models. In the second group of models, the actual number of children was the dependent variable.

According to our theoretical assumptions outlined in section 2.1, we involved two groups of independent variables in the model. One group involved parameters which we treat as indicators of the authority of senior generations in a respondent's family. We use arranged marriage as the indicator of this authority. Answers to two survey questions concerning a woman's marriage were included in the models: whether the woman was acquainted with her future husband before the marriage ceremony and whether it was her own decision to marry that person or a decision of her parents. The second group of independent parameters included indicators of gender hierarchy in the woman's family. Based on our reasoning in section 2.1, we involved answers to questions on the woman's continuation of education after secondary school and on work outside the household as parameters relevant for this issue.

We also included a number of control parameters in our models. These were the woman's age at the time of the survey and her current parity (the former only in the models for desired fertility). Another group of control parameters included the level of wealth of the household to which a woman belongs. It involved a parameter of family wealth (whether a woman reported that incomes of her family are sufficient for food; for clothing; for purchase of technical items for home use; for purchase

of a new car; for purchase of a new house) and a parameter of residence (whether a woman's family lives in their own house, or in a rented house, or owns or rents a flat). The latter two parameters were insignificant in all the models and are therefore not included in the tables for reasons of space.

Each survey question regarding patriarchal norms produced two parameters in the model: the individual one (dichotomic) and the community one. Community parameters were calculated as the mean for the respective individual parameter in a given village community. In this way, each woman included in the sample was ascribed the same number of community parameters as she was ascribed individual parameters.

Missing values in our survey ranged from 5 percent to 10 percent for different questions. We excluded these cases and calculated the models only for those respondents who had answered all the relevant questions (listwise deletion). As Table 2 shows, the question on desired fertility has the highest number of missing answers compared to other questions on which parameters of the model were calculated. Therefore, our final sample includes 1248 respondents for all the models. The descriptive statistics for the sample excluding missing variables is presented in Table 3. The comparison of Table 2 and Table 3 shows that there is almost no difference between the means and dispersion of the variables before and after the exclusion of the missing cases. Table 3 offers descriptive survey results separately for each of the two regions. The mean actual number of children is almost the same for

Tab. 2:   Descriptive statistics of the variables for all respondents. Survey results

Variables	Observations	Mean. For dichotomous variables % of category 1	St. dev
Age	1520	29.64	6.13
Number of children – Actual fertility	1516	2.17	1.07
Number of children by parities, %			
0	*27*	*1.8%*	
1	*401*	*26.5%*	
2	*577*	*38.1%*	
3	*359*	*23.7%*	
4+	*152*	*9.9%*	
Desired fertility	1412	3.36	1.25
Study after school (1 – yes, 0 – no)	1521	62%	0.49
Working at the time of the survey (1 – yes, 0 – no)	1520	42%	0.49
Acquainted before marriage (1 – yes, 0 – no)	1499	54%	0.5
Parents' decision about marriage (1 – yes, 0 – no)	1448	35%	0.48

Source: Data of the survey

Tab. 3: Descriptive statistics of the variables, for respondents included in the models. Survey results

Variables	Observations	Mean			St. dev		
		For dichotomous variables % of category					
		Both regions	Daghestan	Karachay-Cherkessia	Both regions	Daghestan	Karachay-Cherkessia
Age	1248	29.47	28.77	30.61	6.07	6.27	5.55
Number of children – Actual fertility	1248	2.17	2.17	2.18	1.03	1.06	0.98
Number of children by parities, %							
0	15	1.2%					
1	329	24.6%					
2	481	38.5%					
3	307	24.6%					
4+	116	11.1%					
Desired fertility	1248	3.36	3.5	3.12	1.21	1.32	0.96
Study after school (1 – yes, 0 – no)	1248	61%	46%	84%	0.49	0.50	0.37
Working at the time of the survey (1 – yes, 0 – no)	1248	40%	32%	53%	0.49	0.47	0.50
Acquainted before marriage (1 – yes, 0 – no)	1248	56%	34%	93%	0.50	0.47	0.26
Parents' decision about marriage (1 – yes, 0 – no)	1248	34%	48%	12%	0.48	0.50	0.32

Source: Data of the survey

both, while the desired fertility is higher in Daghestan than in Karachay-Cherkessia. Also Daghestan has higher mean values for the parameters indicating patriarchy.

We used linear regression in our models. To assess the effects of individual and community parameters together, we used multi-level regression. We built two-level models and clustered community level (2nd) and individual level (1st) parameters. The randomisation for the model is used only for the intercept while the slopes are kept fixed. To test our hypotheses under the limited number of villages included in the analysis (only 19), we used the Markov Chain Monte Carlo (MCMC) estimation with 5,000 iterations for the 2-level model in the statistical package MLwiN2.36. Before applying the MCMC for diagnostic reasons, we used the iterative generalised least squares (IGLS) algorithm.

The general equation for the models is shown in (1):

$$y_{ij} = \beta_{0ij} + \beta_1 \ (x_{ij}) + \beta_2 \ (mean.z_i) + \beta_3 \ (w_{ij}) + (u_i + e_{ij}) \tag{1}$$

In this equation β_0 is the intercept (or constant in the tables) demonstrating the mean number of children (actual or desired) for all the villages, and β_1 represents the estimation of the individual effect. The β_2 coefficient shows the effects of the community mean on the second level. Also, β_3 shows the effect of the control variables listed above. Finally there are components: u_i − random effect at the village level and e_{ij} − is the residual error at the respondent level.

5   Results

The potential of the multi-level analysis for the sample is quite high. For the desired number of children, the Variance Partition Coefficient (VPC) that represents the percentage variance explained by the higher level (villages) is 23.6 percent (for more details about VPC, see *Leckie/Charlton* (2013)). In our case the figure can be interpreted as 23.6 percent of the variation in the child preferences between villages, also the Chi-square difference between 2-level and 1-level null-models is 418.66 (p=0.00). The results for the model with the desired number of children as the dependent variable of interest can be found in Table 4.

As seen from Table 4, the community education indicator demonstrates a significantly negative effect on the desired number of children in the models where the actual number of children is controlled for. This means that higher education at the community level ceteris paribus leads to a lower desired number of children. By contrast, the individual effect for education demonstrates a positive, but significant only at the 10 percent level relation with the desired number of children. For labour market participation (work), we find no significant effect on desired fertility at both the community and the individual level. If a woman was acquainted with her future husband before the marriage ceremony, desired fertility drops at both the community and the individual level with a 5 percent significance (for the community level we get this relation only in MCMC models). This means that one of the characteristics of arranged marriage, namely lack of acquaintance of future spouses

Tab. 4: Two-level model for desired number of children

Constant	3.15***	3.13***	2.731***	2.699***	3.357***	3.318***	3.368***	3.388***	3.111***	3.066***
Age (Individual)	-0.017***	-0.016***	-0.018***	-0.017***	-0.017***	-0.017***	-0.017***	-0.017***	-0.017***	-0.017***
Children (Individual)	0.476***	0.475***	0.475***	0.474***	0.481***	0.480***	0.479***	0.479***	0.475***	0.470***
Variables of interest										
Work										
Individual	0.062	0.062			-0.035	-0.036				
Community	0.490*	0.490*			0.621	0.731				
Post-school education										
Individual			0.087	0.089*	0.096	0.096*				
Community			-0.992**	-0.945***	-1.442*	-1.593**				
Parental decision on marriage										
Individual							0.079	0.078		
Community							0.122	0.203		
Acquainted with her husband before marriage										
Individual									-0.149**	-0.147**
Community									-0.557*	-0.547**
Model										
Units										
Community	19	19	19	19	19	19	19	19	19	19
Individual	1248	1248	1248	1248	1248	1248	1248	1248	1248	1248
Estimation:	IGLS	MCMC	IGLS	MCMC	IGLS	MCMC	IGLS	MCMC	IGLS	MCMC
ICC	0.211	0.249	0.189	0.227	0.189	0.240	0.194	0.232	0.238	0.280

Note: Hereinafter *** $p<0.01$, ** $p<0.05$, * $p<0.1$. For MCMC we use Bayesian-p.

Source: Data of the survey

Tab. 4A: Two-level model for desired number of children (without control for actual number of children)

Constant	2.803***	2.835***	3.166***	3.152***	3.060***	3.030***	2.282***	2.282***	2.837***	2.872***
Age (Individual)	0.034***	0.034***	0.031***	0.032***	0.034***	0.034***	0.030***	0.030***	0.032***	0.032***
Variables of interest										
Work										
Individual	-0.135**	-0.136**			-0.142**	-0.142**				
Community	-1.026*	-1.016**			0.373	0.444				
Post-school education										
Individual			-0.016	0.089*	0.023	0.096*				
Community			-1.156**	-1.226***	-1.383	-1.393*				
Parental decision on marriage										
Individual							0.132*	0.132*		
Community							0.239	0.239		
Acquainted with her husband before marriage										
Individual									-0.166**	-0.167**
Community									-0.704**	-0.701**
Model										
Units										
Community	19	19	19	19	19	19	19	19	19	19
Individual	1248	1248	1248	1248	1248	1248	1248	1248	1248	1248
Estimation:	IGLS	MCMC	IGLS	MCMC	IGLS	MCMC	IGLS	MCMC	IGLS	MCMC

Source: Data of the survey

before marriage, is significantly related to higher desired fertility. Parental decision on marriage, another indicator of the marriage being arranged, was not significant for desired fertility neither at the individual nor at the community level.

Models that did not control for the actual number of children were also fitted for desired fertility (Table 4A). Here, most of the effects observed in the models with this control were retained. Specifically, the significant effect of community education level persisted, as did the effect of the individual and community level of pre-marriage acquaintance of spouses. In addition, both individual and community levels of women working outside their household were significant without control for actual fertility, being related to lower desired fertility. The community effect, however, was significant only at the 10 percent level. We conclude that the community effects attested with control for actual fertility were confirmed in models without such control. However, we do not touch upon the possible significance of the community level of women's employment in the discussion below since it was low in the models without the control and non-existent with control for actual fertility.

The results for the actual fertility (number of children) are shown in Table 5. At the individual level there is a very pronounced negative effect of education on the number of children borne by the respondent. By contrast, at the community level the educational parameter was insignificant for the actual number of children. The parameter of labour force participation also showed a negative effect at the individual level. At the community level, this parameter also showed a significant negative effect, but only in the regressions without the education variable. Among the indicators of arranged marriage, only the parental decision on marriage was significant at the individual level for actual fertility. None of the indicators of arranged marriage was significant at the community level in the models analysing actual fertility.[4]

The models were checked for possible bias created by difference between the means calculated for the sampled respondents from a community and the means for all women in that community. The possibility of such bias is considered by Kravdal 2006 who shows that in studying community effects on fertility behaviour there is always a risk that the average of some parameter calculated for sample members in a particular community differs from the "true" average for that community. This of course could result in biased assessments of community effects on fertility. The same could be expected for community effects on survey behaviour as well. Having analysed simulations based on large-scale sample studies from sub-Saharan Africa, *Kravdal* argues for some conditions under which the risk of this bias can be considered as non-serious in studies of community effects ("not higher than about 10 percent", in his assessment). He puts forward two conditions for this. First, the number of respondents coming from each community should not be less than 25. Second, the intra-class correlation (ICC) for the variables for which the community

---

[4] For robustness checks, models with squared age of women were also fitted, both for actual and desired fertility (not shown here, available on request). For actual fertility, the effect of most individual parameters significant in models with non-squared age was retained. For desired fertility, almost no changes in effects of both individual and community variables was detected compared to models with non-squared age.

Tab. 5: Two-level model for actual number of children

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Constant	-0.625***	-0.619***	-0.482**	-0.473**	-0.611***	-0.623***	-0.909***	-0.916***	-0.635***	-0.625***
Age (Individual)	0.105***	0.106***	0.101***	0.101***	0.105***	0.105***	0.100***	0.100***	0.101***	0.101***
Variables of interest										
Work										
Individual	-0.259***	-0.260***			-0.221***	-0.221***				
Community	-0.536**	-0.558**			-0.537	-0.571				
Post-school education										
Individual			-0.214***	-0.214***	-0.153***	-0.152***				
Community			-0.353	-0.375*	0.123	0.156				
Parental decision on marriage										
Individual							0.112*	0.111**		
Community							0.228	0.234		
Acquainted with her husband before marriage										
Individual									-0.035	-0.036
Community									-0.315	-0.342
Model										
Units										
Community	19	19	19	19	19	19	19	19	19	19
Individual	1248	1248	1248	1248	1248	1248	1248	1248	1248	1248
Estimation:	IGLS	MCMC	IGLS	MCMC	IGLS	MCMC	IGLS	MCMC	IGLS	MCMC
ICC	0.069	0.089	0.077	0.097	0.069	0.093	0.094	0.116	0.085	0.106

Source: Data of the survey

effects are studied should not be lower than 0.2. The ICC is defined as the between-community variance of a variable divided by its total variance. In order to study the possibility of this kind of bias for our models, we have calculated the ICCs for the models with the community parameters considered above. They are shown in the bottom lines of Tables 3 and 4. In the models for the desired number of children, the ICCs range between 0.189 and 0.280, being above 0.2 and thus meeting *Kravdal's* condition in 7 of 10 models. For models with actual fertility as the dependent parameter, the ICCs were lower than 0.2 in all the models, thus violating *Kravdal's* condition. As far as sample sizes for communities are concerned, they were all between 25 and 125 and thus were higher than *Kravdal's* level of 25 persons in each community. It therefore transpires that, following Kravdal's guidance, the effect of possible difference between sample and "true" community variables is not critical for desired fertility, but can be more serious for actual fertility in our study. Given that the community effect which we have identified was more significant and consistent for desired fertility than for actual fertility anyway, the tests suggested by *Kravdal* do not seem to undermine the results of our analysis.

6   Discussion

Our analysis suggests that "community bias" can be real in survey answers to sensitive questions and that it can correlate with community patriarchy.

With the example of a survey we have seen that parameters which indicate the level of patriarchy of the village to which a respondent belongs may indeed have a significant influence upon answers to sensitive questions in such surveys. Moreover, for some parameters of patriarchy the significance at the community level is higher than at the individual level, also when both the individual and the community level parameters are included in the model. At the same time, we have seen that the significance of the community parameters for actual fertility is much lower in the case of our survey. This therefore confirms both hypotheses which we expected to be true if "community bias" really exists in the survey which we study. Our findings also imply that community and individual preferences may be of independent significance for respondents' answers to sensitive questions. Finally, we have seen that particular parameters of community patriarchy may influence answers to sensitive questions to different degrees.

Among the parameters which we treat as indicators of gender hierarchies, desired fertility has been shown to have a strong negative correlation to post-school education. Under our assumptions, this means that the less women's education is approved in a village community where a respondent lives, the higher the desired number of children reported by that respondent. Individual parameters concerning women's education are of low significance for desired fertility when included together with community parameters in the models. Community-level labour market involvement also showed significance for desired fertility in one type of the models, but did not outrank the respective individual parameter in its significance.

Among the parameters used as indicators of generational hierarchies, the percentage of women who were personally acquainted with their future husband before the marriage ceremony in the village community is negatively significant for reported desired fertility. The same relation was found for the individual parameter indicating acquaintance of the respondent with her future husband. In this case, therefore, the community and individual parameter are quite similar in how they relate to desired fertility. This means that generational hierarchy operating in the village community and in the family of a particular woman both significantly increase the desired fertility reported by the woman.

Another parameter which we considered as an indicator of arranged marriage — parental decision on respondent's marriage — is not significant for desired fertility at the community level, but has a weak positive significance at the individual level. The insignificance of the marriage decision process accepted in a community must be explained against the background of the significance of acquaintance of future spouses before marriage. One possible explanation could suggest that contacts between future spouses are a public matter in a community and fall under community regulations more than marriage decision-making, which is a more family-internal matter. If so, acceptance of premarital acquaintance of future spouses in a village community is a more effective indicator of the prevalence of arranged marriage and hence women's dependency upon elder relatives in that community. It does not then come as a surprise that acquaintance of future spouses is of higher significance for answers to sensitive questions at the community level than parental role in marriage decisions.

Although the results of our analysis agree with the existence of "community bias", an alternative approach must be considered for the parameters concerning women's education. This approach relates a low educational level of women in a village community to poor economic conditions in that community rather than to gender hierarchies in it. Given that parents in today's North Caucasus most often have to pay, either formally or informally, for the post-school education of their children, a low percentage of women receiving post-school education in a village community can be a consequence of poverty rather than of norms accepted in the community. This is in line with the often acknowledged positive relation of higher actual fertility to poverty (see e.g. *Birdsall et al*. 2001). It is less understandable, however, how desired fertility could be related to individual poverty, especially because, to the best of our knowledge, no relation of this kind has been reported in current studies on desired fertility in different parts of the world. Another question which arises under this approach concerns the discovered community effects on desired fertility, because it does not seem clear how the economic status of the community could influence fertility attitudes independently of the individual economic status. Note also that for acquaintance before marriage an explanation viewing it as an indicator of economic conditions rather than of family norms is hardly possible. Therefore, possible "economic" explanations for some of the relations discovered in our analysis cannot substitute the "patriarchy" explanation for all the effects observed.

The different impact of different community parameters on desired fertility points to the need to treat each such parameter separately as a potential determi-

nant of "community bias". A goal of future research will be to compare the significance of different community parameters for answers to sensitive questions. This comparison would definitely be more reliable when it is based on a set of surveys undertaken in different communities where patriarchal norms are expected.

In addition, an important question for future research would concern conditions under which the patriarchal features of a community have a stronger or weaker effect on community behaviour. It would be important to know whether parameters making a community more or less "closed" from the outer world (such as the level of temporary out-migration of community members, percentage of inter-marriages between community members among all marriages in the community) influence "community bias" in answering survey questions.

7   Summary

In the present paper we have undertaken an analysis of data of a survey which has demonstrated that "community bias" can indeed be observed in survey answers to sensitive survey questions given by women who belong to patriarchal communities. The central idea of the method we used was to consider the relation of answers to such questions both to individual and community indicators of patriarchal family norms. The individual indicators reflect gender and generational hierarchies operating in the family of a respondent, and the community indicators are calculated as averages of individual parameters for the community (a village, in our case) to which a respondent belongs. On the basis of a survey undertaken among women of reproductive age in a part of Russia where patriarchal family norms are preserved to a large extent, we have shown that individual and community parameters of patriarchy have separate impacts on respondents' answers to sensitive questions. We have calculated multi-level models with answers to selected survey questions as dependent parameters, individual patriarchy parameters (a woman's education, her work experience outside her household, and whether her marriage was arranged by her senior relatives) as independent variables of the personal level and the community means of the same parameters as independent variables of the community level. The significance of the community parameters in the multi-level models points to the possibility that community norms can influence the behaviour of respondents when answering sensitive questions.

We have seen that the community means are more significant for answers to questions concerning a respondent's attitudes or intentions (desired number of children) than for questions concerning easily verifiable facts (actual number of children). This can be accounted for on the obvious assumption that it is easier to give an untruthful answer to a question of the former than of the latter type. We have also seen that the relative significance of individual mean values and community mean values can vary for different independent parameters. This makes it necessary to study the community effect separately for each parameter for which this effect can be expected. The "community bias" can vary in intensity not just from one survey sample to another, but also for different parameters studied within a single sample.

The suggested directions for future research concern the relative potential of different community level parameters of patriarchy to influence the survey behaviour of respondents, creating "community bias".

Acknowledgements

References

Agarwala, Rina; Lynch, Scott 2006: Refining the measurement of women's autonomy: an international application of a multi-dimensional construct. In: Social Forces 84,4: 2077-2098 [doi: 10.1353/sof.2006.0079].

Balk, Deborah 1994: Individual and community aspects of women's status and fertility in rural Bangladesh. In: Population Studies 48: 21-45 [doi: 10.1080/0032472031000147456].

Bekker, Marie H.J. et al. 1996: Reconstructing hymens or constructing sexual inequality? Service provision for Islamic girls coping with the demand to be a virgin. In: Journal of Community and Applied Social Psychology 6,5: 329-334 [doi 10.1002/(SICI)1099-1298(199612)6:5<329::AID-CASP383>3.0.CO;2-B].

Bell, Andrew; Jones, Kelvyn 2015: Explaining fixed effects: Random effects modeling of time-series cross-sectional and panel data. In: Political Science Research and Methods 3,1: 133-153 [doi: 10.1017/psrm.2014.7].

Belozerov, Vitalij S. 2004: The ethnic map of North Caucasus (in Russian). Moscow: O.G.I.

Birdsall, Nancy; Kelley, Allen C.; Sinding, Steven W. 2001: Population Matters: Demographic Change, Economic Growth, and Poverty in the Developing World. Oxford: Oxford University Press [doi: 10.1093/0199244073.001.0001].

Bongaarts, John 2001: Fertility and reproductive preferences in post-transitional societies. In: Population and Development Review 27 (Suppl.): 260-281.

Bongaarts, John; Watkins, Susan Cotts 1996: Social Interactions and Contemporary Fertility transitions. In: Population and Development Review 22,4: 639-682.

Breton, Raymond 1964: The institutional completeness of ethnic communities and the personal relations of immigrants. In: American Journal of Sociology 70,2:193-205.

Browne, William J. et al. 2005: Variance partitioning in multilevel logistic models that exhibit overdispersion. In: Journal of the Royal Statistical Society: Series A (Statistics in Society) 168,3: 599-613 [doi: 10.1111/j.1467-985X.2004.00365.x].

Cohen, Orna; Savaya, Rivka 2003: Lifestyle differences in traditionalism and modernity and reasons for divorce among Muslim Palestinian citizens of Israel. In: Journal of Comparative Family Studies 34,2: 283-302.

Crul, Maurice; Schneider, Jens; Lelie, Frans (Eds.) 2012: The European Second Generation Compared: Does the Integration Context Matter? Amsterdam: Amsterdam University Press.

Deding, Mette; Fridberg, Torben; Jakobsen, Vibeke 2013: Non-response among immigrants in Denmark. In: *Font, Joan; Méndez, Mónika* (Eds.): Surveying Ethnic Minorities an Immigrant Population: Methodological Challenges and Research Strategies (IMIS-COE Research). Amsterdam: Amsterdam University Press: 173-194.

Dommaraju, Premchand; Agadjanian, Victor 2008: Nuptiality in Soviet and post-Soviet Central Asia. In: Asian Population Studies 4,2: 195-213 [doi: 10.1080/17441730802247463].

Dyson, Tim; Moore, Mick 1983: On Kinship Structure, Female Autonomy, and Demographic Behavior in India. In: Population and Development Review 9,1: 35-60 [doi: 10.2307/1972894].

Eldarov, Eldar M. et al. 2007: Resettlement and Migration in Post-Soviet Daghestan. In: Eurasian Geography and Economics 48,2: 226-248 [https://www.colorado.edu/.../ EGE_2007_MigrationDagestan_s6.pdf, 29.03.2018].

Filatov, Roman; Lunkin, Serguey 2002: Severnyj Kavkaz: gorskie narody v poiskakh religioznoj identichnosti [The North Caucasus: mountain peoples in search for religious identity]. In: *Filatov, Roman* (Ed.): Religija I obshchestvo. Ocherki religioznoj zhizni sovremennoj Rossii [Religion and Society: Pictures of religious life of today's Russia]. Saint-Petersburg: Letnij sad: 158-188 (in Russian).

Folbre, Nancy 1983: On Patriarchy Born: The Political Economy of Fertility Decisions. In: Feminist Studies 9,2: 261-284 [doi: 10.2307/3177490].

Font, Joan; Méndez, Mónika (Eds.) 2013: Surveying Ethnic Minorities an Immigrant Population: Methodological Challenges and Research Strategies (IMISCOE Research). Amsterdam: Amsterdam University Press.

Gurak, Doughlas; Caces, Fe 1992: Migration networks and the shaping of migration systems. In: *Kritz, Mary M.; Lim, Lin Lean; Zlotnik, Hania* (Eds): International Migration Systems: A Global Approach. Oxford: Clarendon Press: 150-176.

Gruber, Siegfried; Szołtysek, Mikołaj 2012: Quantifying Patriarchy: An Explorative Comparison of Two Joint Family Societies. Max Planck Institute for Demographic Research Working Paper 2012-017 [URL: https://www.demogr.mpg.de/papers/working/wp-2012-017.pdf, 04.05.2018].

Hamel, Christelle et al. 2012: Union formation and partner choice. In: *Crul, Maurice; Schneider, Jens; Lelie, Frans* (Eds.): The European Second Generation Compared: Does the Integration Context Matter? Amsterdam: Amsterdam University Press: 225-284.

Hayford, Sara; Agadjanian, Victor 2012: From desires to behavior: Moderating factors in a fertility transition. In: Demographic Research 26: 511-42 [doi: 10.4054/DemRes.2012.26.20].

Jones, Gawin W. 2004: Marriage and divorce in Islamic Southeast Asia. Kuala Lumpur: Oxford University Press.

Karpov, Yuri; Kapustina, Ekaterina 2011: Highlanders in the lowlands. Migrations in Daghestan in the 20th and the early 21th centuries, their social, ethnic and cultural consequences and prospects (in Russian). Saint-Petersburg: Peterburgskoe Vostokovedenie.

Kazenin, Konstantin; Kozlov, Vladimir 2016: The rejuvenation motherhood in Dagestan: a tendency or an artefact? In: Demographic Review (English selection) 4: 161-180 [https://demreview.hse.ru/en/2016--5/212809921.html, 29.03.2018].

Kazenin, Konstantin 2017: Islamic law in the situation of rivalry of different legal systems: the case of North Caucasus (in Russian). In: Gosudarstvo, religija, cerkov' 35,3: 234-264.

Kaser, Karl 2008: Patriarchy after patriarchy: gender relations in Turkey and in the Balkans, 1500-2000. Münster: Lit Verlag.

Kodzi, Ivy A.; Johnson, David R.; Casterline, John B. 2010: Examining the predictive values of fertility intentions among Ghanaian women. In: Demographic Research 22: 965-984 [doi: 10.4054/DemRes.2010.22.30].

Kravdal, Øystein 2002: Education and Fertility in Sub-Saharan Africa: Individual and Community Effects. In: Demography 39,2: 233-250 [doi: 10.2307/3088337].

Kravdal, Øystein 2006: A simulation-based assessment of the bias produced when using averages from small DHS clusters as contextual variables in multilevel models. In: Demographic Research 15,1 [doi: 10.4054/DemRes.2006.15.1].

Krumpal, Ivar 2013: Determinants of social desirability bias in sensitive surveys: a literature review. In: Quality & Quantity 47,4: 2025-2047 [doi: 10.1007/s11135-011-9640-9].

Lalwani, Ashor K.; Shavitt, Sharon; Johnson, Timothy 2006: What is the relation between cultural orientation and socially desirableresponding? In: Journal of Personality and Social Psychology 90: 165-178 [doi: 10.1037/0022-3514.90.1.165].

Lerch, Mathias 2013: Patriarchy and fertility in Albania. In: Demographic Research 29,6 [doi: 10.4054/DemRes.2013.29.6].

Leckie, George; Charlton, Chris 2013: A program to run the MLwiN Multilevel Modeling Software from within Stata. In: Journal of Statistical Software, 52: 11.

Malhotra, Anju; Vanneman, Reeve; Kishor, Sunita 1995: Fertility, Dimensions of Patriarchy, and Development in India. In: Population and development review 21,2: 281-305 [doi: 10.2307/2137495].

Mason, Karen Oppenheim 2001: Gender and Family Systems in the fertility Transition. In: Population and DevelopmentReview 27: 160-176.

McCleland, G.H. 1983: Family-size desires as measures of demand. In: *Bulatao, Rodolfo A.; Lee, Ronald D.* (Eds.): Determinants of Fertility in Developing Countries, Supply and Demand for Children, vol. 1. Academic Press, New York.

Milewski, Nadja; Huschek, Doreen 2015: Union formation of Turkish migrant descendants in Western Europe: Family involvement in meeting a partner and marrying. In: Family and Human Capital in Turkish Migration 11-23.

Milewski, Nadja; Otto, Danny 2017: The Presence of a Third Person in Face-to-Face Interviews with Immigrant Descendants: Patterns, Determinants, and Effects. In Situating Children of Migrants across Borders and Origins. Springer, Dordrecht: 77-96.

Miller, Warren B. 2011: Differences between fertility desires and intentions: implications for theory, research and policy. In: Vienna Yearbook of Population Research 9: 75-98 [doi: 10.1553/populationyearbook2011s75].

Moghadam, Valentine M. 2004: Patriarchy in transition: Women and the changing family in the Middle East. In: Journal of Comparative Family Studies 35,2: 137-162 [doi: 10.3138/jcfs.35.2.137].

Molodikova, Irina; Watt, Alan 2014: Growing up in the North Caucasus: Society, Family, Religion, and Education. London: Routledge.

Montgomery, Mark R.; Casterline, John B. 1996: Social Influence, Social Learning and New Models of Fertility. In: Population and Development Review 22 (supplement): 151-175 [doi: 10.2307/2808010].

Morgan, Philip S. et al. 2002: Muslim and Non-Muslim Differences in Female Autonomy and Fertility: Evidence from Asian Countries. In: Population and Development Review 28,3: 515-538 [doi: 10.1111/j.1728-4457.2002.00515.x].

Oyediran, Kolawole Azeez 2006: Fertility desires of Yoruba couples in South-Westen Nigeria. In: Journal of Biosocial Science 38,5: 605-624 [doi: 10.1017/S0021932004026835].

Randall, Donna; Fernandes, Maria 1991: The social desirability response bias in ethics research. In: Journal of Business Ethics 10: 805-817 [doi: 10.1007/BF00383696].

Rossier, Clémentine; Bernardi, Laura 2009: Social Interaction Effects on Fertility: Intentions and Behaviours. In: European Journal of Population 25,4: 467-485 [doi: 10.1007/s10680-009-9203-0].

Szołtysek, Mikołaj et al. 2017: The Patriarchy Index: a new measure of gender and generational equalities in the past. In: Cross-cultural Research 53,3: 228-262 [doi: 10.1177/1069397117697666].

Tourangeau, Roger; Yan, Ting 2007: Sensitive questions in surveys. In: Psychological Bulletin 133: 859-883 [doi: 10.1037/0033-2909.133.5.859].

Ware, Robert B.; Kisriev, Enver 2000: The Islamic Factor in Dagestan In: Central Asian Survey 19,2 [doi: 10.1080/713656179].

Williams, Lindy; Abma, Joyce 2000: Birth wantedness reports: a look forward and a look back. In: Social Biology 47, 3-4: 147-163.

Wilson, Ben; Kuha, Jouni 2016: What is the influence of childhood exposure to cultural norms? The role of segregation and community composition in explaining migrant fertility. Ms.

Zang, Xiaowei 2008: Gender and Ethnic Variation in Arranged Marriages in a Chinese City. In: Journal of family issues 29,5: 615-638 [doi: 10.1177/0192513X07308039].

van Zantvliet, Pascale I.; Kalmijn, Matthijs; Verbakel, Ellen 2014: Parental involvement in partner choice: the case of Moroccans and Turks in the Netherlands. In: European Sociological Review 30,3: 387-398 [doi: 10.1093/esr/jcu045].

Zubarevich, Natalia V. 2011: Social'no-ekonomicheskoe polozhenie respublik Severnogo Kavkaza: kolichestvennye ocenki [Socio-economic situation in the republics of the North Caucasus: quantitative assessments]. In: *Starodubrovskaya, Irina V.* (Ed.): Severnyk Kavkaz: modernizacionnyj vyzov [The North Caucasus: the challenge of modernization]. Moscow: Izdatel'skijdom "Delo": 11-34.

Konstantin Kazenin (✉). Russian Academy for National Economy and Public Administration. Moscow, Russia. E-mail: kz@ranepa.ru
URL: https://www.iep.ru/en/person/kazenin-konstantin-i.html

Vladimir Kozlov. National Research University – Higher School of Economics. Moscow, Russia. E-mail: vakozlov@hse.ru
URL: https://www.hse.ru/en/org/persons/22565310