

# Brain Drain in Russian Agriculture? Migration Sentiments among Skilled Russian Rural Youth

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## Abstract

Urbanisation and aging of the rural population contribute to shortages of skilled workers in agricultural sectors worldwide. Migration may potentially alleviate these shortages. This study explores individual decision-making of Russian skilled rural youth with respect to migration, paying special attention to values and attitudes. Using qualitative and quantitative data from Russia, we identify major factors that may affect the intention to move abroad. Apart from income differentials, we find that social ties, individual values and attitudes are associated with migration intentions. Agricultural students unwilling to work in agriculture and disliking rural lifestyle tend to be motivated to migrate abroad.

**Keywords:** Rural youth, migration incentives, skilled labour, agricultural labour, Russia

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## 1. Introduction

Labour markets in many European countries are under stress due to an insufficient qualified labour supply and agriculture is not an exception. An unfavourable demographic situation and increasing labour mobility have contributed to a situation when enterprises in numerous sectors struggle with finding middle- and highly-qualified personnel (Rutkowski, 2007; Gimpelson, Kapeliushnikov and Lukiyanova, 2010). Not only traditional IT and healthcare sectors experience shortages with staff but also other sectors that have not had similar problems until recently. Agriculture appears to be one of these sectors as well. A recent survey in Eastern Germany points out that nearly every agricultural enterprise encounters problems in finding qualified staff (Winge, 2015). Another example is large-scale machine-intensive agriculture in Russia that requires educated and well-trained personnel able to operate sophisticated machinery and to manage large-scale production processes. So, why does the agricultural sector have trouble finding skilled young people?

Urbanisation and outmigration may exacerbate the problem of a demand and supply mismatch in the agricultural labour market. On the one hand, it is clear that structural adjustments (e.g. salary increases, improvements in rural infrastructure, etc.) need to take place in agriculture and rural areas in order to attract missing personnel. On the other hand, long-term trends of rural areas depopulation may substantially contribute to the existing problem. The processes of rural-urban migration have been extensively studied across the world starting with pioneering works of Harris & Todaro (1970) and Lipton (1977). Gaps in incomes and public goods availability between rural and urban areas (especially in developing countries) drive masses of people out of the villages and, as a result, depress troubled regions further. Agricultural production concentration and shedding labour in the rural economy have contributed to increased poverty and massive depopulation. Following this logic, in Russia we observe substantial internal movement of citizens towards urbanised centres in Westward direction (White, 2007). In particular, better job and education opportunities along with the availability of public infrastructure drive rural youth out of the rural areas (Andrienko and Guriev, 2004; Guriev and Vakulenko, 2015). As there are substantial differences

between the regions in terms of income and public goods provision levels (Eikeland and Riabova, 2002), the incentives to migrate to different cities may differ as well. Moreover, Farrugia (2016) extends the discussion beyond “structural” factors outlined above and argues that for rural youth cities may have a “symbolic” meaning as “the place where modern life happens”.

Little is known about the incentives of skilled workers to migrate abroad in an agricultural context and this paper is attempting to address this gap. Agriculture continues employing a substantial amount of people in transition countries: in 2010 it accounted for 8% of the Russian workforce, which is roughly 6.6 million persons (RosStat, 2016b). Should the international migration incentives of the rural population in transition countries be high, it may exacerbate existing shortages of skilled personnel. In that case, only low labour mobility will keep local population in rural areas (Andrienko and Guriev, 2004). Perpetual poverty traps reduce labour force mobility and prevent labour markets from the necessary adjustments via labour movement (Guriev and Vakulenko, 2015). So far, research has focused on either rural-urban migration or migration between the donor and recipient countries leaving incentives of rural citizens to migrate abroad largely unexplored. Understanding the numbers of potential migrants, factors influencing their migration intentions, and the consequences for rural areas will help understand the reasons behind the gap in agricultural skilled labour markets and devise appropriate policies to bridge this gap. On the other hand, there is an emerging literature on how underpopulated European rural areas could benefit from foreign immigration (Kasimis and Papadopoulos, 2010; Bayona-i-carrasco and Gil-alonso, 2013). For countries targeted by potential migrants, it is important to know the number of the ones willing to emigrate and their characteristics. Furthermore, knowing profiles of potential migrants may help the target countries to assess the potential to contribute to the domestic labour force and to integrate newly arrived immigrants. All this may contribute to a better understanding of migration intentions in Russia and of potential effects on labour markets in target countries.

Against this background, the current study explores individual decision-making of Russian skilled youth in rural areas with respect to migration, paying special attention to values and attitudes. In order to

examine the migration incentives of skilled Russian rural youth we employ a triangulation of qualitative and quantitative methods. To answer our research questions, we use qualitative data collected during semi-structured face-to-face interviews with different stakeholders in Moscow and selected Russian regions. In addition, we utilise quantitative survey data of agriculture students in Altai Krai province (Siberia) and conduct statistical analysis.

## **2. Theoretical Background**

Research on migration is fundamentally interdisciplinary involving elements from economics, sociology, political science, demography, geography, psychology and cultural studies (Brettel and Hollifield, 2015). All these elements complement each other. The literature attempting to model migration decisions has developed from considering economic “push and pull” factors to the incorporation of contextual and cognitive aspects. Early migration models pioneered by Harris & Todaro (1970) focused on the fundamental micro-economic driving forces of migration. Later, Stark & Bloom (1985) introduced the New Economics of Labour Migration (NELM) that puts the migration decision into a broader context involving the economic situation of a whole household instead of individuals. Finally, more current literature that builds on NELM explores the links between cognitive and mental individual characteristics and migration decision-making. We adopt and further develop Farrugia's (2015) concept of “mobility imperative” In particular, it distinguishes the structural, symbolic and non-representational dimensions of rural youth mobilities. We follow the timeline of the migration literature development and, first, provide an overview of the fundamental factors involved in the basic individual decision-making about migration. Then, we review theories putting migration into a broader context following NELM approaches and, lastly, consider the effects of individual values and attitudes.

### **2.1 *Fundamental factors***

A starting point for our analysis is the Harris & Todaro (1970) model. The main argument is that individuals maximise their utility by changing locations, with income being a key determinant of utility.

Thus, the differences in earning possibilities between the sending and recipient countries represent the major driving force for migration. As a result, we, first, should observe migration flows from Russian rural areas towards urbanised centres because of a developmental gap between rural and urban areas (Macours and Swinnen, 2008; Bednaříková, Bavorová and Ponkina, 2016). Second, we should see people moving in the direction of the countries with higher GDP per capita. Better career aspirations of rural youth have been identified to be a major driving factor in different international contexts as well (Jamieson, 2000; Stockdale, 2006). Individuals who left rural areas appear to be more qualified, better paid and have better career perspectives (Stockdale, 2004). In a study of Bulgarian agricultural graduates, Traikova, Möllers and Petrick (2018) found that higher earnings represented a major incentive to move to Germany. However, earning differential is not the only factor incorporated into the migration decision.

For instance, Lee's (1966) framework of 'push and pull' factors offers a way to analyse the aspects of the sending country that drive an individual away from it ('push factors') and the aspects of the receiving country that attract an individual ('pull factors'). Lack of basic public goods in rural areas (e.g. insufficient infrastructure, healthcare or scarce educational opportunities) may act as 'push' factors forcing individuals out of the rural areas (Spoor, 2011). For instance, in Russia, rural educational opportunities that are especially important for young rural inhabitants appear to be in a very poor state compared to their urban counterparts (Ivolga, 2014; Amini and Nivorozhkin, 2015). Along these lines, Shibaeva (2010) suggests that the general quality of life in Russian rural areas is commonly perceived to be much lower than in the cities. However, urban areas with all their advantages may still not be as attractive as the capital or foreign educational opportunities. Although reforms are taking place, Russian tertiary education appears to be lagging behind its Western counterparts (Makarov *et al.*, 2014; Rodionov, Rudskaia and Alexandrovna, 2014). This may motivate rural youth to consider foreign countries with better educational possibilities. Furthermore, other public goods, like the extent that corruption affects business life or political instability, may represent 'push' factors as well.

A favourable business environment may be an important factor that affects individual decisions to stay or to leave. The part of rural youth that wants to pursue an agricultural career either by establishing their own farm or by working for an agricultural enterprise will take the ease of doing business into account. Managing an inherited or newly established farm in an environment of dysfunctional institutions and widespread corruption may generate 'push' factors driving young people away from agricultural entrepreneurship. A more stable and predictable institutional environment in the target countries may 'pull' rural Russian youth towards a migration decision.

## **2.2 *NELM's perspective***

An extension of the neoclassical approach to the migration incentives analysis is represented by the NELM. The main idea is to put a migration decision into a broader context of a household as opposed to considering separate individuals (Stark and Bloom, 1985; Massey *et al.*, 1993). A household as a unit may be in a better position to smooth its consumption by developing strategies involving migration abroad (Hagen-Zanker, 2008). Some of the household's members may be delegated the role of migrants with an expectation that they support the ones left behind in the future after settling abroad. As a result, parents may mobilise substantial resources in order to create an opportunity for their children to study or work abroad. Massey *et al.* (1993) look at this situation as a contractual arrangement between parents and children that can reduce risks and provide access to capital. On the aggregate level, remittances from household members represent large resources that are of a great importance to the ones left behind in the countries of origin (Collier, 2013).

Households' income and social status in their home rural area may influence their migration decision. First, a potential migrant should have sufficient human and monetary capital in order to cover the costs of migration (Dustmann and Okatenko, 2014). This should exclude those households that are at the bottom of income distribution. On the other hand, income and social status substantially above the average may reduce the incentives to out-migrate because the income differential between staying and moving options is not large enough. On an aggregate level, Rotte & Vogler (1998) found that the probability of

outmigration to Germany first increases with a country's development and then decreases forming an inverse U-shaped relationship between development and migration. On the micro-level, Guriev & Vakulenko (2015) find that the intensity of migration flows is higher in the regions with average incomes where satisfaction with living conditions is insufficient but individuals still have enough resources to move.

An important question for potential migrants is whether to move to some other destination within the country or to move abroad. For Russian rural youth there may be several options: move to the nearest urbanised centre, move to other urbanised centres across the country, move to Moscow or St. Petersburg, or to move abroad. Each of these options is associated with certain costs and payoffs of migration. Thus, going to any city in Russia with an exception of the two mentioned above is relatively uncomplicated and does not require significant resources from the household. On the other hand, moving to Moscow and St. Petersburg can be more complicated as households have to deal with substantially higher living costs. These two cities display a GDP per capita level comparable with leading European countries. It is five times higher than an average non-mineral extracting province. Russians commonly perceive these cities as a 'foreign country' because they offer better career opportunities and living standards (White, 2007). At the top of the destinations ranking of the potential migrants may be foreign countries. Political stability, democratic freedoms and lower levels of corruption may represent major pull factors. As a result, income and public goods gaps between rural areas and all the destinations listed above generate a clear ranking of the preferred destinations with going abroad being at the top of the ranking.

Once an individual made a decision to move abroad, the next decision to take is which country to choose. The choice of a destination country may be based on existing connections with those migrants that moved already to the destination country. In particular, having relatives or friends who can share their experiences with potential migrants can reduce risks and costs of migration (Massey *et al.*, 1993; Collier, 2013). With the help of an illustrative model, Collier (2013) demonstrates that depending on the migration function (determined by income and the public goods gap between the countries) existence of a diaspora in

the receiving country may accelerate migration. As a result, Russian households may consider those countries where a substantial number of Russian diaspora members live.

### 2.3 *Cognitive factors*

Individual beliefs and attitudes may have a strong impact on migration incentives. Ajzen's (1991) Theory of Planned Behaviour suggests that individual beliefs form an intention to act that in turn translates into action. Intentions to migrate appear to reasonably translate into actions (Card, 1982; DeJong, 2000; Bjarnason, 2014), although not always (Gardner *et al.*, 1985). The literature on how norms and beliefs affect migration intentions is only emerging. Shucksmith (2004) finds that the variation among rural youth's attitudes towards norms and social institutions may determine future decisions to stay or to leave rural areas. In the context of illegal cross-border migration between Mexico and the US, Ryo (2013) showed that legal attitudes and level of morality was associated with migration intentions. Let us examine the most salient norms and attitudes that could influence individual migration intentions of Russian qualified agriculture workers.

#### *Openness and experiences abroad*

Openness towards other cultures and experiences may reduce the costs of migration because an individual is more likely to learn a foreign language, obtain more knowledge about foreign countries, etc. First, willingness to get immersed into a foreign culture may be determined by inherent individual risk-lovingness (Jaeger *et al.*, 2010). Second, Russian societal environment with state-controlled media may generate stereotypes and fears about potential destination countries.<sup>1</sup> In particular, the state has been propagating a rhetoric of an 'external enemy' attempting to harm Russia (Motyl, 2016; Vázquez-Liñán, 2017) and, as a result, generated uncertainty among the population about the attitudes towards Russians in the West. Experiences abroad may help destroy these stereotypes and achieve a higher degree of openness

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<sup>1</sup> For reviews on how media outlets have been consolidated and are controlled by the Russian government see Becker (2005), Erzikova & Lowrey (2014), Gehlbach (2010), Gehlbach & Sonin (2013). Russia was ranked 148th out of 180 countries in Press Freedom Index developed by 'Reporters without Borders'.

towards new things. Existing literature suggests that exposure to a foreign country increases the likelihood of migration in the future by reducing mental costs of adjustment to a foreign environment (De Jong *et al.*, 1986; Bellak, Leibrecht and Liebensteiner, 2014). This means that experiences abroad (internships abroad, language courses or even touristic visits) may increase the likelihood of individual higher migration intentions.

### *Social ties*

Prospective migrants may face a trade-off between cognitive costs related to social ties in parental municipalities and cost-mitigating benefits that social networks in target countries may offer. First, a potential move may negatively affect individual utility should the connections with family, friends and emotional bonds to parental communities be reduced. There is some evidence that those youngsters that are more socially and emotionally attached to their region of origin are less likely to move (e.g. Bjarnason & Thorlindsson, 2006). Farrugia (2016) argues that rural youth may have an emotional or “sensuous” connection with local landscape and community that may create discomfort in urban areas. Furthermore, following Social Capital Theory (Putnam, 1993, 2000), embeddedness in local communities may represent a form of a competitive advantage on for the local labour market and discourage migration. On the other hand, social connections outside the region of origin may generate additional ‘pull factors’ and simply broaden individual horizons, thus increasing the chances of considering migration (Hanson, 2010; Collier, 2013). For instance, family, friends or relatives living abroad or even simply outside parental municipality may attract potential migrants towards the places where they live or open them up for potential migration options.

### *Career aspirations*

Career expectations and aspirations may be an important predictor of migration intentions. Bjarnason & Thorlindsson (2006) demonstrated that Icelandic rural youth is more likely to intend to move to urban areas if they are more career-oriented. Of course, urban areas can offer better education and employment opportunities for rural Russian youth. Bednaříková, Bavorová, & Ponkina (2016) find rural

women in Altai Krai province are more likely to anticipate leaving their parental rural municipalities because they tend to avoid agricultural careers and aspire for urban service-oriented employment opportunities. There is, however, little research on how career aspirations of rural youth affect their intentions to move abroad. Among the exceptions is Hannan (1969) who showed that social mobility aspirations of Irish adolescents predicts their migration decisions well. Traikova, Möllers and Petrick (2018) provide evidence that Bulgarian agricultural specialists considered moving to Germany in order to learn how to run their own farm and take managerial responsibility for a farm. In our context, prospective migrants may perceive the agricultural sector and rural areas of a destination country as an attractive career option because of higher earning possibilities, better working conditions and higher living standards in Western rural areas. Conversely, they may perceive moving abroad as moving away from agriculture and pursue career opportunities in other better paid sectors of a hosting country.

### **3. Migration Situation in Russia**

#### **3.1 *General migration trends***

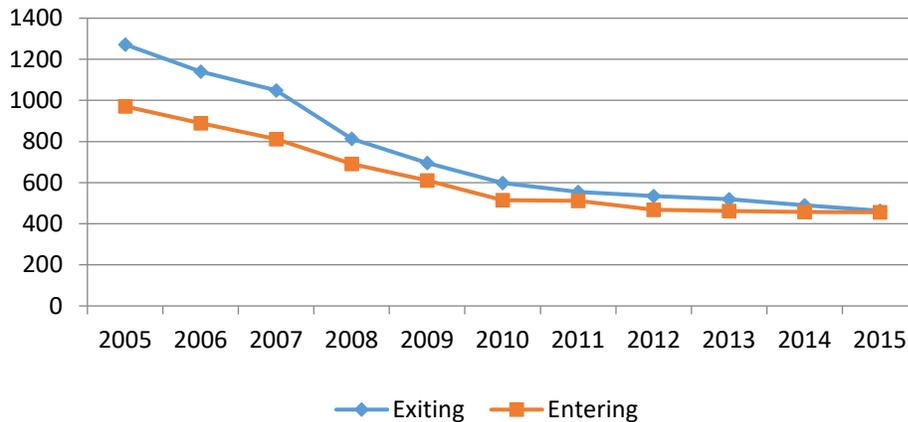
Up until recently there has not been a systematic discussion about migration in Russia (Voronina, 2006). The focus has been predominantly on low skilled migration flows from Eastern Europe and Central Asia. With the exception of the Baltic countries, Russia enjoys the highest incomes and living standards among the post-Soviet countries (World Bank, 2016). As a result, Russian political discourse has focused on managing legal and illegal migration flows from Central Asian countries (Voronina, 2006). Roughly 90% of all the migration flows are related to the former Soviet countries and immigration is by far larger than emigration (Ruchkin, 2013). The number of immigrants has been steadily growing in the last several years reaching ca. 600 thousand persons per year (RosStat, 2016a).

Regional disparities generate substantial internal migration flows following Tiebout's (1956) hypothesis. Andrienko & Guriev (2004) find that Russians tend to move towards urbanised centres with better public goods provision and better career prospects. These trends, however, follow a U-shaped

'migration-income' relationship suggesting that around one third of the Russian population with low incomes was locked in poverty traps. The share of rural population in the total movement of Russian population is only 23% (RosStat, 2015). In general, we observe people movement from less urbanised far-East Russian regions towards more urbanised regions of European Russia (RosStat, 2015). This, of course, contributes to further depopulation of Russian rural areas. As was mentioned above, Moscow and St. Petersburg are very desired destinations (White, 2007).

Only recently, the public discussion has shifted towards migration of highly qualified Russians (Malakhov, 2014). In 2007, for the first time more people of working age left Russian labour force than entered it (Ioffe and Zayonchkovskaya, 2010). The Russian Statistics Agency forecasts that the working age population will shrink by 17 million by 2026, which represents 24% of the whole population active on the labour market. A major 'Brain Drain' problem appeared in the Research and Development (R&D) sector and, as a result, causes substantial productivity-related losses in Gross Domestic Product (GDP) (Bronsino, 2015; Kuznetsova and Prischep, 2016). Agriculture does not appear to be an exception to these trends as it has been shedding labour for many years. Figure 1 shows that more agricultural workers have been leaving the sector than entering. These processes are likely to be caused by both technological progress in agriculture and demographic changes in rural areas. We see, however, that shrinking has slowed down and the gap is much smaller. There is no available statistics on the losses or deficits of skilled workers, but there are indications that agriculture is one of the sectors where 'Brain Drain' also occurs (Malakhov, 2014). Data collected within this study indicates that a majority of large agricultural enterprises faces a problem of lacking qualified staff and invests in education and human capital acquisition.

**Figure 1. Number of workers exiting and entering Russian agriculture**



Source: RosStat (2016a)

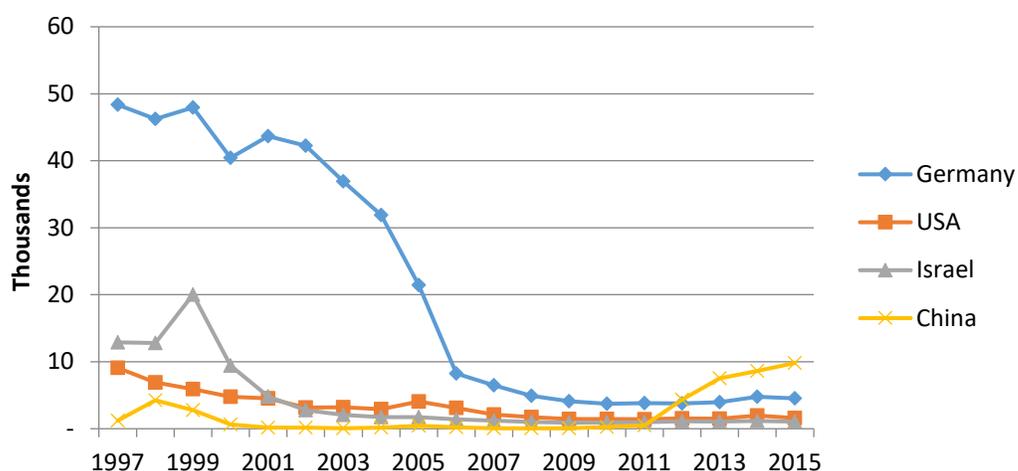
Despite large cross-border movements in Russia, the issue of ‘Brain Drain’ is not yet publicly discussed and is not perceived as a pressing issue (Kvartiuk, 2015). An exception is the situation in science as many bright scientists leave the country being attracted by better conditions in the West (Korobkov and Zaionchkovskaia, 2012). Temporary migration is predominantly seen as a positive phenomenon among Russian experts. Literature describes this as a ‘Brain Gain’: a situation when migrants return after several years of work abroad with savings and better human capital (Stark, Helmenstein and Prskawetz, 1997; Stark, 2004). In addition to that, our qualitative data indicates that there is little social stigma towards the ones who decide to leave Russia. These circumstances reduce negative social pressure on the ones who decide to leave the country.

Cross-border migration has been growing to the extent that it could influence the demographic situation as a whole. Numbers of both emigrants and immigrants have increased in recent years but a gap between them has persisted because more people arrived over the years (RosStat, 2015). Experts interviewed within this study testify that the public increasingly discusses the need to improve immigration regulation. However, few legislative initiatives addressed the issues of the black labour market or Russia’s attractiveness for foreign skilled workers (Ioffe and Zayonchkovskaya, 2010; Malakhov, 2014).

Germany is still one of the most attractive destinations among Russian migrants. Figure 2 demonstrates the top destination countries in terms of the numbers of persons that left Russia to respective

countries. In the 1990s, Germany and Israel were by far the most important destination countries, mostly because of diverse programs allowing individuals with roots in the respective countries to return. However, over the years, the numbers of Russians who want to move to those countries went down and stabilised. Around four thousand individuals move to Germany every year, 1.5 thousand to the US, and one thousand to Israel. Interestingly, in recent years the number of migrants to China has grown dramatically, which probably could be explained by increasing economic ties between the countries.

**Figure 2. Top destination countries of Russian migrants**



Source: RosStat (2015)

### 3.2 *Qualified agricultural workers in Russian rural areas*

To examine migration incentives of Russian skilled rural youth, it is important to understand the broader context of the rural economy. Russian rural areas are characterised by a high dispersion of rural settlements. This is considered to be a major reason for their sluggish social and economic development leading to the reduction and fragmentation of rural settlements, depopulation and desolation of rural areas. These challenges have been officially identified by the ‘Strategy of Sustainable Development of Rural Areas of the Russian Federation until 2030’. First, a large majority of rural settlements have unsustainably low populations, which inevitably leads to urbanization processes. For instance, 12% of the villages appear

to be completely depopulated (no registered inhabitants) and two thirds have populations less than 200 persons. Naturally, the network of social infrastructure shrinks reflecting the outflow of the rural population. As a result, the gap between urban and rural areas is still substantial. In the past, local public goods were delivered by socialist state enterprises: Russian large-scale agricultural enterprises played the role of employers and providers of social services to the municipalities at the same time (Davydova and Franks, 2006). The turn from a planned to a market economy during the 1990s made many agricultural companies unprofitable (Kalugina, 2014). Public goods that were on their balance sheets during the Soviet times were mostly transferred to local municipalities that have been severely underfunded within the current fiscal system (Young and Wilson, 2007; Ross, 2010). At the same time, many agricultural companies continue to provide some social services and to assist workers in their small-scale private farming activities, thereby helping to maintain their standard of living (Kalugina, 2014). There is still a residual local inhabitants' expectation that agricultural enterprises should fund local development. As they are able to do that only to a limited extent, rural areas are left with deteriorating infrastructure creating unfavourable living conditions.

Agricultural companies in Russian rural areas experience increasing difficulties to find sufficiently skilled staff. Shrinking rural population and an unfavourable demographic situation do not allow generational renewal among the skilled rural inhabitants. The attractiveness of traditional jobs in agriculture has diminished, which has led to a significant deficit of specialists and workers in agriculture. This tendency is evident mainly in remote agricultural enterprises (Sergienko *et al.*, 2013). Furthermore, Lavrukhina (2011) suggests that Russian youth maintains a stereotype about agriculture as a non-prestigious, unprofitable, risky sector with very little business opportunities.

Labour force mobility in the agricultural sector appears to be low in comparison to other sectors. RosStat (2012) suggests that younger individuals tend to find employment outside their home region. The number of individuals engaged in agriculture, hunting and forestry and working outside their home region was the smallest in 2012 out of all economic activities (RosStat, 2012). As a result, people working in agriculture seem to be willing to move less than their counterparts in other sectors.

The shortage of qualified agricultural workers represents a significant problem for the Russian agricultural sector. On the national level, there are hardly any systematic initiatives to address the problem. Two strategic documents, ‘Strategy of Sustainable Development of Rural Areas of the Russian Federation up to 2030’ and ‘State Programme of Agriculture Development and Regulation of Markets of Agricultural Products, Raw Materials, and Foodstuffs for 2013–2020’, deal with the lack of qualified agricultural labour only in an indirect way. There are also examples of private initiatives securing qualified personnel by large agricultural enterprises. In particular, they cooperate with agricultural universities running internship and private educational programs. This generates an opportunity to select promising students for future employment. As a result, understanding the factors that affect migration incentives of Russian agriculture students may help to develop policies retaining skilled workers and fostering their development.

#### **4. Data and Methods**

A major problem with addressing the research questions of this study is the fact that there is very little available statistical data on migration in the agricultural sphere of Russia. One, thus, needs to come up with innovative strategies to evaluate migration incentives among rural skilled youth. We triangulate our data sources by utilizing qualitative (focus-group interviews with agriculture students and expert interviews) and quantitative data (survey with agriculture students) from different regions. The benefit of this approach is that we can obtain a more complete picture of the results because the shortcomings of one dataset can be addressed by the other two. We address each of the research questions using data that can provide us with maximum information on a particular issue.

##### **4.1 *Qualitative data***

The data was collected in two waves. First, in early 2014, we conducted series of semi-structured interviews with key experts in the field of rural labour markets and migration along with affiliates of Russian agricultural universities. Representatives of research institutes and think tanks dealing with issues of migration were interviewed in Moscow. After that, we chose two regions with relatively large

agricultural sectors and leading agricultural universities: Krasnodar and Stavropol provinces.<sup>2</sup> There we interviewed experts on agricultural labour markets and migration along with the representatives of the agricultural universities in Krasnodar and Stavropol. In order to select the respondents we, first, mapped all the potential interviewees within a given region, ranked them by priority, and then solicited following the established order. We faced a general response rate of ca. 75%. During the first wave of data collection we conducted a total of 10 interviews with the heads of the respective organizations and institutions. All the interviews were recorded, transcribed and subsequently analysed. Semi-structured questionnaires contained sections on the Russian labour market in general, migration sentiments of different population categories, the Russian agricultural sector, education, etc. A substantial part of the questionnaires covered current trends in agricultural education. In sum, the first wave of data collection helped us identify a target group of individuals with high migration probability: students of agricultural universities close to graduation or recent graduates.

Having the target group in mind, the second wave of data collection aimed at students of third or fourth year of studies that were affiliated with Kostroma State Agricultural University and Ivanovo State Agricultural Academy.<sup>3</sup> An important selection criteria was being already engaged in or considering doing an internship in Germany facilitated by two specific programs: the ones who were applying for internships in Germany while being in their host universities in Russia (interviewed during application time in Russia) and the ones who were already in Germany doing their internships (interviewed in Germany). We assumed that an interest in an internship should constitute higher migration intentions. Students nearing their graduation as a rule have thought about their career prospects and start developing a rough idea about their future plans. In total, we conducted six focus-group interviews: four with those students that were already

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<sup>2</sup> Shares of agriculture in total regional product are 12.5% in Krasnodar and 17.2% in Stavropol, thus well above national average (8.7%). Considering the large economies of these administrative units, agricultural sectors are disproportionately large in comparison to other provinces. Both regions are large exporters of grain. The top two agricultural universities in 2016 were located in these regions (based on a rating by the International Information Agency 'Russia Today').

<sup>3</sup>Partnerships with the internship facilitating organizations allowed us obtaining comparable samples of internship applicants in Russia and interns in Germany.

in Germany for their internships and two at the stage of application for an internship in Kostroma and Ivanovo. The idea behind this sample selection was to differentiate between those who only intend to apply for an internship and those who already have first experience living and working abroad.<sup>4</sup> This should allow us to observe how intentions to migrate transform into actions. We randomly selected applicants for internships in Germany during the application process in Russia, balancing gender within the samples. In Germany, we interviewed all the students participating in two internship programs during the period 2014-2016. Each focus-group interview had 9 to 15 participants allowing a diversity of views and live discussions. In order to ensure coherence, one person conducted all the interviews using one semi-structured questionnaire that included questions on the students' intentions to migrate, their experiences with temporary migration, their expectations, career plans, etc. On average, the interviews lasted ca. two hours and the active involvement of the participants allowed obtaining a rich dataset. All interviews were recorded, transcribed and analysed.<sup>5</sup>

We followed the methodology introduced by Ritchie & Spencer (1994) during the data analysis. There are several distinct stages within this framework. First, one needs to become familiar with the data and identify a thematic framework. Then, the process is to index transcribed data and chart the concepts occurring within the indexed data. Finally and most importantly, we mapped and interpreted the data. This approach allows exploring the data and uncovering the aspects that may potentially lie beyond simple hypothesis testing. Since new relationships and concepts can emerge within the analysis, the framework may include conceptual elements of a grounded theory.

## **4.2 Quantitative data**

In addition to qualitative data, we conducted a survey among agriculture students of Altai Krai province. The region is positioned in Southern Siberia bordering with Kazakhstan and not too far from

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<sup>4</sup> The samples of the students participating in the focus-group interviews in Russia and in Germany did not intersect.

<sup>5</sup> See Appendix B for the list of qualitative interviews conducted within the study.

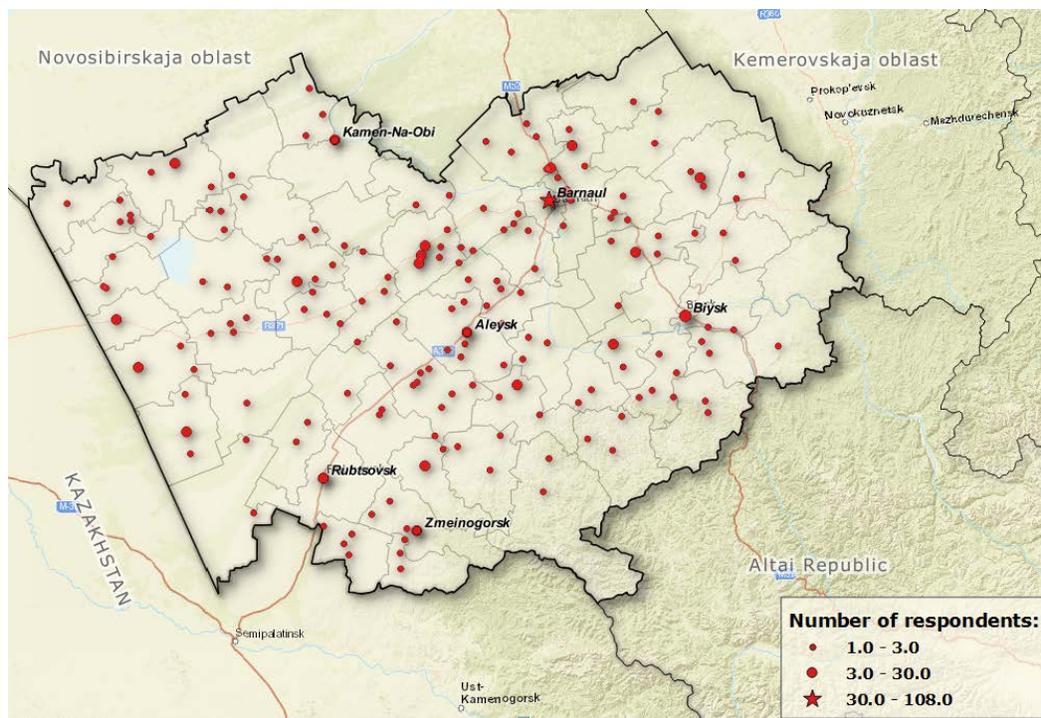
major Asian markets. Altai Krai province, as a predominantly agricultural region, is ranked eighth in total volume of agricultural production among Russian regions (RosStat, 2016b). It is one of the most rural regions in Russia with 44.5% of rural population (Administration of Altai Krai, 2014). Outmigration trends in Altai Krai province (population declined by 0.3% in 2015) are comparable with Kostroma (decline of 0.4%) and Ivanovo (decline of 0.7%) regions (RosStat, 2016b) where we conducted focus-group interviews. All three provinces possess well-established agricultural universities, agriculture plays a substantial role in the regional economy, they display relatively high outmigration trends, and comparable values of per capita income. We thus considered it a fruitful exercise to analyse all three regions in conjunction, using our different datasets, and contrast the findings with the insights from the expert interviews in Moscow and the two leading agricultural regions Krasnodar and Stavropol.

Regional rural labour market in Altai Krai province appears to be under extreme stress with rural areas hosting 77% of all registered unemployed of the province and only 19% registered vacancies (Administration of Altai Krai, 2014). Although the number of employees engaged in the agricultural sector has been slightly decreasing, it was still an impressive 19.2%, which is way above the Russian average of 8.0%. The shortage of skilled workers in agriculture could be illustrated by the fact that many skilled positions were occupied by either unskilled or semi-skilled migrants from Central Asia. In particular, roughly 15% of agriculture specialists (veterinarians, agronomists, etc.) did not have an adequate formal qualification for the tasks they actually performed (Administration of Altai Krai, 2014).

The survey sample was selected within the relatively large Altai State Agricultural University with 3.6 thousand full-time students in 2014. For comparison, 32,4 thousand agricultural students graduated country-wide in the same year. Altai State Agricultural University is one of eight state universities in the region and was established in 1943. We targeted all the students in their fourth and fifth study years because, as a rule, at this stage they already have an idea about their future career and life plans. Structured questionnaires covered students' personal background information, perceptions about life and business environment in Altai Krai province, willingness to move, and career prospects. After a pre-test with a small

group of students in early 2014, the survey was conducted in two waves during the same year. As a result, we obtained 474 valid responses with students from the following departments: agronomical (18.3%), biotechnological (17.7%), economical (22.2%), engineering (16.1%), veterinary (15.4%) and natural sciences (10.3%). Figure 3 demonstrates the spatial distribution of parental municipalities of the interviewees across Altai Krai province. The vast majority of students within the sample (64.96%) are from rural municipalities with populations of less than 10,000 people. Considering the fact that there are only four cities with populations over 50,000 inhabitants within the region, the rest of the students are also likely to be from rural areas. As a result, we consider the sample to be representative of skilled Russian rural youth at the end of their agricultural studies.

**Figure 3. Spatial distribution of parental municipalities within the sample.**



Source: Authors' elaboration.

We use the survey data to estimate a regression with the following general specification:

$$Pr(MIGR) = f(\text{Income}, \text{PGPerceptions}, \text{Values}, \text{Ties}, \text{Controls})$$

where *MIGR* is an ordinal variable describing different migration destinations, so that the equation expresses the probability ( $Pr$ ) of an individual expressing the intention to migrate to a certain destination as a function of the right hand variables. The coding of the migration decision is based on the responses to the following question: “How far are you willing to move from your parental municipality?” Respondents could answer with four distinct options: “within Altai Krai province”, “outside Altai Krai province excluding Moscow”, “Moscow”, and “abroad”. Among the explanatory variables we, first, use a vector *Income* reflecting income and social status of a respondent’s household. Furthermore, we include a vector *PGPerceptions* proxying for a respondent’s view of public goods provision in respective parental municipality and Altai Krai province as a whole. With the help of *Ties* we control for a respondent’s ties with his/her parental municipality. Also, as was pointed out in Section 2, individual values *Values* may play a role in the decision to migrate and we include them in the regression. Finally, some further controls are introduced. A full list of variables along with the descriptive statistics is included in Appendix A.

Following the logic of related studies on migration intentions (e.g. Garasky, 2002; Bednařiková et al., 2016) , we employ several choice models to estimate the parameters of the equation mentioned above. As a baseline, we follow Cameron & Trivedi (2005) using a multinomial Probit that avoids any assumptions about the preferences concerning migration destinations. In other words, we assume that individuals do not rank migration outcomes as such. Although it may be a good starting point, there are indications that this assumption may not hold because on average Russians clearly prefer to move to Moscow in comparison to some other province and moving abroad may be preferred to any other options (White, 2007). As a result, we can rank average preferences about migration destinations. This motivates us to use ordered Probit models that assume ordered dependent variables. We can further avoid the proportional-odds assumption and introduce uncertainty about the relevance of the ordering by using stereotypical Logit model (Anderson, 1984). This method is useful when we are unsure about the relevance of ordering or when the choices can be indistinguishable. Since it could be viewed as a compromise between ordered and multinomial models,

stereotypical Logit estimation results should be preferred to the other models. However, we report the results of all the estimations using marginal effects in order to avoid interpretation challenges.

## 5. Results

### 5.1 Fundamental factors and NELM's perspective

Migration sentiments among Russian rural skilled youth appear to be moderate but not trivial. For instance, roughly 20% of the agriculture students from the Altai Krai province sample report intending to move abroad. However, all the experts interviewed agree that the willingness to emigrate within the target group has decreased within the last several years. Improvements in the economic situation (at least up until 2014) are mentioned among typical causes for this phenomenon. Improved earning opportunities could be illustrated by the following quote:

*Not everyone wants to emigrate. There are, of course, some that see their lives and the lives of their children in the West. But there is a stratum of people that don't want to emigrate. That's why "Brain Drain" has partially come to a halt. Here one can earn well too. You can live well here, speak the same language and it's not necessary to move anywhere.*

*12.05.2014, Centre for Migration Research, Moscow, Russia*

Interestingly, GDP per capita in Russia over the years has stayed at about one third of the developed European countries (World Bank, 2016). We observe a similar situation in the gap between average agricultural wages between Russia and, for instance, Germany (Statistisches Bundesamt, 2010; RosStat, 2014). Most of the interviewed students during the focus groups have a perception about higher earning possibilities in the Western countries. These perceptions may generate incentives to emigrate and pursue better career opportunities.

Some groups of rural Russian youngsters may be more likely to consider migration abroad. For instance, this may apply to the roughly 400 thousand ethnic Germans residing in the Altai Krai and

Novosibirsk regions (so called ‘Russian Germans’).<sup>6</sup> One of the representatives of an agricultural university mentioned the following:

*In general, the number of students that go abroad to work is rather small. But I can surely name couple of examples. ...*

*All “Russian Germans” that studied at our university emigrated.*

*13.05.2014, Centre of Social Demography and Economic Sociology, Moscow, Russia*

Representatives of these minorities may still possess cultural or family connections with Germany. Even though many representatives of this minority had migrated to Germany already, there appears to be still a large pool of potential migrants (Savoskul, 2016). As a result, because of a relatively high share of ‘Russian Germans’ in Southern Siberia, average migration incentives may be higher than among other regions. The same may be valid for other minorities in Russia that have connections with other countries. An already existing pool of emigres from Russia may generate social networks that attract not only representatives of a specific ethnic minority but a broader Russian population as well. Expert interviews indicate that programs of repatriation of ‘Russian Germans’ had triggered migration of non-minority representatives.

All the experts interviewed agree that students from provincial universities are more likely to consider emigration. Education and living expenses are substantially higher in Moscow in comparison to other cities. Students and their parents (who as a rule finance the studies) from Moscow consider emigration less often. Because of available resources and social status, better-off households typically have a clear understanding what their children will do after studies in Moscow or they can afford sending their children for studies abroad. Education in regional universities is cheaper and living costs are lower. Consequently, it attracts students with more modest budgets from the middle-class households. However, regional labour markets are less robust and, as a result, graduates from provincial universities may be more open for emigration.

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<sup>6</sup> Russian Germans (in German – ‘Russlanddeutsche’) represent an ethnic German minority that formed in 18<sup>th</sup> century Russia. Many of them live in Siberian provinces, with Altai Krai and Omsk provinces displaying the largest shares.

Similarly, it appears that students representing middle class households are more likely to go abroad. Low-income households with low social status simply do not possess the necessary means and possibly even human capital to cover the costs of migration. Households at the other end of the spectrum are more embedded in their social surroundings and enjoy higher living standards, which discourages them from migration. Representatives of the middle class, on the other hand, possess the necessary capital to deal with the costs of migration and are sufficiently incentivised in order to seek opportunities to emigrate. One of the experts on migration explained it in the following fashion:

*Successful or locally famous people have less interest in migration. Social status plays a role here, of course. ... Less successful persons simply cannot afford migration. Problems with registration and [liquidity of rural] real estate are the limiting factors reducing mobility of local population.*

*16.05.2014, Association of Farmers and Agricultural Cooperatives of Russia, Moscow, Russia*

As a result, there may be an inverse U-shaped relationship between the likelihood of migration and income.

Examining the estimation results in Table 1, we find some evidence that higher income is associated with larger intentions to migrate abroad, as income category 3 is significantly positively associated with migration abroad. Unfortunately, our data only maps the left tail of the income distribution and that is why we cannot fully reconstruct the inverse-U relationship suggested by the qualitative evidence.

Interestingly, we do not find an impact of the possession of land or a business on migration intentions. Moreover, variables related to local public goods provision seem to be unrelated to the dependent variable: perceptions about how difficult it is to do business in respondents' home municipality and importance of healthcare for a respondent.

**Table 1. Migration intentions estimations using Multinomial and Ordered Probit Models.**

<b>Independent variables</b>	<b>Multinomial Probit<sup>a</sup></b>	<b>Stereotypical Logit</b>	<b>Ordered Probit</b>
<i>Fundamental factors – income and assets</i>			
Income (category 2)	-0.030 (0.415)	0.009 (0.634)	0.005 (0.877)
Income (category 3)	0.059 (0.526)	0.145* (0.052)	0.194*** (0.010)
Parents own land	0.020 (0.737)	-0.008 (0.774)	-0.003 (0.943)
<i>Fundamental factors – public goods perceptions</i>			
Business climate	-0.020 (0.737)	0.013 (0.668)	0.007 (0.881)
Importance of healthcare	--0.015 (0.578)	0.003 (0.834)	-0.003 (0.903)
<i>Cognitive factors – career aspirations</i>			
Importance of carrier opportunities	0.067** (0.046)	0.030 (0.110)	0.057** (0.023)
Not willing to work in agriculture	0.060 (0.121)	0.047* (0.052)	0.074** (0.013)
Wants to be entrepreneur	0.017 (0.639)	0.004 (0.815)	0.012 (0.683)
<i>Cognitive factors – social ties</i>			
Siblings out of Altai province	0.02 (0.957)	0.024 (0.238)	0.033 (0.313)
Friends and relatives	-0.061*** (0.006)	-0.034* (0.066)	-0.060*** (0.001)
Married	-0.023 (0.580)	-0.043** (0.040)	-0.058* (0.057)
From Barnaul	0.084** (0.047)	0.026 (0.344)	0.055* (0.100)
<i>Cognitive factors – openness/other</i>			
Dislike rural lifestyle	0.055* (0.068)	0.039** (0.045)	0.060** (0.011)
Happiness level	0.003 (0.767)	-0.001 (0.858)	0.000 (0.979)
<i>Controls</i>			
Father's education	-0.022 (0.363)	-0.029* (0.075)	-0.033* (0.073)
Age	-0.005 (0.617)	0.015** (0.040)	0.014* (0.093)
Sex	0.084** (0.031)	-0.021 (0.282)	0.002 (0.950)
Agricultural faculty	0.036 (0.351)	0.007 (0.727)	0.022 (0.447)
N	467	467	467

\*Significant at 0.1; \*\*Significant at 0.05; \*\*\*Significant at 0.01. P-values are reported in brackets. <sup>a</sup>Results of multinomial Probit estimations are reported for the fourth outcome (moving abroad) only. Note that marginal effects are reported and not the coefficients.

## 5.2 Cognitive factors

Media and social sentiment in Russia may affect individual willingness to migrate. In fact, an interviewed expert suggests that the political confrontation between Russia and the West that started in 2014 has generated fears among the Russian population, which negatively affect migration incentives:

*Recent international developments have affected people's minds and reduce their willingness to migrate. There is a general perception that Russians are not liked in the West and people don't want to go there. However, this may not influence much a potential Russian intern going to a Western country to obtain experience.*

*16.05.2014, Association of Farmers and Agricultural Cooperatives of Russia, Moscow, Russia*

We conducted three focus-group interviews with Russian interns in a German agricultural enterprise within one-year intervals from 2014 to 2016 and observed that fears and prejudices towards Western countries increased each year. During each consecutive year, we observed a higher frequency of respondents mentioning fears and uncertainty about going to Western countries for a longer period.

However, individual openness towards the Western countries appears to increase migration incentives substantially. Both expert and focus-group interviews provide evidence that experiences abroad (internships abroad, language courses, etc.) positively affect self-reported willingness to migrate. Experts even suggest that exposure to a foreign environment does not have to be in the country of a future potential destination. Obtaining experiences outside Russian rural areas with limited information access and obtaining personal experience of a foreign country may destroy stereotypes created by Russian state-controlled media and patriotically-oriented university curricula.<sup>7</sup> Along these lines, one of the interns pointed out the following during one of the focus group interviews:

*It is important to get over ones fears in order to go abroad. For us it is easier. We have completed the internship [in Germany] and we have an understanding what one can expect in Germany. This means that in the future it will be easier to move to Germany.*

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<sup>7</sup> See Daucé, Laruelle, Le Huérou, & Rousselet (2015) and Le Huérou (2015) for a discussion of the role of patriotism in current Russian society.

21.08.2014, Focus-group with Russian interns, Saxony-Anhalt, Germany

On the other hand, there appears to be little social stigma towards the potential emigres. Absence of social pressures to stay can be illustrated by a quote from a representative of a regional university:

*There are no global negative attitudes. Some people may actually envy. But most would probably say "Good job! He made it". A lot are indifferent because they only care about their own issues.*

15.05.2014, Stavropol State Agricultural University, Stavropol, Russia

Individual openness and social ties appear to determine incentives to migrate among Altai agriculture students. First, according to Table 1, respondents who report that friends and relatives are important for them are less likely to consider migration. Accordingly, married students are less likely not only to emigrate abroad but also to move to other destinations. As a result, students with less social ties appear to be more open towards new experiences like moving abroad. In addition, the estimations reveal that being from Barnaul rather than from a rural area is positively and significantly associated with intentions to migrate abroad. This suggests that some basic social capital and access to information and infrastructure is necessary for considering going abroad. Moving is associated with numerous bureaucratic obstacles. It may be easier to tackle these obstacles being familiar with the city.

Individual values and lifestyle appear to play a role in individual decision-making about migration. In accordance with our theoretical framework, we find that career-oriented students are more likely to intend to emigrate. This is indicated by positive and significant coefficients of the variable reflecting the importance of career opportunities in Table 1. Interestingly, in the multinomial Probit specification, we find significant coefficients only for the outcome of going abroad, which indicates that students associate migration abroad with better chances to excel in their careers. Furthermore, it is remarkable that both variables, disliking rural lifestyle and unwillingness to work in agriculture, are positively and significantly associated with the probability of having intentions to migrate abroad. In other words, agriculture students that want to migrate abroad do not want to work in agriculture or live in rural areas. This surprising finding,

first, contradicts the aspirations of the Western countries to benefit from immigration of skilled agriculture graduates that could help meet rising demand for skilled agriculture workers. Second, it probably reflects a strong bias in Russian society against agriculture as a career objective. Interviewed experts suggest that because of the poor image of agriculture and widespread perceptions of a ‘backward’ life in rural areas, working in the sector is often associated with failure. In addition, there appear to be more agricultural universities in comparison to other countries. Curricula in these universities are often oriented towards the non-agricultural job market and represent a second best choice for students. To illustrate these points, we provide the following comment of a representative of an agricultural university:

*In the recent years so many new universities appeared. Too many probably... It is alarming that students study there not because they want to work in the agricultural sector but because they couldn't study anywhere else. Afterwards [after graduation] they may go anywhere except the agricultural sector.*

*13.05.2014, Russian State Agricultural University (Timiryazev), Moscow, Russia*

As a result, Russian agriculture students may not see agriculture as a fruitful prospective career path. That is why moving abroad is associated with a next step in career development that excludes agriculture as an employment sector.

## **6. Conclusion**

Globalisation and labour market integration have intensified competition for skilled labour not only within countries but also internationally. In many countries, agriculture appears to be one of the sectors under stress because of intensive urbanisation and unfavourable demographic conditions. In Russia, with its predominantly large-scale agriculture, the need for skilled workers is high. Despite a relatively dense network of agricultural universities, we continue observing a deficit in qualified personnel. The outflow of qualified youth from Russian rural areas persists not only to urban centres but also abroad. With the help of this study, we attempt to identify the driving forces behind the individual decision-making of rural Russian youth to migrate abroad and to understand what the target countries can expect in terms of the number and characteristics of the potential skilled agriculture workers.

In general, in agricultural sphere, the number of potential skilled migrants from Russia appears to be small. It had gone even further down due to the moderate economic recovery in Russia that lasted until the recent economic crisis of 2015. Although it is difficult to quantify, migration flows to destination countries like Germany are likely to be small. A number of further factors limit migration proclivity.

As predicted by the theory, income is one of the decisive driving forces but the effect is far from straightforward. Our findings contribute to the emerging literature examining ‘income – migration intentions’ relationship (e.g. Dustmann & Okatenko, 2014; Guriev & Vakulenko, 2015; McKenzie & Rapoport, 2007). In particular, we find an inverse U-shaped relationship between income and the probability of moving abroad. Young people originating from poor households cannot afford migration, although their motivation is higher due to higher income differentials. These households may also be constrained by limits in the human capital necessary to deal with the hurdles of the migration process. On the other hand, individuals from better off households may have fewer incentives for migration abroad as they may utilise their existing social status and connections to excel in their careers or businesses closer to their parental municipalities. As a result, young people representing the middle class (stemming from households with sufficient incomes and human capital) are more likely to migrate. This self-selection may benefit the target countries because it will ensure that individuals with higher human capital are more likely to make a decision to move. However, the question remains whether they will choose agriculture as a career outlet after arriving in the country of their preference.

Attempting to address this question, this paper contributes to a growing literature that highlights the importance of norms and attitudes as factors that shape individual willingness to migrate abroad. We find that more career-oriented students who do not want to work in agriculture and who do not like the rural life-style are more likely to have higher migration incentives. This result differs from the findings reported by Traikova, Möllers and Petrick (2018) suggesting that many Bulgarian agriculture students saw migration as an option to acquire new farming skills or be better prepared for a future career in agriculture. In Russia, agriculture and rural lifestyle are broadly associated with a backward way of life and may even be

“symbolic” for failure in the sense of Farrugia (2015), and seem unattractive as a career target. In addition, agricultural universities are often not the first choice but represent a backup option for many students. As a result, rural young Russians may associate migration abroad with an opportunity to get engaged in better paid non-agricultural sectors. Because of this circumstance, target countries should have moderate expectations about employing these potential migrants in the agricultural sector. As a result, the idea about filling the Western countries’ gap of qualified agriculture staff with the migrants from Eastern Europe may have a weak foundation.

Our findings suggest that the individual migration decision-making is not only affected by networks in the destination countries, but also by social ties in their parental communities. In accordance with existing literature (Hanson, 2010; Collier, 2013), we find that the ones who have personal or cultural connections outside their parental communities appear to be more likely to consider migration. As a result, groups like ‘Russian Germans’ are likelier candidates to move to Germany in comparison to others. On the other hand, those students that report a higher attachment to friends and relatives are less likely to be willing to move abroad. As a result, social embeddedness in parental communities may mitigate the incentives to migrate.

Going beyond existing discussions on networks as ‘pull and push factors’, we find that the information environment and the resulting mental models in the home country are an important predictor of individual migration intentions. In particular, Russia’s increasing control of media and international isolation contribute to growing distrust towards potential Western destination countries and fears about acceptance there. Those young people who have had experiences abroad before are far more likely to consider migration in the future. These experiences help reduce the psychic cost of leaving parental region by destroying existing stereotypes and reducing fears about the host societies.

What are the implications of these findings? First, low mobility of less affluent rural individuals may create poverty traps and retains the least skilled individuals in rural areas. More mobile members of the middle class are more likely to leave rural areas, thus contributing to a rural ‘Brain Drain’ and, because the rich are likelier to stay, increasing rural inequality. Accompanying urbanisation and demographic

processes create a vicious circle putting Russian labour markets under more stress. These unfavourable processes can be mitigated by conditions for rural entrepreneurship of the middle class and reducing the gap in the levels of public goods provision between rural and urban areas. In addition, promoting rural way of life and agriculture as a modern sector may mitigate negative sentiments towards agriculture. Should the situation in parental municipalities improve, return migration after a short- or medium-term working experience abroad may invigorate local human capital and stimulate growth.

Second, the results call for reforms of the inflated network of Russian agricultural universities. Many students choose studies in agricultural universities because of lower acceptance requirements and not because they are interested in an agricultural career. As a result, we find a substantial number of agricultural students who are not interested in agriculture at all. Reducing the number of universities, focusing educational curricula on issues related to agriculture along with promoting rural way of life may help with the situation.

Finally, Russian migrants are unlikely to mitigate the problem of the lack of skilled agricultural workers in Western European agriculture. The numbers of potential migrants are modest and they appear to be not interested in working in agriculture. The agricultural sector in Western Europe may have to revert to migrants from other destinations, and/or structural adjustments within the sector may have to improve the incentives for the domestic labour force to join the sector.

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## Appendix A. Descriptive statistics

Variable	Description	Mean/ Percentage	Std. Deviation
<b>Dependent variable</b>			
Willingness to move	Willingness to move within Altai province (1),	41.65%	
	outside Altai province excluding Moscow (2),	34.25%	
	to Moscow (3),	4.44%	
	abroad (4)	19.66%	
<b>Independent variables</b>			
<i>Fundamental factors – income</i>			
Income	≤20,000 RUB	52.23%	
	20,001 – 60,001 RUB	43.10%	
	≥60,001 RUB	4.67%	
Parents own land	Parents own land (1) or not (0)	0.105	0.308
<i>Fundamental factors – public goods perceptions</i>			
Business climate	Respondents does not see problems to do business in rural area of origin (1) or otherwise (0)	0.095	0.293
Importance of healthcare	Importance of healthcare in a migration decision (1 to 4 scale)	3.325	0.730
<i>Cognitive factors – career aspirations</i>			
Importance of carrier opportunities	Importance of career opportunities in a migration decision (1 to 4 scale)	3.494	0.648
Not willing to work in agriculture	Does not want to work in agriculture (1) or otherwise (0)	0.329	0.470
Wants to be entrepreneur	Wants to establish own business (1) or otherwise (0)	0.373	0.484

<i>Cognitive factors – social ties</i>			
Siblings outside of Altai province	Respondent has siblings living outside Altai province (1) or otherwise (0)	0.738	0.440
Friends and relatives	Importance of friends and relatives in a migration decision (1 to 4 scale)	2.831	0.836
Single status	Respondent is married (1) or otherwise (0)	0.338	0.473
From Barnaul	Respondent is from Barnaul (1) or otherwise (0)	0.228	0.420
<i>Cognitive factors – openness/other</i>			
Dislike rural lifestyle	1 to 3 scale	2.180	0.611
Happiness level	1 to 10 scale	7.032	2.128
<i>Controls</i>			
Father's education	High school (1), technical (2), higher (3) education	2.095	0.740
Age	Respondent's age	20.306	1.779
Sex	Respondent's sex: male (1), female (0)	0.403	0.491
Agricultural faculty	Respondent studies at agricultural faculty (1) and otherwise (0)	0.625	0.485

## Appendix B. List of conducted qualitative interviews

No.	Date	Organisation	Place
<b>Expert interviews</b>			
1.	12.05.2014	Center for Migration Research	Moscow, Russia
2.	12.05.2014	International Alliance „Labor Migration“	Moscow, Russia
3.	12.05.2014	International Association of German Culture	Moscow, Russia
4.	13.05.2014	Department on Human Resources and Employment, Russian State Agrarian University (Timiryazev)	Moscow, Russia
5.	13.05.2014	Center of Social Demography and Economic Sociology and Institute of Socio-Political Research	Moscow, Russia
6.	14.05.2014	Agro-industrial Association of Kuban and “Russian Alliance of Rural Youth”	Krasnodar, Russia
7.	14.05.2014	Kuban Association of Farmers and Agricultural Cooperatives (AKKOR)	Krasnodar, Russia
8.	15.05.2014	Employment Center, Stavropol State Agricultural University	Stavropol, Russia
9.	15.05.2014	International Relations Department, Stavropol State Agricultural University	Stavropol, Russia
10.	16.05.2017	Association of Farmers and Agricultural Cooperatives of Russia, AKKOR	Moscow, Russia
<b>Focus-group interviews with interns</b>			
11.	21.08.14	Focus-group interview with Russian interns in a German agricultural enterprise	Halle region, Germany

- |  |          |  |                       |
|--|----------|--|-----------------------|
| 12.  | 26.08.15 | Focus-group interview with Russian interns in a German agricultural enterprise                                 | Halle region, Germany |
| 13.  | 2.06.16  | First focus-group interview with Russian interns from various German enterprises (two months into internship)  | Wedemark, Germany     |
| 14.  | 2.06.16  | Second focus-group interview with Russian interns from various German enterprises (two months into internship) | Wedemark, Germany     |
| <b>Focus-group interviews with applicants for an internship in Germany</b> |          |  |                       |
| 15.  | 29.10.15 | Focus-group interview with Russian students at a stage of application for an internship in Germany             | Kostroma, Russia      |
| 16.  | 30.10.15 | Focus-group interview with Russian students at a stage of application for an internship in Germany             | Ivanovo, Russia       |