

## CAREER ASPIRATIONS AND MIGRATION PLANS OF RURAL SCHOOLCHILDREN

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**Abstract.** A study using data from a post-monitoring survey of the Myn Bala Olympiad identified the career aspirations and migration plans of rural schoolchildren in Kazakhstan. Myn Bala is a national Olympiad held throughout Kazakhstan. Its winners are given the opportunity to enroll in schools for gifted children. Combining the results of the first stage of the Olympiad and the results of the survey over three years, descriptive statistics and regression analysis reveal the factors that determine students' career and migration trends.

According to the results of the study, students mainly plan to live abroad and in large cities of Kazakhstan, such as Almaty, Shymkent, and Astana. Regression analysis showed that girls, as well as students who performed best in the Olympiad, are more likely to consider migration. Girls are more likely to choose professions in the humanities, while boys are more likely to choose technical professions. Thus, gender remains one of the most significant factors influencing career choice and migration.

**Key words:** educational inequality, rural schoolchildren, Kazakhstan, career choice, migration trends, computational social science.

## АУЫЛ МЕКТЕП ОҚУШЫЛАРЫНЫҢ КӘСІБИ БАҒДАРЛАРЫ МЕН КӨШІ-ҚОН НИЕТТЕРІ

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## КАРЬЕРНЫЕ УСТРЕМЛЕНИЯ И МИГРАЦИОННЫЕ ПЛАНЫ СЕЛЬСКИХ ШКОЛЬНИКОВ

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**Аңдатпа.** «Мың Бала» олимпиадасының пост-мониторингтік сауалнамасы деректері негізінде жүргізілген зерттеу ауылдық мектеп оқушыларының кәсіби ұмтылыстары мен көшу жоспарларын анықтады. «Мың Бала» – Қазақстан бойынша өткізілетін ұлттық олимпиада. Оның жеңімпаздары дарынды балаларға арналған мектептерде білім алу мүмкіндігіне ие болады. Олимпиаданың бірінші кезеңі нәтижелері мен үш жыл бойы жүргізілген сауалнама нәтижелерін біріктіру арқылы сипаттамалық статистика және регрессиялық талдау оқушылардың кәсіби және көшу үрдістерін айқындайтын факторларды көрсетті.

Зерттеу нәтижелері бойынша оқушылар негізінен шетелде немесе Қазақстанның ірі қалаларында – Алматы, Шымкент және Астанада өмір сүруді жоспарлайды. Регрессиялық талдау қыздар мен олимпиадада үздік нәтиже көрсеткен оқушылардың көшу ықтималдығы жоғары екенін көрсетті. Қыздар көбіне гуманитарлық мамандықтарды таңдаса, ұлдар техникалық мамандықтарға бейім. Осылайша, жыныс кәсіби таңдау мен көшуге әсер ететін ең маңызды факторлардың бірі болып қала береді.

**Түйін сөздер:** білім беру теңсіздігі, ауылдық мектеп оқушылары, Қазақстан, кәсіби таңдау, көші-қон үрдістері, есептік әлеуметтік ғылымдар.

**Аннотация.** Исследование, проведённое на основе данных постмониторингового опроса олимпиады «Мың Бала», выявило карьерные устремления и миграционные планы сельских школьников Казахстана. «Мың Бала» – это национальная олимпиада, проводимая по всей стране. Победители получают возможность поступить в школы для одарённых детей. Объединив результаты первого этапа олимпиады и опроса за три года, описательная статистика и регрессионный анализ выявили факторы, определяющие карьерные и миграционные тенденции школьников.

Результаты исследования показали, что учащиеся в основном планируют жить за рубежом или в крупных городах Казахстана – Алматы, Шымкенте и Астане. Регрессионный анализ показал, что девочки, а также ученики, показавшие лучшие результаты на олимпиаде, чаще рассматривают возможность миграции. Девочки чаще выбирают профессии гуманитарного направления, а мальчики – технические. Таким образом, гендер остаётся одним из наиболее значимых факторов, влияющих на выбор профессии и миграцию.

**Ключевые слова:** образовательное неравенство, сельские школьники, Казахстан, выбор карьеры, миграционные тренды, вычислительные социальные науки.

### Introduction

Rural youth migration, particularly the outflow of the most educated and talented young people from rural areas, is a global problem that has implications for the demographic and economic sustainability of rural areas. The literature on this topic, largely based on studies from developed countries, highlights the multifaceted causes and consequences of this phenomenon, including the role of education, economic conditions, and social attachment. This process has intensified in recent decades due to structural changes such as job losses and urbanization.

Numerous studies have documented the “brain drain” from rural areas. As noted by Artz [1], Mills and Hazarika [2], and Cushing [3], the young people who leave are typically better trained and have higher levels of education, while those who stay are disproportionately among the less skilled and low-income groups [4]. This leads to increased inequality due to economic decline and shifts in the demographic and socioeconomic composition of rural areas [5] [6]. The role of academic achievement in this process is ambiguous. It is believed that there is a link between academic achievement and migration, where success in school often motivates departure [7]. This is reflected in the fact that, without always realizing it, teachers informally sort students into academically successful, college-oriented students, and “stayers”. This creates a “training paradox”: the rural school system invests in human capital, which is then “exported” to urban centers, subsidizing their development at the expense of emptying the periphery [8]. At the same time, research shows that reverse migration is possible, bringing external connections and resources to villages. Overall, the literature illustrates that migration is not only a loss, but also a potential renewal mechanism: departure can bring returnees with new assets [9] [10]. Other studies emphasize the contextual factors of rural youth’s migration intentions. Thus, empirical studies confirm that economic factors and attachment to the community dominate the influence of the education system. Crosnoe and Johnson [11], Harding [12], López Turley [13] emphasize the influence of family and community on development trajectories. Other researchers explain age-related nuances, when younger adolescents (7th grade) are more family-oriented and less aware of the contradictions between career and place of residence, while older ones (11th grade) develop abstract thinking and take into account external opportunities [14]. Efforts to develop local communities can mitigate outflow by strengthening attachment through youth programs [15]. Similar dynamics are observed in Kazakhstan, where rural youth migration is accelerated by urbanization, accessibility of higher education, and the economic gap between the countryside and the city. Empirical data from an international project (HSE, 2011–2012) on Russia, China, and Kazakhstan confirm global trends. In two rural regions of Kazakhstan, a comprehensive survey of high school students and parents revealed that the majority (67.8%) plan to study at a university and work in the city, only 5.1% intend to return to the village after university, and 4.1% - to stay after college. When asked about living in the city, 65.4% answered “yes”, 23.1% - “rather yes”; only 4% prefer the village. As the authors conclude, the main motives are the superiority of urban education and the difference in opportunities [16]. This cross-country study emphasizes the evolution of social mobility in the post-Soviet space. If earlier migration took place through

low-skilled jobs in the city with a gradual rise (sometimes through generations) [17]. Currently, the university acts as a “social parachute”: rural graduates enter through national testing (UNT), adapt to urban life in 4-5 years, master highly skilled professions and immediately enter the middle class with high salaries and housing loans. That is, the economic growth of cities and agglomerations contributes to rapid integration, and the system of higher and vocational education ensures professional, social and cultural assimilation, converting into the corresponding types of capital.

Thus, the loss of youth is a particularly acute problem for many rural residents and communities. Understanding how young people form their aspirations for choosing a place of residence and profession can provide valuable information for community development efforts aimed at retaining or attracting young people. As we can see, unlike Western countries, in the Kazakhstani context, in addition to the possible role of the education system, institutional mechanisms (UNT, grants, rural quotas) are important.

In this regard, programs for the transfer of skilled personnel to rural areas, as well as monitoring the dynamics of career aspirations of rural schoolchildren, starting from an early age, require constant updating and attention.

Career aspirations are formed in young people during the transition from adolescence to early adulthood, representing a process of self-knowledge that guides their choices based on personal preferences, values and professional skills. It is important to support young people in making these decisions, aligning their choices with future ambitions [18].

Research shows that these aspirations begin to form much earlier than traditionally believed, and depend on factors such as gender stereotypes, role models, personal interests and social context.

Career aspirations of younger adolescents (10-11 years old) are formed during a period of intense self-knowledge and the transition from childhood to adolescence, when the foundations for future professional and life goals are laid. The literature highlights that young adolescents (10–11 years) are already forming career aspirations that reflect their desired career goals under ideal conditions. Children’s career aspirations have been studied as indicators of future career destinations, and although these aspirations may not accurately predict future aspirations, they are generally considered a useful indicator for understanding the future of the labor market and the economy. [19].

The process of forming career preferences begins in early childhood and goes through several stages described in career development theories. Career development theories emphasize that they are formed much earlier than is commonly believed. Ginsberg identified three phases: the fantasy phase (before age 11), the tentative choice phase (11–17), and the realistic choice phase (after age 17). In the fantasy phase, children believe that they can become anything they want based on their impulses and needs. Gottfredson’s constraint and trade-off theory complements this by pointing out that children’s early aspirations are shaped by their understanding of the scale, gender, and prestige of professions, and from the age of 14 are constrained by their awareness of their own abilities and social expectations. This process forms a “zone of acceptable career alternatives” [20]. In turn, Howard and Walsh describe the development of career ideas in 10–11-year-old schoolchildren through the connection between interests and possible careers. That is, at this age, children begin to recognize the need for skills for

certain professions, but do not yet take into account systemic barriers such as social class or access to resources [21].

Gender roles are thought to play a key role in shaping career aspirations. Research has shown that children internalize societal expectations about “male” and “female” professions, which limits their choices. For example, girls are less likely to choose STEM (science, technology, engineering, mathematics) professions due to beliefs that these fields require “masculine” qualities [22].

Role models also significantly influence career aspirations. According to motivational theory [23], role models (e.g. adults who demonstrate success in a profession) make careers achievable and desirable. This is especially important in a cultural environment where children see role models that match their gender or social context [24]. Thus, early adolescents have been found to aspire to become police officers, teachers, and doctors, where altruism is a strong motivator, and schoolchildren’s achievement-related motives focus on their affective reactions and memories, as well as on doing good deeds [25]. In other words, personal interests, values, and skills guide choices, but at 10–11 years of age, these factors are not yet fully realized, and aspirations remain partly imaginary.

Kazakhstan’s career guidance counseling programs are targeted at 15–18-year-olds, but research shows that interventions at earlier stages (before age 11) can be effective, since career choices are already being formed. A number of reports and studies emphasize that support during this period helps to align dreams with real possibilities, preventing early limitation of choice due to stereotypes or lack of information [26]. In the Kazakhstani context, career aspirations of young adolescents are likely to be at the “sequence” stage [21], where children begin to identify careers but their choices are limited by available information and role models. It should also be recognized that rural schools have minimal access to career counseling, and family and local influences dominate.

The following article presents result of studying migration and career plans of students in Kazakhstan. **Main research question is:** What factors determine migration attitudes and career choices among rural schoolchildren? This study is an attempt at understanding rural students and their aspirations in Kazakhstani context.

**The aim of the study** is to examine the social, demographic, and educational factors that influence migration attitudes and career preferences among rural schoolchildren.

**Object of the study** – Kazakhstani rural schoolchildren, **subject of the study** – factors, influencing career choices and migrations plans of rural schoolchildren.

### Methodology

The study used data from the Myn Bala Olympiad, which is the National Intellectual Olympiad for Rural Schools – a project organized by the Corporate Fund “El Umiti Fund” in partnership with the Ministry of Education of the Republic of Kazakhstan. The Olympiad has been held throughout the territory of the Republic of Kazakhstan since 2020. All of the 6th-grade students studying in rural schools of the Republic of Kazakhstan have an opportunity to participate in the Myn Bala. The Olympiad is held in the online testing format and includes two stages:

- The first stage is aimed at assessing the level of cognitive thinking: logical thinking and spatial thinking. 5,000 participants with the best results advance to the second stage.

• The second stage of the Olympiad involves in-person computer testing. The final score includes testing results in the following subjects: mathematical literacy, native language (language of education), English, natural science. At the second stage, the winners are 1,000 students who scored the best score. Winners are given the opportunity to study in specialized schools for gifted children.

The results of the 1st stage of the Olympiad were analyzed as part of the study. Additionally, since 2022, online surveys have been conducted as a form of post-monitoring, which allow us to learn more about children. Thus, the emphasis is on their school experience, leisure activities, hobbies and future aspirations. The data from the survey were combined with the data from the Olympiad results for a period of 3 years (2023-2025). Therefore, the resulting dataset allows for a comprehensive analysis of not only children's academic performance, but also their personal characteristics and aspirations. The total number of observations over 3 years is 14899 students.

To test the hypotheses, a logistic regression method was used with control for macro-regions, where the dependent variable is an aggregated column, where 1- desire to move, 0 - desire to stay in one's village/region, and the independent variables are gender, language of testing, and final score for stage 1 of the competition (logical and spatial thinking).

### Main part

The distribution of observations by year is shown in Figure 1. It should be noted that the distribution of data varies from year to year due to incomplete coverage of all participants in the Olympiad. For example, 100000-150000 rural schoolchildren participate in the first stage of the Myn Bala each year, but it is impossible to cover the entire group of students for participation in the survey. This happens also because parents must give permission for their child to participate, so not all parents agree for them to be included in the survey.

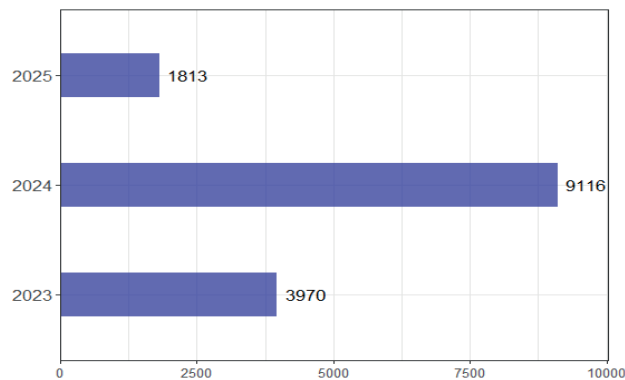


Figure 1. Observation distribution by year

The distribution between genders remains fairly even throughout all three years (Figure 2). At the same time, the language distribution is unevenly weighted in favor of Kazakh

language. This distribution is caused by the fact that the schoolchildren who participated in the survey are from the rural area where the Kazakh-speaking population predominates.

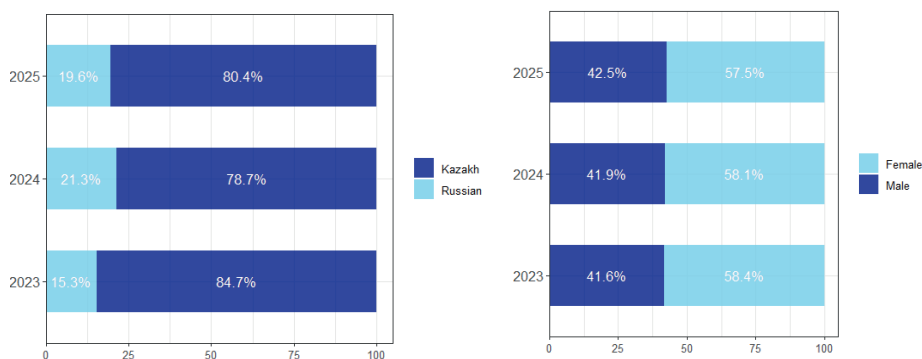


Figure 2. Gender and language distribution of students by year

In the years 2024 and 2025 students were asked the following question: “Where do you want to live when you are 20 years old?”. This is the main indicator for migration plans in this research. As it is seen in Figure 3, migration aspirations are quite strong. While in 2024 the most popular answer was “to live abroad”, in 2025 the trend shifted toward living in Kazakhstan’s largest cities such as Astana, Almaty and Shymkent. Most students are still undecided about where they want to live in the future. This is understandable, as they were around 10-11 years old sixth-graders during the survey.

It’s also interesting that a significant proportion of respondents intend to stay at the same village where they currently live. Only a smaller percentage of people is planning on moving to a different region of Kazakhstan; students are more attached towards their own region.

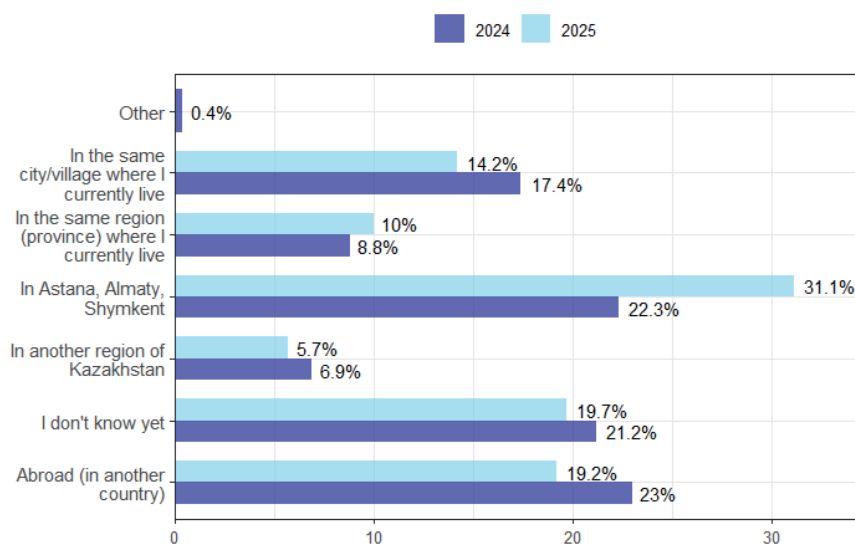


Figure 3. Where do you want to live when you are 20 years old?

In order to test whether there is a link between academic and personal characteristics and the desire to migrate, a binary logistic model was constructed (Table 1). The dependent variable is the aggregate question from Figure 3, where answers “In Astana, Almaty, Shymkent”, “In another region of Kazakhstan” and “Abroad (in another country)” were coded as 1, while “In the same village where I currently live” and “In the same region where I currently live” – as 0. Answers “Other” and “I don’t know yet” were dropped due to the impossibility of classifying them in neither category. Independent variables are:

- Gender (Male – 1, Female – 0);
- Language of test (Kazakh – 1, Russian – 0);
- Results of the 1 stage of Myn Bala Olympiad.

According to the results, girls are more likely to express a desire to move than boys. Thus, the gender variable coefficient is statistically significant for both years. In 2025, boys are approximately 54,4% less likely to express their intention to move than girls, and in 2024, they are 48,1% less likely to do so. Counterintuitively, one might expect boys to plan to migrate more often, but the data shows the opposite. Perhaps girls view moving as a strategy for advancement, while boys are more focused on local jobs.

**Table 1.** Logistic regression of the probability of wanting to migrate

	<i>Desire to move:</i>	
	2025 (1)	2024 (2)
Gender (Male)	0.456* (0.085)	0.519* (0.047)
Language (Kazakh)	0.977 (0.138)	0.998 (0.097)
Olympiad result (1 stage)	1.006* (0.002)	1.004* (0.001)
Constant	1.899* (0.157)	2.169* (0.085)
Region	Yes	Yes
Observations	1,456	7,143
Log Likelihood	-852.324	-4,436.013
Akaike Inf. Crit.	1,720.647	8,888.026
<i>Note:</i>	*pp p<0.01	

The test language indicator in both models was statistically insignificant, therefore, the fact of studying/taking tests in Kazakh language versus Russian language is not an important predictor of the desire to move in this case. It is likely that the influence of language is blocked by other factors.

The variable based on the results of the first stage of the Olympiad also showed a positive and statistically significant correlation with the desire to move. However, the effect is small, i.e., an increase in the result by one point means an increase in the

probability of expressing a desire to move in 2025 by 0.6% and in 2024 by 0.4%. Thus, it can be said that children who are more successful in their studies are slightly more likely to express a desire to move, which may be related to a desire to continue their education and gain additional opportunities. This finding especially relevant to the existing literature as it may indicate the “brain drain” where top students are more determined to move in order to pursue a career in a bigger city and upgrade their social status.

Next, career aspirations were assessed by asking students who they want to be in the future. Each student had an opportunity to choose 3 professions. There are top-5 professions most chosen by the students in three years (Figure 4). A certain trend has been observed over this time period.

Students from rural areas tend to gravitate toward more socially prestigious professions such as doctors and teachers, as well as more modern, income-oriented professions in business and information technology. Athlete, although was not in top-5 in 2025, is also a very popular pick among different career routes. One of the main differences between years is the appearance of “haven’t decided yet” in top answers in 2025. There is a similar explanation as in the question on migration, where indecisiveness is caused by the young age of the respondents.

There are marked gender differences between boys and girls in their choice of future professions. Girls, in accordance with established gender stereotypes, choose humanities professions such as doctor and teacher. Boys, on the contrary, tend to gravitate towards IT and business. This distribution of responses indicates that there are certain prejudices regarding gender roles among modern schoolchildren. Interestingly, this trend has remained consistent over the past three years. It is worth noting that the business sector remains attractive to girls, just in slightly lower positions. This finding is also supported by previous researches; therefore, it may be assumed that girls are certain about some professions requiring them to have masculine traits.

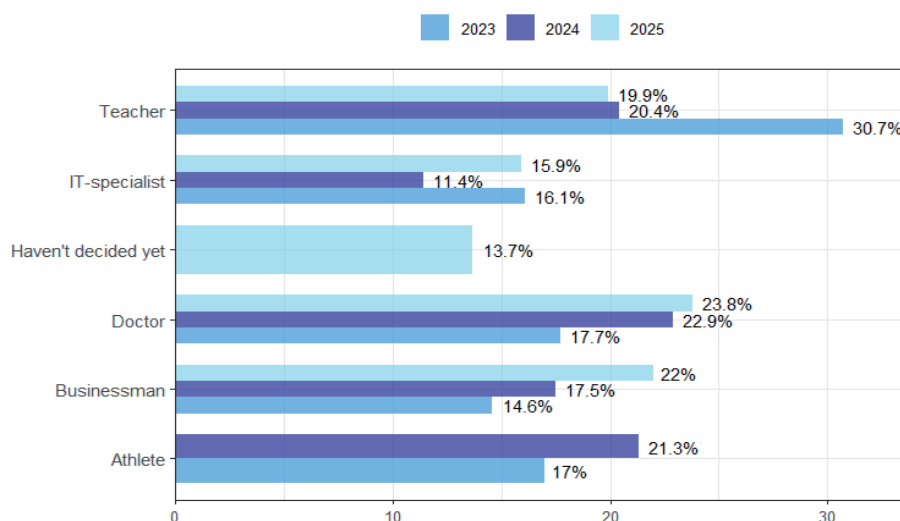


Figure 4. Who do you want to be in the future?

This way, the study makes a significant contribution to the literature by analyzing career plans and migration attitudes specifically in early adolescence (ages 10-11) based on representative data from rural schoolchildren in Kazakhstan. This research highlights the importance of urbanization processes, educational institutions, and access to higher education as the main factors shaping aspirations. Considering the young age of the respondents, we can analyze the trends on the new generation Alpha, who are about soon-to-become a foundation of human capital in the country. Understanding their characteristics is the key to create a new developing strategy, according to the new values and plans of children.

### **Conclusion**

The literature highlights that career aspirations of young adolescents (10-11 years) are shaped by fantasies and growing awareness of social constraints such as gender, role models, and access to resources. In Western countries, an emphasis on early counselling helps to guide these aspirations, whereas in Kazakhstan they are shaped by urbanization and educational opportunities, with a strong focus on urban mobility.

The study confirms key patterns identified in international literature on rural youth migration and career aspirations, while also demonstrating the specificities of the Kazakhstani context. As in Western studies, academic success is positively associated with the intention to migrate, reflecting the “human capital investment paradox”: the best students are more likely to see their future outside the village.

However, the effect in the Kazakhstani data is moderate, which may be due to the strong role of institutional factors. Gender differences are also consistent with the findings of foreign studies: girls are more likely to demonstrate a desire to migrate and gravitate toward the humanities, while boys choose technical and entrepreneurial fields. This confirms the persistence of gender stereotypes that limit the range of career choices.

Future research could examine how early interventions (e.g., career guidance programs in rural schools) can balance aspirations by supporting rural attachment and preventing brain drain. Gender stereotypes also play a major role. As in Western studies, Kazakh girls may avoid professions associated with “high skills” or “male” fields due to cultural expectations. However, the “education boom” of the 2000s and access to national testing (UNT) made higher education more attainable, forming an early understanding in children that higher education leads to an urban career. Unlike developed countries, where the emphasis is on early counseling, career guidance for younger adolescents is virtually non-existent in Kazakhstan. In rural schools, role models are often limited to teachers or local workers, which can narrow the range of aspirations. However, media and access to information about urban professions (via the Internet or migrant relatives) shape dreams of mobility and highly skilled work in 10-11-year-olds.

In conclusion, the research broadens our understanding of how career aspirations and migration plans are formed in the early stages of socialization and highlights the need to develop early career guidance programs in rural schools to navigate the brain drain.

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