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International Migration to Russia: The Gender Aspect

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ABSTRACT

International population migration from an economic point of view has a significant impact not only on the labor markets of countries participating in it, but also on their economies and societies. On the one hand, international migration flows contribute to the development of trade and economic relations between countries. However, on the other hand, they can cause undesirable tensions within the host country's society and have negative economic consequences. **This study aims** to analyze the main factors influencing the decision to migrate to Russia through econometric modeling. The relevance of this study is determined by the growing migration pressure in the Russian Federation up to 2024 and the need to better understand this phenomenon within the context of the Russian economy. In the context of the changing migration policy, the study is even more relevant. **The novelty** of this study lies in the applied migration research methodology, which has revealed the relationship between male and female international migration to Russia over time, as well as the results obtained from this research. **The main findings** of the study include identifying and describing a "vicious cycle of male labor international migration" in both developed and developing countries. It also proves that in Russia, men's international migration is driven by job search, while women follow their partners and only then find employment and change their status from a migrant to a family reunification migrant or a migrant worker. Additionally, it is demonstrated that the Russian Federation is characterized by the development of "migration attractors," which makes it challenging to implement effective migration policies.

Keywords: international migration; women's migration; male migration; labor migration; migration modeling; living conditions; gender disproportionality; migration statistics

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ОРИГИНАЛЬНАЯ СТАТЬЯ

Международная миграция в Россию: гендерный аспект

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АННОТАЦИЯ

Международная миграция населения как экономический процесс значительно влияет не только на рынки труда стран — участниц международной миграции, но и на их экономики. Международные миграционные потоки, с одной стороны, способствуют развитию торгово-экономических отношений между странами, а с другой — могут провоцировать нежелательную напряженность в социуме принимающей страны и создавать негативные экономические эффекты. Миграция в России остается не до конца изученной темой, особенно в гендерном разрезе, что ограничивает возможности объективной оценки ее эффектов для российской экономики. **Целью** проведенного исследования является анализ с использованием эконометрического моделирования основных факторов международной миграции, влияющих на принятие решения о миграции в Россию. **Актуальность** исследования обусловливается возрастающей миграционной нагрузкой в Российской Федерации (РФ) и необходимостью осмысления данного явления применительно к РФ. **Новизна** исследования складывается из примененного метода исследования миграции, который позволил выявить взаимосвязь между мужской и женской миграцией в Россию во времени. К основным

результатам исследования можно отнести выявление и описание порочного круга мужской трудовой миграции международной миграции развитых и развивающихся стран, а также доказательство того, что в России в основе миграции мужчин лежит поиск работы, а женщины следуют за мужчинами и только затем находят работу и меняют статус с мигранта для воссоединения с семьей на трудового мигранта. Помимо этого, обосновано, что для РФ характерно формирование «аттракторов миграции», затрудняющих реализацию миграционной политики.
Ключевые слова: международная миграция; женская миграция; мужская миграция; трудовая миграция; моделирование миграции; условия жизни; гендерная диспропорциональность; миграционная статистика

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Introduction

International migration is a complex and diverse phenomenon that is of great scientific and practical importance today, given the increasing number of migration flows around the world, particularly international labor migration. However, there is still a lack of clear understanding of the causes and processes that lead to these migration flows, especially when considering all countries as a whole. The search for universally applicable solutions to migration issues often results in the neglect of certain aspects, such as the issue of gender-specific international migration flows to Russia, which has been poorly explored, making it even more significant in the context of Russia's current international migration policy shift. Labor and family international migration a priori transforms the age and gender composition of the population in a country, sometimes leading to social tensions in certain regions, as many migrants move to Russia to meet their economic and cultural needs [1].

In this study, we aim to explore the features and relationships between male and female international migration to Russia, as well as the factors that influence these migrations, including work and family.

We hypothesize that the decision to migrate to Russia depends on gender. For men, it is driven by the need to improve living standards, regardless of their marital status. For women, it is influenced by family factors, regardless of living conditions, and forms a "family international migration" pattern.

To test this hypothesis, we will use econometric and statistical methods to analyze data on male and female migrants in Russia. We will also explore the economic effects of international migration on recipient countries and identify any potential vicious circles in the labor market. Additionally, we intend to investigate why some migrants may not assimilate in Russia and how this relates to the specific characteristics of the migrant influx and the formation of "attractor international migration" groups.

Research on international migration in Russia has a relatively young history compared to other countries. During the Soviet era, domestic researchers were restricted in their access to information from other countries, which slowed down the theoretical understanding of international migration and its effects on the countries involved. E.P. Pletnev saw international labor migration as an important part of the global economy and argued for an integrated approach to studying it due to its connection with capitalist production cycles and the movement of people, goods, and capital [2].

According to some modern researchers [3], the international migration of people from post-Soviet countries, especially Central Asia, to Russia over the past 30 years has significantly impacted the formation of certain stereotypes among younger and middle-aged male migrants. For example, working in Russia provides not only an opportunity to earn money to support their families in their home country [4], but also the possibility of bringing their families to the country where they work [5]. As a result, Russia has become one of the largest destinations for migrant workers in the world [6].

It is especially worth noting the works that explore the reasons for international female labor migration [7]. The authors of gender international migration theory [8] analyzed the geography of female international migration as a main, independent phenomenon, in contrast to international migration "with her husband" [9]. Based on databases of "arrivals" and "departures" by age and gender [10], it is observed

that gender imbalance in international migration affects not only the demographics of the migrant's destination but also the origin country [11]. Modern Internet search queries indicate a growing interest in the topic that we intend to explore in our study.

Works on family international migration are also of interest [12], as they indicate the reasons for the displacement not only of the male or female population but also entire families with children. This type of international migration has a significant difference from labor or educational international migration, as family reunification involves admission to the country regardless of qualifications, education, or potential contribution to the economy [13].

Such studies allow us to consider family international migration with children in the context of socio-demographic characteristics. However, due to limited statistical information, it is not possible to determine the proportion of migrants with children in Russia or to create a detailed portrait of this group [14, 15].

Materials and methods

The research methodology is based on the analysis of the time series of migration in the Russian Federation since 2001. International migration is studied exclusively; however, to prove the hypothesis, the migration flow is divided by gender (total men (M) and women (F)), by age (men (M1460) and women (F1460) of working age — for statistics of the 2000s, the working age is reduced to 14–60 years for comparability of the series), according to the purpose of arrival (Work, family circumstances (FamBus)), as well as marital status (married (Family) and the sum of those who have never been married, divorced and widowed (Single)). Such a selection of statistics is determined by the hypothesis of the study — to prove that men migrate to improve the standard of living of their or their family, it is necessary to identify both all men and those of working age. If there is a significant difference in the factors describing these processes, then the hypothesis of men is rejected. For women, there may be a clear difference — at working age, they can migrate both for family reunification and for starting a family. In these cases, the hypothesis is confirmed; however, if they migrate to find work, it is rejected. Outside of working age, the absence of a work factor as a determinant of their migration is sufficient to prove the hypothesis. Thus, it is necessary to identify both gender and age components, as well as those characterizing the migrant himself (the purpose of migration and marital status). A detailed justification for this approach is given below.

Since migration statistics in the Russian Federation are incomplete, they were supplemented using the "k nearest neighbors" method, while k is determined using the correlogram of the series and is assumed to be equal to the number of lags for which the correlation is higher than 0.4. At the same time, quarterly data are not available for most periods, which does not allow us to use it for the improvement of the model quality. When referring to the statistics of external labor migration, it is possible to obtain non-corrected data; hence, the methodological approach, described hereinafter, tends to be more accurate. Some of the models include up to 8 variables, with the number of observations equal to 23. In case a model has more than 4 parameters, despite the other adequacy criteria, it can be considered overapproximated and hence less trustworthy. To prove the quality of these models, their residuals were tested for normality with a high $\alpha = 0.5$. In case the residuals are normally distributed, it can be stated that they are white noise, proving the adequacy of the fit of the model. All the models are to have a normal distribution of residuals on this confidence level to be considered adequate.

To test the hypothesis, the following approach is used for the male population. Using the Dickey-Fuller test, the presence of a single root in the series describing male migration and international migration of men of working age is revealed. Then, based on the best value for the options "without constant", "with constant", "with constant and trend" and "with constant, trend and quadratic trend", the corresponding ARIMA model is constructed. The orders of the autoregressive process (AR) and the moving average process (MA) parts are selected according to the Akike criterion up to and including the 5th order. Further, the value of the coefficient of determination is checked in the obtained models. An additional criterion is the significance of the coefficients for regressors, verified by the Stu-

dent's test, and the value of the Akike coefficient is preserved. Then, the normality of the distribution of the remnants of the model is checked, and if they are distributed normally, then such a model is accepted as adequate. For both dependent variables, the fit of the model changes to ARIMAX, where, in addition to trend variables (in accordance with the Dickey-Fuller test), regressors are added that characterize marital status and the purpose of arrival in the Russian Federation. Since the correlation matrix for all regressors demonstrates a high correlation of individual regressors, the variant with the main components for all 4 regressors is tested separately, with two main components together and separately for a set of regressors (the first set is "Work", "Single" and the second set is "FamBus", "Family"). For each ARIMAX model resulting from the addition of regressors, all the above procedures are carried out to achieve the adequacy of the specification.

The resulting models are compared by the coefficient of determination and the Akike and Schwartz coefficients. The result of the comparison is the choice of the best model, on the basis of which a conclusion is drawn about the significance of certain regressors in the models.

For the analysis of female international migration, a similar approach is used as for male international migration, however, it is supplemented by the lags of the variables "M" and "M1460". The number of lags is determined using a cross-correlogram of variables before the lag when the correlation decreases to 0.4.

Due to the fact that M and M1460 and Family and Single have an obviously high degree of correlation, as they are derived from the same statistical rows, while the other regressors are independent (Annex 1, *Fig. 1and 2)* the authors set this as a limitation of the study and avoid the use of both factors in one model, where possible without the loss of the model quality. In case both named variables are used, their use is explained from an economic perspective.

Theoretical prerequisites for the migration choice of men and women (for international migration to the Russian Federation)

In general, the reasons for international migration to Russia have been studied in great detail. These include job search, education and tourism, among others. However, migration issues related to family reunification have not been given enough attention, as it is difficult to determine whether a migrant returns to their family or the family moves to Russia. This is because it is difficult to establish the cause of such migration.

It is customary to highlight two key issues here — the problem of integration of migrants, especially those who live in large mononational families, and the challenge of increasing the burden on the social system due to the active influx of migrants into the Russian Federation [16].

In the context of family reunification international migration, these issues can be described as follows: If a migrant worker and his family come to Russia for temporary employment, and their family subsequently relocates to the Russian Federation, their impact, unlike that of the migrant, is negative on the economy as they become net consumers of social benefits [17]. The other opinions, including the controversial influence of families and the influence of the single male migrants on the Russian economy and social policy, are described in several works [18], stating that the negative impact is also significant.

Conversely, if a family member of a migrant is already residing in the Russian Federation as a citizen, and a new individual or individuals join them, they are more likely to establish themselves in Russia, integrate with Russian society, and contribute to economic growth. There are two opposing flows of migrants traveling to Russia in order to reunite with their families. These flows have both economic and social implications for Russian society, with significant consequences.

In order to separate the different types of international migration, it is important to understand the links between them and their impact on overall migration flows. Although the importance of these two types of migration differs among male and female migrants, as shown by practice[1]

[1] Ivakhnyuk I. Labor migration to Russia: a look through the prism of political, economic and demographic trends. 2023. URL: https://russiancouncil.ru/analytics-and-comments/analytics/trudovaya-migratsiya-v-rossiyu-vzglyad-cherez-prizmu-politicheskikh-ekonomicheskikh-i-demograficheskikh/ (accessed on 31.01.2024).

and various studies [19–20], the main reason for male international migration is usually related to providing for a family or improving one's own well-being. The conditions in the receiving country play a significant role in determining whether or not someone will migrate, compared to the conditions in their home country [21].

The main reason for male international migration is often the search for better job opportunities that pay more than what is available in the donor country. This leads to the conclusion that international inequality and poverty in the migrant's home country are often the driving forces behind male international migration. However, it is worth noting that despite the fact that male international migration can lead to some redistribution of resources, there is usually not a significant shift in the overall distribution of wealth between the recipient and donor countries [22]. For example, although the salaries of migrants may be higher than those of locals in some cases, they are still often lower than the average income in the destination country. Additionally, living conditions for migrants are often worse than those of the local population. Despite these challenges, male migrants contribute significantly to the economy of the recipient country through their work, with their value added being higher than the cost of their labor, thanks to more efficient systems of production and allocation of resources. As a result, countries that attract migrants create a driver for their economic growth by further distributing the added value they produce. Considering the geography of international migration, net recipient countries are generally more developed than net donor countries. This is why exporting labor from donor countries does not lead to sustained economic growth but rather allows them to benefit from large income receipts from abroad (including through remittances from migrants).

At the same time, it is worth noting that such dependence on the labor force imposes significant restrictions on the number of workers within the country due to the share of migrants in reducing domestic production. This does not allow for an expansion of the production base and, consequently, an increase in the number of jobs. This is a result of the relationship between the production base (capital) and the amount of labor (including in a classic form such as the Cobb-Douglas function [23]). This restriction contributes to maintaining the traditional demographic model. Extensive reproduction of the population is necessary for further growth in labor exports, as migrant incomes grow slower than producer prices in the recipient country. This leads to a constant increase in the profitability of enterprises that employ migrants, while rising producer prices in key exporting countries[2] generate government spending in the donor countries, which are usually the countries that receive migrants [24].

Based on this pattern, we can see a "vicious circle of male labor migration, with its economic effects concentrated in the recipient countries. This is illustrated in *Fig. 1*. The concept of the "vicious circle of labor migration" was first proposed in the 1990s [25]. However, it has not been analyzed through the lens of migrant gender. Moreover, existing research on the topic has focused on both domestic and international migration. The interconnections described lead to the conclusion that the proposed idea primarily refers to men originating from countries reliant on remittances (such as Tajikistan). Additionally, the vicious circle of male labor migration proposed is found to be relevant to international migration and is considered to be vicious only in the long term.

Based on the above, it can be concluded that international male labor migration, which makes up the majority of male migration flows, does indeed generate positive economic effects for the Russian Federation. However, for donor countries, the outflow of migrants to Russia only provides short-term growth drivers and does not lead to a significant improvement in the well-being of their populations. A multiple increase in the well-being of migrants compared to individuals who choose not to migrate is leading to an expansion in the number of migrants, not just labor migrants.

Unlike men, migrant women do not have the ability to single out one primary factor in their decision-making process regarding migration. This is because the main reasons for female migration differ depending on the destination country [26]. For example, a significant number of migrant women come to the United States for personal reasons,

[2] Erhardt K., Lassmann A. Immigration and International Trade. 2023. URL: https://oxfordre.com/economics/view/10.1093/acrefore/9780190625979.001.0001/acrefore-9780190625979-e-901 (accessed on 31.01.2025).

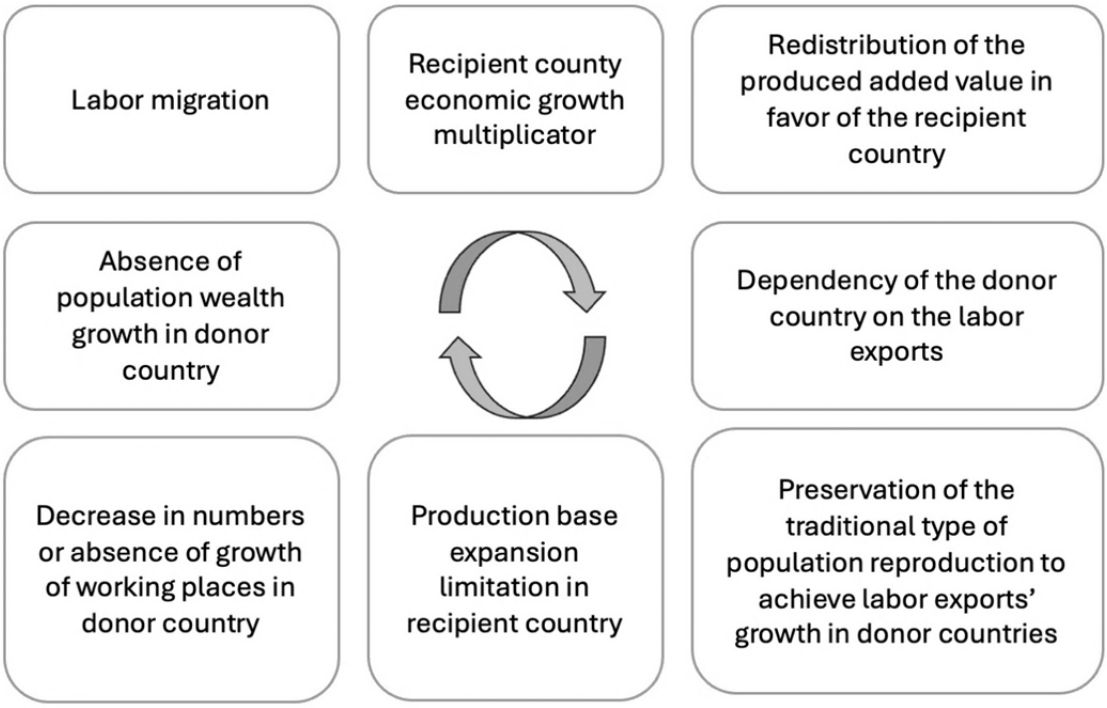

Fig. 1. **The "vicious circle of male labor migration" and the concentration of its economic effects in recipient countries**

Source: Developed by the authors.

such as obtaining citizenship for their child upon birth in the US [27]. In Europe, female migration is often motivated by the search for employment opportunities [28]. In Australia, it is often due to family reunification, where a woman joins a partner who has already established themselves in the country after receiving education and employment [29]. Therefore, it is difficult to identify the single most significant determinant of female migration globally. However, in countries with traditional population patterns, family circumstances and reunification remain essential factors. As *Fig. 1* illustrates, labor migration, primarily involving men, contributes to the continuation of the traditional form of reproduction, which in turn maintains gender-based interdependence in migration flows.

According to estimates by the international law firm IWORLD, the number of migrants worldwide in 2024 reached 281 million international migrants, with a gender ratio of 51.9% (men) to 48.1% (women).[3] The Russian Federation ranks 4th in the world in terms of the number of migrants — 11.6 million, whose ethnic composition is mainly represented by immigrants from post-Soviet states and the increasing migration of women from these countries. For example, in Azerbaijan, the proportion of female migrants in 2021 was a record 69%, followed by Kyrgyzstan (59%), Kazakhstan (57%), Uzbekistan (52%) and Tajikistan (41%). Such a high level of women's involvement in international migration is observed, in particular, among younger age groups, ranging from 20 to 29 years old [11].

In 1885, E. Ravenstein [30] observed in his writings that compared to men, women tended to migrate over shorter distances. However, the situation has since changed in the modern world, and it can now be confidently stated that women do indeed migrate long distances. This is especially true for highly qualified women who do not have families — there is a phenomenon of female labor migration.

Indeed, it is evident from the data that if a woman is able to become a highly skilled professional in her home country, she will migrate in search of work. If she is unable to do so (which is common in traditional societies and less de-

[3] Which country has the most migrants. IWORLD. URL: https://iworld.com/ru/blog/which-country-has-the-most-migrants#:~:text=%D0%A1%D0%BA%D0%BE%D0%BB%D1%8C%D0%BA%D0%BE%20%D0%BC%D0%B8%D0%B3%D1%80%D0%B0%D0%BD%D1%82%D0%BE%D0%B2%20%D0%B2%20%D0%BC%D0%B8%D1%80%D0%B5%20%D0%B2,%25%20%D0%BA%2048%2C1%20%25.

veloped countries), her migration may be due to family circumstances.

In Russia, women's international migration is driven by both the need to reunite families and the search for employment. This is a unique phenomenon, as the lower salaries in Russia compared to other developed countries make long-term employment an additional incentive to migrate. However, the country's well-developed and accessible social support systems make it an attractive destination for those seeking to reunite with their families or start a new life.

The international migration of women to Russia is driven by both the need for family reunification and job search. This is due to the fact that in Russia (especially in large metropolitan cities), salaries are higher than in the countries where migrant women come from.

Based on the analysis of the theoretical background of international migration, it is difficult to provide a clear answer about how and to what extent external international female in the Russian Federation occurs. At the same time, considering the rather conflicting statistics, the factors contributing to international male migration also need to be examined.

Results of the correlation and regression analysis of male and female migration in the Russian Federation

We collected data on external migration flows in the Russian Federation in terms of gender and age for the maximum available period (since 2001). The overall number of observations is 23; due to the yearly frequency of data, the data is available from 2001 to 2023. Statistics on the overall migration flow in the Russian Federation are based on data from population censuses, administrative data (cities, regions, districts), surveys, and statistics from relevant authorities (Federal Security Service, Federal Customs Service, Ministry of Internal Affairs, Federal Tax Service, etc.).

However, statistics on specific types of international migration in Russia, such as family migration, are highly inaccurate due to factors such as work permits and patents being issued only to those migrants who are officially in the country. This makes it difficult to accurately account for the number of arrivals. Secondly, people migrating for family reasons, such as spouses and children following the head of the household to the Russian Federation, distort statistics due to the complexity of family ties and the circumstances surrounding the move [12], making it difficult to accurately account for the number of arrivals.

Table 1

Reasons for moving to the Russian Federation indicated by those crossing the border in 2023 and gender and age composition, %

Reason for moving	
Work	28
Education	12
Family business	47
Other reasons	6
Not stated	5
Gender	
Male	55
Female	45

Source: Rosstat,* developed by the authors.

* Rosstat. Migration. 2024. URL: https://rosstat.gov.ru/folder/12781 (accessed on 31.01.2025).

Other factors that make it challenging to account for the number of arrivals in the country include fictitious declarations of kinship and simplified access to citizenship. This is a topic of discussion not only among scientific communities but also among the highest levels of government.

The lack of strict measures in the Russian Federation over a long period (from the 1990s until 2022) has led to an uncontrolled number of family members being brought in by migrants, including older disabled relatives. This indicates that the impact of migrants on the economy of the host country is controversial. This has led to public criticism of visa-free travel and increased social tensions. According to data from the Border Guard Service and Rosstat, 11% of arrivals in 2023 were elderly and 13% were children.[4]

At the same time, 31% of arrivals by country of origin are from Tajikistan, 10% from Kyrgyzstan,

[4] Entry of foreign citizens into the Russian Federation 2023. Fedstat. URL: https://www.fedstat.ru/indicator/38479

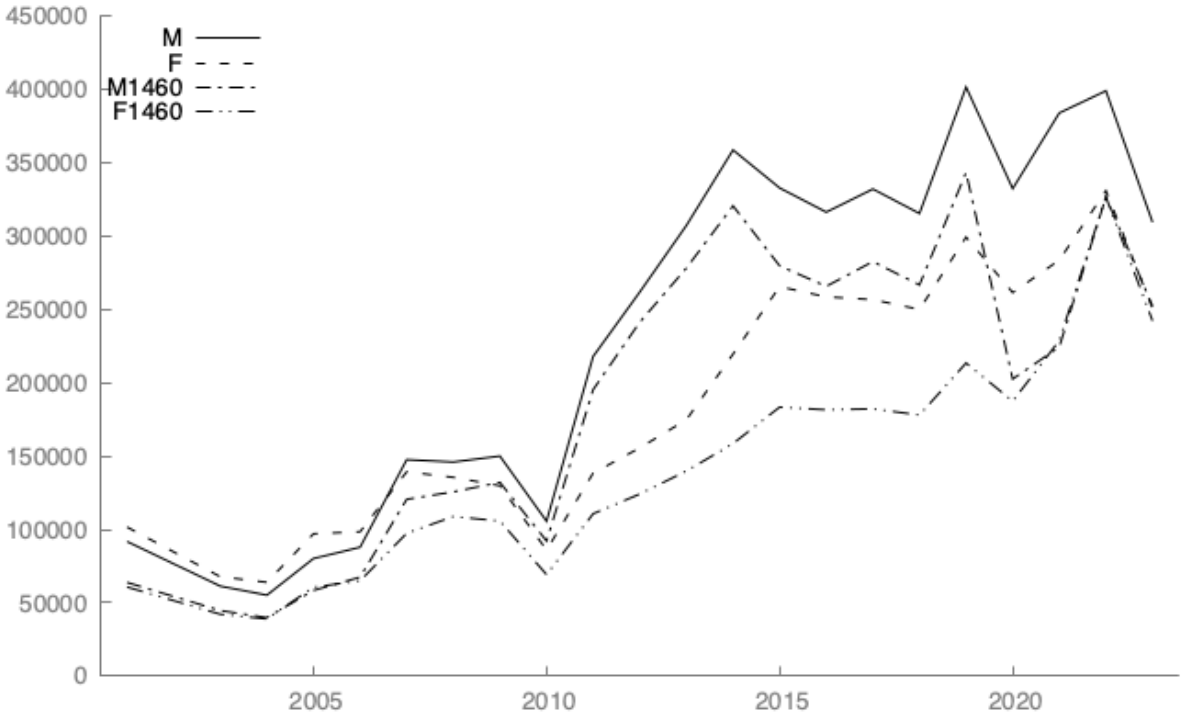

Fig. 2. **International migration dynamics in the Russian Federation**

Source: Compiled by the authors according to Rosstat data* in Gretl.

* Rosstat. Migration. 2024. URL: https://rosstat.gov.ru/folder/12781 (accessed on 31.01.2025).

9% from Armenia, 9% from Kazakhstan, 8% from Uzbekistan, 4% from Azerbaijan, 4% from Moldova, 2% from Turkmenistan, 2% from Belarus.[5]

It is widely known that the number of migrants in the Russian Federation has been growing in most periods since 1993, but the peaks occurred during the stages of active economic growth — in the late 2000s (it was significantly lower than the one in the 1990s) and after 2010 (recovery after the global economic crisis — *Fig. 2*). In other periods, there was a steady increase in migrant arrivals (except during the pandemic periods and the beginning of a special military operation). The dynamics of international migration by gender and by gender and working age are shown in *Fig. 2*.

Based on the collected data, we will model the international migration of men. Uploads of models and correlation analysis are presented in Annex 1 *Fig.1, 2.* Some of the studied series are non-stationary, as a result of which approaches to the construction of ARIMA and ARIMAX models were used to exclude the trend and elevation. *Fig. 3* in Annex 1 represents the real and modelled data, the latter closely follows the real data, proving the high explanatory power of models (along with the adjuster R^2, exceeding 0.91 in all models). The fits of the models used are presented in *Tables 1 to 4* in Annex 1. They allow to conduct the further analysis of the influence of independent variables and its character (positive or negative) on the dependent variable.

The autocorrelation of the M and M1460 series is slightly lower for the 6–8 lag than for the F and F1460 series, which proves a lower dependence on the international migration time of men from previous periods. In the simulation, the order of the AR component is 1 for all migrating men and 4 for M1460, which proves that the working male migrants, or the ones who are capable of work, affect the migration of the same-age males for a significantly longer period of time. For the next year and the 4th year after their arrival their influence is positive, for the 2nd and the 3rd — negative. While immigrating to Russia for working purposes, male migrants leave every year or two to visit their family in their country of origin. The model allows us to conclude that their migration has a specific pattern with a two-year cycle. The data obtained during the modeling process fully

[5] Rosstat revealed the "portrait" of a migrant in Russia. Who enters the country from abroad and for what purposes. RBC. 22.07.2024. URL: https://www.rbc.ru/economics/22/07/2024/669a2afd9a7947271d418486

confirm the theoretical results regarding the dependence of male international migration on the potential income level, regardless of age and whether it is necessary to provide for a family. For example, in the model for men of working age, there is no positive influence of having a family on international migration decision-making (the Family variable isn't a significant variable), while there is a positive influence of its absence (Single) on the international migration of working age men. The absence of lags for the variable F in the regression for male international migration (more precisely, the insignificance of their inclusion) and the much greater importance of cross-correlation for negative lags indicate that having a family for a man is an incentive to migrate (to become a labor migrant), rather than the reason for international migration. At the same time, international migration for family reasons reduces the number of working-age men migrating to some extent. This leads to the conclusion that these reasons act as a barrier to working-age male international migration. Typically, these kinds of reasons for international migration arise when family members face issues or difficulties, so the potential higher income of the male migrant may be less important than his presence with his family.

For the models of female international migration (F and F1460), the best results are demonstrated by the fits, which contain variables of the dynamics of male international migration and their lags. It's worth noting that for female international migration, the first lag has a negative impact on international migration, while the other two have a positive influence. This can be explained by the fact that women tend to migrate in family units less often due to strong family bonds. After a male migrant arrives in the country of employment, women may follow him later in the same year or the following year (the M and M1 variables, representing male international migration, are significant in the model and correspond to the first and second lags of the AR-component). This is supported by the positive influence of family-related reasons for women's international migration and the negative influence of work and single variables — single women migrate less frequently. Work-related reasons decrease female international migration, as do strong family ties among women and the traditional societal roles in the major countries of origin of migrants to Russia, where the role of family keeper is often assigned to women, while the role of breadwinner is reserved for men. Based on this, it can be concluded that the reasons for women's international migration to Russia mostly fit into the logic of international migration for family reasons (women migrate more actively in subsequent periods after the international migration of men).

Another important fact to note is the difference between female international migration in general and the international migration of working-age females. The latter is significantly affected by the first lag of male international migration and is significantly reduced by the first lag of international migration of working-age men. This can be explained by the fact that the aforementioned impacts on female international migration are more significant for younger females and older ones, who depend on male support within the family.

The current shift towards a more liberal society in Central Asian countries and the increase in income of migrants in Russia, which is greatly affected by changes in exchange rates, lead to the potential for one breadwinner within a family (in the narrow sense — husband, wife, parents, and children), who is usually male due to their higher income as working migrants. In this regard, if a working-age male migrant is already in the household, the working-age woman in the family may choose not to migrate, which is more common in traditional societies in the Central Asian region. At the same time, the impact of the migrating male on the family remains the same — he becomes a pull factor for other family members' international migration, which explains the positive effect of male international migration (M1) on female international migration with a one-year delay. The negative effect of female international migration in the previous year is similar to that of a woman.

Special attention should be paid to the fact that the inclusion of a variable characterizing marital status in the models of female international migration worsens not only the quality of the models themselves, but also their explanatory power. *Fig. 3* shows the dynamics of the additional regressors used in the model, which can clarify this situation.

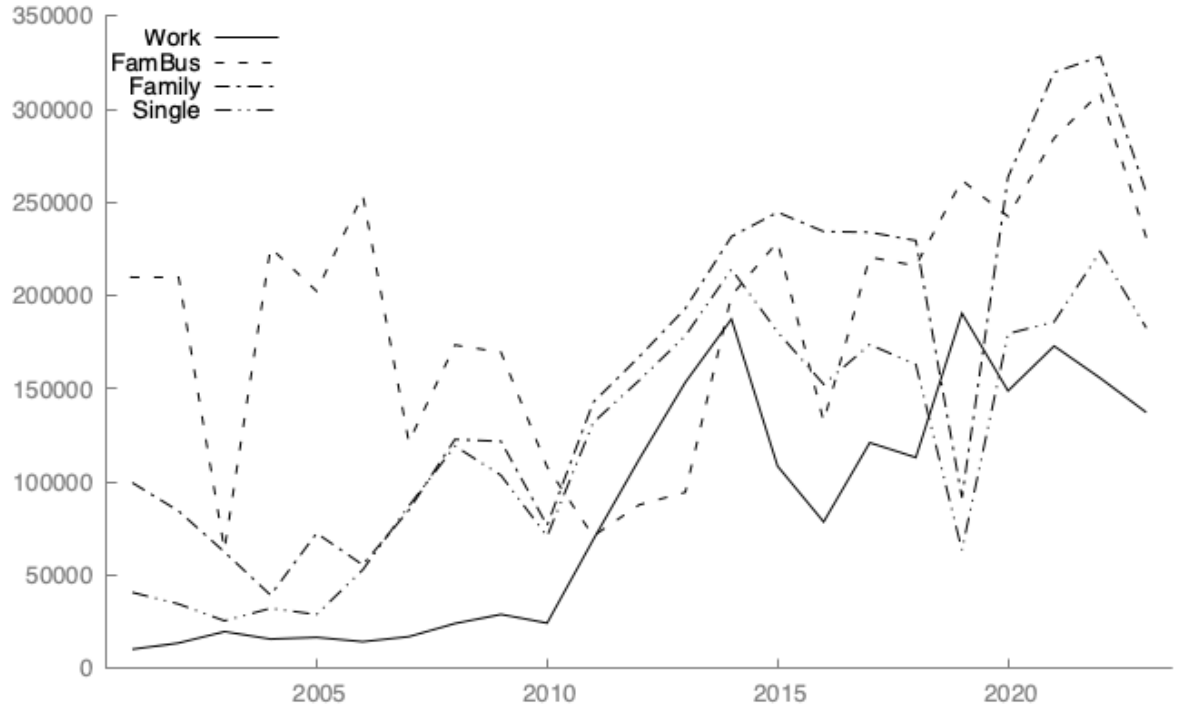

Fig. 3. **Dynamics of international migration flows in the Russian Federation by marital status and purpose of migration**

Source: Compiled by the authors according to Rosstat data* in Gretl.

* Rosstat. Migration. 2024. URL: https://rosstat.gov.ru/folder/12781 (accessed on 31.01.2025).

The steady increase in international migration for family reunification and the rather volatile and dynamic nature of international migration of married and unmarried people clearly indicate that, unlike international migration for work, where statistics are based on the number of work permits issued, statistics on marital status are either incomplete or, due to certain reasons, are distorted by migrants.

The results obtained on female international migration allow us to conclude that due to the traditional type of reproduction and the large size of family units and the prevalence of family ties in the countries from where the main international migration flow is formed in the Russian Federation, there is an influx of migrants who are not in a registered marriage, and then they live in the territory of the Russian Federation or running a joint household (that is why female international migration follows male international migration with a lag of 1 — established male migrants form an "attraction center" for both male international migration (as indicated by the presence of AR components in the male international migration model) and female international migration (for women coming from the same family unit as established male migrants, this is indicated by the importance of male international migration lags in the models for F and F1460).

Discussion

The patterns of international migration of men and women to Russia are characterized by differences between the sexes, which are determined by economic factors such as improving quality of life.

Most of the research on international migration to Russia in the foreign and Russian literature [31] focuses on the issue of accounting for migrants and establishing a migration database, as well as the territorial displacement of the workforce for employment purposes [32], resulting in a geographical redistribution of the workforce. Migration for educational purposes is also a significant aspect [33].

We believe that issues related to gender disproportionality in international migration to Russia, including labor and family international migration, require more detailed analysis. The specifics of gender-based international migration have been less studied than, for instance, age-related migration.

It is also worth noting that there is a rather weak level of elaboration on the topic of international migration to Russia for family reasons in the Russian literature. Unlike foreign practices, there are currently no studies in the Russian Federation that contain general data on this type of international migration. Specifically, there are no studies that can demonstrate the essence, scale, and dynamics of family international migration due to the lack of involvement of statistics in scientific research [12].

The conducted research, using the method of modeling international migration to Russia based on gender and family factors, allows us to:

— Confirm the theoretical results regarding the dependence of male international migration on potential income levels, regardless of age or whether it is necessary to support a family.

— Conclude that the reasons for female international migration to Russia are mostly related to family-based international migration (women are more active in migrating after the international migration of their partners).

The results of the study confirm the hypothesis about the incompleteness of Russian statistical data and show that statistics are distorted when additional variables are included. It is noteworthy that there are few scientific papers analyzing international migration and explaining its fluctuations over time.

It is also important to note that the formation of attraction centers for both male and female migrants makes the assimilation of these individuals in the Russian Federation more challenging. In fact, the influx of migrants can vary depending on the current working conditions, currency, and regulatory factors. However, the overall trend in international migration dynamics within the Russian Federation remains relatively stable.

Due to the existence of these attraction centers, closed migrant communities develop around individual leaders. This can lead to social risks, as these communities may not fully integrate into the local society. It also seems to be a significant concern that, in such circumstances, traditional migration control measures become ineffective. Either their drastic tightening is necessary, which would cause both social and economic unrest, or if the current regulation remains unchanged, the Russian Federation runs the risk of facing a migration crisis.

Social tensions and the growth of additional budget expenditures on medical care and education for family members, as well as subsidies to large migrant families in the Russian Federation, require proposals to mitigate the negative effects of international migration to Russia. In particular, the authors propose to revise Russian migration legislation in terms of: expanding the list of countries with which the Russian Federation has a visa regime; introducing compulsory medical insurance upon entry of migrants into Russia; as for labor international migration, to draw the attention of the legislative body to the experience of using the shift method in other countries for labor migrants, since today migrants move freely through the regions of Russia and their quantitative "concentration" is becoming too obvious in large cities with a higher standard of living; a mandatory column in the migration card, which will indicate the future location the work of a person entering the country for the purpose of employment; establish a ban on changing jobs in order to eliminate the shortage of personnel in the regions; To tighten the requirements for migrant families (especially low-skilled migrant workers) to obtain a residence permit and Russian citizenship.

Conclusion

The study formulates the main principles of the "vicious cycle of male migration" and its effects on the donor and receiving countries of migrants. It has been proven that the receiving country receives a long-term engine of economic growth, in contrast to the donor country, where such growth drivers are either non-existent or short-lived. Migrants make a decision to migrate primarily in order to improve their living standards.

Male migrants play a more significant role in the cycle, while women have a lesser impact on the effects on the receiving economy.

One of the main findings of the study is that the factors influencing male and female international migration to the Russian Federation differ. Male international migration is driven by factors such as improving living standards and labor international migration, whereas for women, labor international migration may be less significant compared to family international migration. In fact, in Russia, there is a

pattern of female international migration where a woman follows a man and only then obtains employment, if necessary, switching her migrant status from family to labor for work reasons.

Due to the international migration patterns identified in the regression analysis, we have found that there are "attractors" in the Russian Federation — individuals or groups who, regardless of economic and social circumstances, stimulate the influx of migrants into the country. This makes it difficult to control the process and can lead to social risks due to the inability of migrants to assimilate. At the same time, male migrants act as attractors for both male and female international migration into the Russian Federation.

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Annex 1

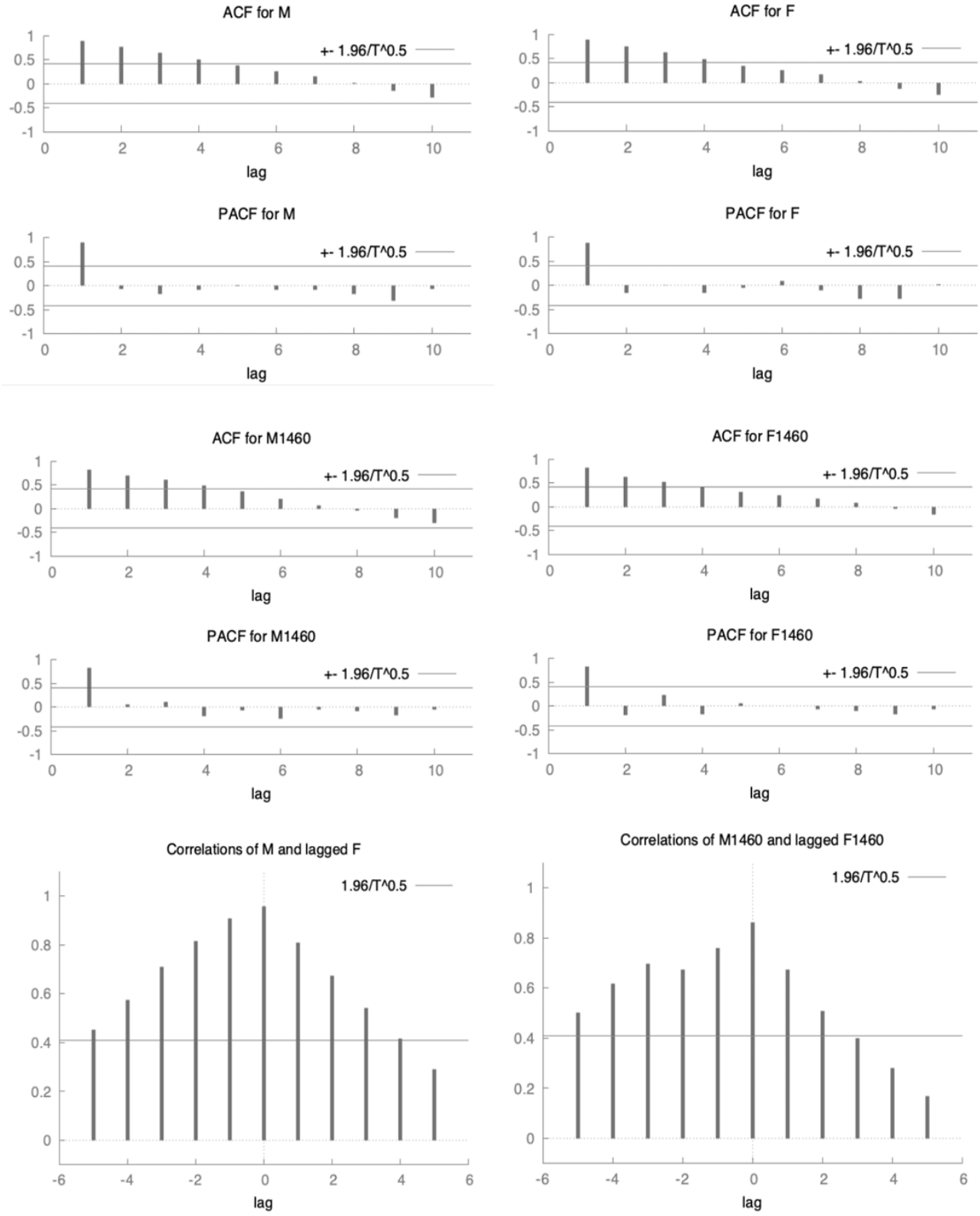

Fig. 1. **Correlograms for dependent variables and cross-correlograms for dependent variables F — M и F1460 — M1460**

Source: Developed by the authors in Gretl.

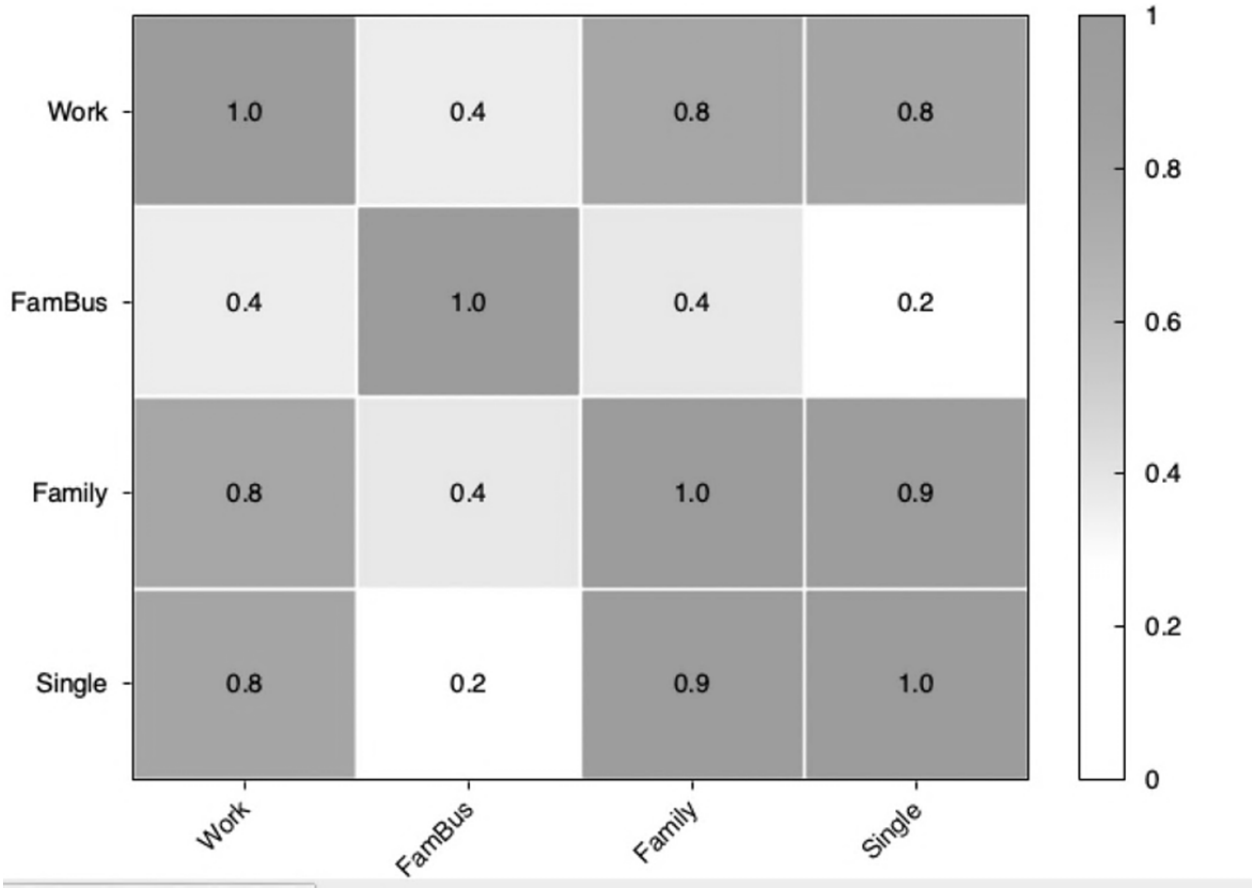

Fig. 2. **Correlogram for independent variables**

Source: Developed by the authors in Gretl.

Fig. 3. **Real data and model results for M, F, M1460 and F1460 as dependent variables**

Source: Developed by the authors in Gretl.

Table 1

Model fit: dependent variable: M, observations 2001–2023 (T = 23)

	Coefficient	St. error	z	p-value	
const	123994	34186.1	3.627	0.0003	***
phi_1	0.808759	0.142088	5.692	<0.0001	***
Work	1.19870	0.251695	4.763	<0.0001	***
Mean dependent var	229273.5		S.D. dependent var	124015.6	
Mean innov.	2370.746		S.D. innov.	30646.67	
R-squared	0.938557		Adj. R-squared	0.935631	
Log-likelihood	−270.7628		Akaike crit.	549.5256	
Schwarz crit.	554.0676		Hannan-Quinn	550.6679	
	Re(z)	*Im(z)*	*Modulus*	*Frequency*	
AR					
Root 1	1.2365	0.0000	1.2365	0.0000	

Source: Developed by authors in Gretl.

Normal error distribution test null hypothesis: errors are normally distributed

Test statistic: Chi-square (2) = 1.17247.

p-value = 0.556418.

* – significant on 10% confidence level.

** – significant on 5% confidence level.

*** – significant on 1% confidence level.

Table 2

Model fit: dependent variable: M1460, observations 2001–2023 (T = 23)

	Coefficient	St. error	z	p-value	
const	58100.4	14281.8	4.068	<0.0001	***
phi_1	0.548228	0.178017	3.080	0.0021	***
phi_2	−0.661834	0.194760	−3.398	0.0007	***
phi_3	0.508919	0.198181	2.568	0.0102	**
phi_4	−0.753593	0.149435	−5.043	<0.0001	***
Work	1.37523	0.0991759	13.87	<0.0001	***
FamBus	−0.139990	0.0633199	−2.211	0.0270	**
Single	0.347311	0.0941104	3.690	0.0002	***
Mean dependent var	186102.8		S.D. dependent var	103413.1	
Mean innov.	−704.8029		S.D. innov.	24976.91	
R-squared	0.939209		Adj. R-squared	0.916412	
Log-likelihood	−267.4098		Akaike crit.	552.8196	
Schwarz crit.	563.0390		Hannan-Quinn	555.3898	
	Re(z)	*Im(z)*	*Modulus*	*Frequency*	
AR					
Root 1	0.7893	−-0.7413	1.0828	−0.1200	
Root 2	0.7893	0.7413	1.0828	0.1200	
Root 3	−0.4517	−0.9632	1.0638	−0.3198	
Root 4	−0.4517	0.9632	1.0638	0.3198	

Source: Developed by the authors in Gretl.

Normal error distribution test null hypothesis: errors are normally distributed.

Test statistic: Chi-square (2) = 0.674639.

p-value = 0.713681.

* – significant on 10% confidence level.

** – significant on 5% confidence level.

*** – significant on 1% confidence level.

Table 3

Model fit: dependent variable: F, observations 2002–2023 (T = 22)

	Coefficient	St. error	z	p-значение	
phi_1	−0.600891	0.214828	−2.797	0.0052	***
phi_2	0.651611	0.211227	3.085	0.0020	***
phi_3	0.402378	0.241368	1.667	0.0955	*
Work	−0.689583	0.0384655	−17.93	<0.0001	***
FamBus	0.132494	0.0180636	7.335	<0.0001	***
Single	−0.142023	0.0240191	−5.913	<0.0001	***
M	0.946787	0.0336382	28.15	<0.0001	***
M_1	0.123825	0.0251423	4.925	<0.0001	***
Mean dependent var	7909.095		S.D. dependent var	34923.63	
Mean innov.	954.0770		S.D. innov.	5774.622	
R-squared	0.995512		Adj. R-squared	0.993096	
Log-likelihood	−212.7127		Akaike crit.	443.4255	
Schwarz crit.	452.8262		Hannan-Quinn	445.4657	
	Re(z)	*Im(z)*	*Modulus*	*Frequency*	
AR					
Root 1	−1.3066	0.0000	1.3066	0.5000	
Root 2	1.2316	0.0000	1.2316	0.0000	
Root 3	−1.5444	0.0000	1.5444	0.5000	

Source: Developed by authors in Gretl.

Normal error distribution test null hypothesis: errors are normally distributed.

Test statistic: Chi-square (2) = 0.234801.

p-value = 0.889229.

* — significant on 10% confidence level.

** — significant on 5% confidence level.

*** — significant on 1% confidence level.

Table 4

Model fit: dependent variable: F1460, observations 2002–2023 (T = 22)

	Coefficient	St. error	z	p-value	
phi_1	0.803345	0.366529	2.192	0.0284	**
theta_1	−0.669077	0.396879	−1.686	0.0918	*
M_1	1.33722	0.150252	8.900	<0.0001	***
M1460_1	−0.917938	0.187615	−4.893	<0.0001	***
Mean dependent var	140806.0		S.D. dependent var	74884.53	
Mean innov.	4422.625		S.D. innov.	21793.77	
R-squared	0.923090		Adj. R-squared	0.910272	
Log-likelihood	−251.0270		Akaike crit.	512.0540	
Schwarz crit.	517.5093		Hannan-Quinn	513.3391	
	Re(z)	*Im(z)*	*Modulus*	*Frequency*	
AR					
Root 1	1.2448	0.0000	1.2448	0.0000	
MA					
Root 1	1.4946	0.0000	1.4946	0.0000	

Source: Developed by authors in Gretl.

Normal error distribution test null hypothesis: errors are normally distributed.

Test statistic: Chi-square (2) = 0.507.

p-value = 0.77589.

* — significant on 10% confidence level.

** — significant on 5% confidence level.

*** — significant on 1% confidence level.

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Arzhaev F.I. — conceptualization, methodology, data analysis.
Zvereva A.D. — literature review, data collection, visualization.

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