MIGRATION, REMITTANCES AND ECONOMIC GROWTH: AN EMPIRICAL STUDY IN THE CASE OF FORMER SOVIET REPUBLICS

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Over the last decade, an international inflow of remittances throughout the world has increased significantly, becoming the second largest source of foreign financial receipts. It is generally accepted that migrants’ transfers have the potential to benefit recipient countries. The empirical evidence of earlier studies provides controversial conclusions; the literature did not give special attention to the case of the post-Soviet region. This may be related to the fact that countries of the former Soviet Union did not use to record the relevant data on remittances in their balances of payments. The purpose of this paper is to investigate empirically the role of remittances in economic growth in former Soviet republics for the period of 2002 through 2010, using a panel data set. Our analysis will cover eleven countries, excluding those that do not report data on remittances and Russia. The key finding of the paper reveals that migrants’ transfers do not directly facilitate output growth in former Soviet republics. Migrants act as altruistic individuals and their financial relations with those who remain in places of origin occur under asymmetric information. We admit the fact that our analysis is based upon the official data on remittances that are recorded in countries’ balances of payment. We do not take into consideration unrecorded and informal inflows, which may account for about half of all remittances sent to migrant-sending nations worldwide, and the post-Soviet region is not an exception.

Keywords: migration, labor market, remittances, balance of payment, economic growth, former Soviet republics, neoclassical growth model, asymmetric information, econometric modeling, panel data analysis.

Introduction

Over the previous decade an international inflow of remittances throughout the world increased significantly, becoming the second largest source of foreign financial earnings. During this period the total amount of officially transferred remittances to developing and emerging countries increased from 132 billion dollars in 2000 to 440 billion dollars in 2010 [28]. A conventional wisdom says that migrants’ transfers have the potential to benefit recipient countries. Therefore, there have recently been several studies on the relationship between remittances and economic growth, and development.

Although the empirical evidence of earlier studies provides mixed conclusions, the literature did not place a separate emphasis on the sample of post-Soviet region. This may be related to the fact that countries of the former Soviet Union did not record earlier the relevant data on remittances in their balances of payments. Secondly, the share of post-Soviet countries in international inflow of remittances is insignificant, accounting for less than 5% in 2010 [28].

The purpose of this paper is to investigate empirically the role of remittances in economic growth in former Soviet republics for the period of 2002 through 2010, using a panel data set. For this period nearly all countries of the region have macro data on migrants’ transfers. Our analysis will consist of eleven countries, excluding those that do not report data on remittances and Russia.1

We motivate our empirical work by an extended version of neoclassical growth model [7].

The present paper will contribute to the existing literature in several ways. First, former

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1 The sample of countries includes Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Moldova, Tajikistan and Ukraine.
Soviet republics experience a major increase in remittance inflows recently and a detailed empirical study with a sample of these countries has not been conducted yet. This may be related to the absence of relevant data on migration and remittances in earlier periods. Secondly, the empirical implications of the paper can be compared with previous studies on remittances and growth with a sample of countries from other regions.

**Literature Review**

The relationship between foreign financial flows and economic growth has always been a topic of substantial interest. As a result of continuously increasing volume of remittances to developing economies over past decades the existing literature highlights the remittance and growth relationships within four research areas [26]. In particular, scholars have primarily focused on determinants of remittances, their impact on local labor supply, Dutch disease caused by foreign earnings inflows, and the overall impact of remittance on growth and development.

**Determinants of Remittances**

Lucas and Stark [21] were among the first scholars who explored factors affecting remittance inflows. By developing a theoretical model, they suggest that migrants’ willingness to make transfers depends on whether they are in a position of pure altruism or self interest. Having a pure altruism approach implies that a potential migrant is concerned about the economic well being of his left behind family members who enjoy receiving regular inflows of transfers from abroad. In the second case his remitted funds are primarily directed at making investment purchases and that his own family members can act as trustworthy agent. In either case remittances represent a part of an intertemporal, mutually beneficial contractual arrangement between the migrant and his family.

Brown [11] further explored and supported the idea of pure altruism and self interest in the case of cross sectional analysis of Pacific Island migrants in Sydney. He concludes that Pacific Island migrants are not mainly interested in exclusive support of family members only; their chief motivation to remit funds to their countries of birth is linked with their willingness to make investment and the volume and size of inflows depend on the level of income they make in a foreign country.

The idea of pure altruism and self interest may be different in the case of multiple-migrant and single-migrant households. Agarwal et al. [2] suggest evidence that per-migrant remittances decline once altruism prevails in remittance decision. However, when remittances represent insurance premiums the number of migrants does not necessarily affect the pre-migrant remittance levels.

A number of scholars linked the remittance inflows to the degree of financial development and the quality of institutions in receiving countries. Based on the sample of 100 developing nations, Giuliano et al. [15] point out that maturity of financial development in migrant sending countries may determine the size and volume of overseas inflows. Their empirical results suggest that countries having less developed financial systems tend to receive more remittances. This demonstrates the presence of credit constraints and liquidity problem in domestic market. Consequently, such a gap is offset by remittances which can be directed on productive investment projects and assets.

Catrinescu et al. [11] argue that migrants’ transfers tend to increase in countries in which sound institutional environment is more prevalent. As a result of the presence of good institutions remittances can be effectively channeled in receiving countries, ultimately leading to increased long term output levels of goods and services.

**Remittances and Labor Supply**

Scholars exploring remittance and labor supply linkage in receiving countries have different points of view concerning whether foreign exchange inflows result in positive or negative impact on domestic labor market.

Rodriguez et al. [25] explored the temporary migration and household labor supply in the case of Urban Philippino areas. His empirical results suggest that domestic labor supply in places of origin is affected depending on whether a potential migrant acts as a substitute or complementary labor. In the first scenario migration results in labor supply decrease in the local market, while the complementary significance of migration implies that the labor supply of nonmigrants in the labor market tends to increase. In addition to this, their findings highlight that remittance inflows increase the share of non-labor income in the local market and locally made wages decline as well. Although the share of locally made income is reduced, the overall household consumption, including leisure is enhanced. Men staying as nonmigrants in their places of origin opt for more leisure as compared with women.

Amuedo-Dorantes et al. [4] investigated the impact of remittance on the labor supply of working age men and women based upon a cross
sectional sample of Mexico. They believe that the effect of money transfers made by Mexican migrants may affect the work hours depending on gender of recipients, the location of the family members and type of job they fulfill. The potential to make a higher level of income in places of origin is reduced owing to the outmigration and absence of working age family members. Secondly, regular inflows from abroad generally loosen the budget constraints of receiving individuals and as a result they are reluctant to increase their labor supply. In rural areas women enjoy more the income effect of remittances as they tend to be less engaged in informal and nonpaid work. A higher level of remittance incomes encourages men to reduce their labor supply in formal sector as well as urban self-employment.

Acosta [1] looked at how child and adult labor supply in El Salvador changes due to international remittances. His empirical results based on cross-sectional survey suggest that remittances keep children out of work as well as men and women stay outside the labor market. For children this is an opportunity to invest in their human capital and for adults a decrease in their labor supply is associated with an increase in leisure consumption. However, he further argues that a number of factors do not significantly affect adult people to reduce their participation at the labor market. Such factors may refer to whether a person from migrant family is a head of household, number of children he or she has, age, education of migrant family members and their location in urban area remain unaffected by foreign transfers.

**Remittances and Dutch Disease**

The term Dutch disease, often explored in international finance literature, ordinarily implies that the real exchange rate increases as a country experiences major foreign inflows such as foreign aid, natural resource boom and inflows of other forms of financial capital, including remittances.

The relationship between remittances and real exchange rates in receiving countries can be traced in changes that occur in certain sectors of their economies. Based on the sample of Latin American countries, Amuedo-Dorantes et al. [4] provide evidence that as a result of foreign exchange inflows domestic currency appreciation leads to shifting resources from the traded to the non-traded sectors of economy. Acosta et al. [1] argue that in El Salvador since overseas remittances negatively impact the domestic labor supply, prices for non-tradable sector tend to increase as this sector remains mainly labor intensive.

Vargas-Silva [26] provides evidence that since migrant households in Mexico generally exchange dollars for pesos this leads to an increase of the supply of local currency. Domestic demand for non-tradable goods tends to rise despite the fact that their supply is limited. Consequently, Mexican pesos appreciate. In this regard, he suggests that the Mexican government may take additional steps on how to minimize the negative impact of remittances on this sector.

A recent study by Lartey et al. [20] support the idea of previous studies on the relationship between remittance inflows and price increase on non-tradable goods in receiving countries. Their empirical study, which is based on a sample of developing and transition economies, shows that, as a result of major transfers, resource movements affect certain sectors of economy differently. More specifically, the share of services in total output tends to rise, while the share of manufacturing sectors in receiving economy declines.

Since remittances, in general, affect positively the economic well being of migrant households despite the fact that they cause the exchange rate appreciation, it is important to develop and suggest macroeconomic adjustments policy that could effectively address this issue. This will be another area of future research.

**Remittances and Growth**

The empirical findings on remittance and growth relationship remain controversial. Some scholars believe that foreign transfers do facilitate growth and development in migrant sending nations, while certain studies are skeptical concerning the positive impact of foreign exchange inflows in receiving countries.

Jongwanich [18] points out that there is indirect correlation between remittance and growth. Based on the sample of Asian and Pacific countries, and applying the extended version of the neoclassical model, he argues that foreign financial inflows have a positive and significant impact on domestic investment, human capital and poverty reduction in migrant sending nations.

However, other studies showing growth enhancing effect of remittances highlight that there need to exist certain predetermining conditions. Mundaca [23] believes that remittances benefit the Latin American region when they have well functioning financial intermediaries. Such intermediaries will effectively allocate foreign financial inflows into capital investments.

Rapoport et al. [24] explore the short and long term effect of remittances. They argue that the overall effect of demand shock which is
induced by remittances depends chiefly on the degree of capital mobility and exchange rate regime in host nations.

Glytos [16] points out that since remittances represent private transfers, market forces cannot allocate and utilize them in productive way in order to sustain long term growth and development. His empirical results based on the sample of Mediterranean countries suggest evidence that labor exporting countries do not use remittances to the maximum capacity for their development. In this regard, a government policy may play a significant role in this process.

In a number of other studies, remittance inflows produced retarding growth effects in receiving countries. Based on a sample of 82 developing and transition economies, Barajas et al. [5] concludes that although migrants’ transfers are properly measured and growth equations are well specified and instrumented, their empirical results did not show robust and significant impact of foreign inflows on long-term growth.

Chami et al. [12] develop a theoretical framework and estimated their results on the large sample of countries. They believe that remittances negatively affect growth since foreign financial flows occur under asymmetric information and economic uncertainty.

Durand and Massey [13] explore how “migradollars” facilitate growth and development in Mexico. They conclude that Mexico-US migration leads to the state of dependency. Foreign financial inflows to Mexico are primarily allocated for domestic consumption and only its little proportion is left for investment projects, which could be productive and promote economic expansion within the country.

**Trends and Characteristics of Remittances in former Soviet Republics**

Republcs of the former Soviet Union were highly integrated with each other with strong production and consumption chains via the mechanisms of centralized planning and resource allocation. After this economic system collapsed, output was negatively affected. As a result, unemployment has become a key socioeconomic problem in the region. In particular, for those republics that have resource based economies and a relatively younger population this problem has always been a major concern.

Therefore, people from labor-abundant countries move to other areas for better economic opportunities associated with a higher level of income and an ability to make savings, and remittances to their places of origin [22]. Remittances sent by potential migrants enable their direct relatives and other family members to have their regular consumption and make some investment purchases. On macro-level such transfers help receiving nations to maintain social and political stability [19].

Over the past decade, remittance inflows to countries of the former Soviet Union significantly increased to 16 billion U.S. dollars in 2010 from 1.7 billion U.S. dollars in 2002 [28]. On average during this period, the flow of remittances increased by 11% annually. Fig. 1 shows that remittances constitute the second major source of foreign financial inflows following foreign direct investment. They have considerably outpaced the volume of official aid to the region.

![Fig. 1. Recent Trends in Foreign Financial Flows to the Region*](image)

*Source: World Bank Online Database [28].

An interesting fact reveals that initially the share of remittances as a percent of gross domestic product (GDP) remained lower as compared with a ratio of foreign direct investment to domestic output. Since 2005, we may notice the opposite picture. In 2002 remittances constituted less than 4% of region’s GDP and by 2008 they accounted for 12% of countries’ domestic output. Although there was a decline in 2009, the following year reflected a 2% increase [Fig. 2].
It is worth mentioning that some republics of the region are the largest recipients of remittances in the world [27]. In 2010 in Armenia, Kyrgyz Republic, Moldova and Tajikistan the share of migrants’ transfer to their domestic outputs ranged from 11% to 40%. However, in terms of absolute values Azerbaijan, Lithuania, Moldova, Tajikistan and Ukraine constitute about 75% of the total value of remittances sent to the region accordingly [Fig. 3 and 4].

Remittances are a stable and reliable source of foreign financial inflows, while foreign direct investment depends upon market size, availability of natural resources, macroeconomic and political stability in host countries [27]. Official aid, which represents another form of overseas financial resources, is mainly provided due to political and strategic considerations [3]. It implies that most of republics of the region can rely only on migrants’ transfers as they may have feasible impact on people’s welfare.

It is important to emphasize that the trends and fluctuations of growth rates in countries of destination play a significant role on demand for foreign labor force. A positive rate implies a higher degree of migrants’ recruitment in labor intensive industries such as construction and infrastructure facilities [17].

Russia remains a key destination area for major migrant sending countries in the region. The Russian economy enjoyed steady economic growth since 2000 until the financial crisis hit the world economy. A positive rate of growth which was primarily fueled by favorable energy prices on international markets enabled the country to allocate resources to different sectors of economy. Given country’s enormous area and shrinking population foreign labor force from the region played an important role. For example, in 2008 Russia’s real GDP growth rate was 5%, which experienced a considerable decline in 8% by 2009 [14]. In top remittance-receiving countries of the region – Armenia, Kyrgyz Republic, Moldova and Tajikistan where potential migrants primarily move toward Russia, on average, the share of migrants’ transfer to their national outputs fell by 6%, i.e. from 28% in 2008 to 22% in 2009 accordingly². Therefore, remittances have been responsive to major crisis faced by Russian economy.

Remittances will remain the largest source of external finance for major migrant sending countries of the region. Indeed, remittance-receiving nations gain certain benefits which spur private consumption and investment growth rates. However, these nations need to realize the tradeoff of such transfers with a higher degree of economic and political dependency from immigrant receiving countries, in particular Russia, changes in their domestic labor markets, which

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² Authors’ calculations based on 2012 World Bank Online Data.
may be attributed to a shortage of skilled labor force. As a result of foreign inflows local currencies appreciate more frequently leading to a higher cost of living and a decline of competitiveness of their export oriented goods at international markets.

**Empirical Framework, Data and Estimation Results**

To identify empirically the effect of remittances on economic growth, we use Barro’s famous growth models. In particular, we will estimate the direct effect of transfers on output growth in the region. Unlike standard growth studies in which the sample period is ordinarily averaged and divided into several non-overlapping periods, this estimation is based on the panel data set covering the period from 2002 through 2010 accordingly.

Our model is estimated via pooled OLS and fixed effect panel regressions. For the first set of regression equation we assume that the unobserved effect is uncorrelated with explanatory variables. Since we have a panel of countries, the fixed effect approach will allow admit that each country’s intercept does not vary over time and such basic factors as geographic location, natural endowment, level of development etc. are different between post-Soviet republics.

**Data**

There are several sources for data of our interest. The dependent variables represented by real GDP per capita growth and gross fixed capital formation used as a proxy for domestic investment are taken from the World Bank. Gross fixed capital formation is used as a share to GDP. The key variable of the model denoted by remittances as well as other explanatory variables are also obtained from the World Bank. Data on general government expenditure and other macroeconomic indicators are regularly published in EBRD Transition Reports which are available on a yearly basis from 1991 and onward.

Barro and Lee provide long term historical dataset on educational attainment for certain groups of countries and regions, and alongside with other independent variables the first model includes human capital. This measure of education is positively correlated with growth rates [6].

All control variables are used as a ratio to GDP. Inflation is measured as a percentage change of overall price level. Population growth is the exponential rate of growth of midyear population from past to current period, expressed as a percentage [28]. Human capital represents the share of population aged 15 and over who completed their secondary education [6].

**Remittances and Economic Growth**

Our model of interest is expressed in the following linear form:

\[ GDP_{it} = \beta_0 + \beta_1 GDP_{it-1} + \beta_2 R_{it} + \beta_3 Z_{it} + \mu_i + \epsilon_{it}, \]

where the dependent variable denotes real GDP per capita growth, \( GDP_{it-1} \) is the logarithm form of initial level of GDP per capita, \( R_{it} \) stands for the ratio of remittances over GDP, \( Z_{it} \) comprises some control variables that are primarily included as determinants of growth [8], \( \mu_i \) is an unobserved country fixed effect and \( \epsilon_{it} \) is error term.

**Remittances and GDP per capita growth**

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>OLS</th>
<th>Panel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log(initial GDP)</td>
<td>-42.206*** (12.101)</td>
<td>-34.769* (16.879)</td>
</tr>
<tr>
<td>Human Capital</td>
<td>0.266*** (0.082)</td>
<td>-0.049 (0.458)</td>
</tr>
<tr>
<td>Inflation</td>
<td>0.269** (0.106)</td>
<td>0.187 (0.138)</td>
</tr>
<tr>
<td>Openness</td>
<td>0.073* (0.038)</td>
<td>0.095 (0.059)</td>
</tr>
<tr>
<td>Investment</td>
<td>0.382*** (0.139)</td>
<td>0.527* (0.214)</td>
</tr>
<tr>
<td>Remittances</td>
<td>-0.303* (0.113)</td>
<td>-0.490* (0.283)</td>
</tr>
<tr>
<td>Population Growth*Remittances</td>
<td>0.231* (0.099)</td>
<td>0.363* (0.209)</td>
</tr>
<tr>
<td>Government Expenditures</td>
<td>-0.212* (0.095)</td>
<td>-0.418 (0.307)</td>
</tr>
<tr>
<td>Constant</td>
<td>-12.861* (6.723)</td>
<td>1.746 (19.050)</td>
</tr>
<tr>
<td>Observations</td>
<td>72</td>
<td>72</td>
</tr>
<tr>
<td>R-squared</td>
<td>0.34</td>
<td>0.23</td>
</tr>
</tbody>
</table>

Note: Standard errors are in parentheses, which are robust errors for OLS regression; * significant at 10%, ** significant at 5% and *** significant at 1%.

Table shows corresponding results from the estimated model. In both estimations the initial GDP is negatively correlated with output per capita growth which reflects a conditional rate of convergence. Domestic investments are positively linked with the dependent variable. A one percent raise in investment results in 0.3 and 0.5 percent increase in GDP per capita growth, after controlling for other explanatory variables.

However, the key variable represented by remittances produces negative \( \beta \) coefficients in both cases. Should overseas transfers increase by one percent output per capita growth in the region declines by 0.3 and 0.5 percent accordingly.

Migrants behave as pure altruistic individuals [21]. Remittances sent by migrants to their family members represent nonmarket income. This income acts as compensatory transfers. As a result of pure altruistic approach migrants and their family members act under the asymmetric information and there exist a moral hazard problem between the remitters and receivers.
By receiving non-labor income, those who remain in places of origin tend to decrease their labor supply and efforts at domestic market and limit their job searches. In short, moral hazard problem makes the receivers to act in a way that their activities at home do not facilitate output increase. Consequently, such financial inflows are countercyclical in former Soviet republics.

An interaction term between remittances and population growth demonstrate some interesting results. As population growth increased, the effect of remittances on the GDP per capita growth becomes increasingly positive.

**Endogeneity**

Generally speaking, growth studies are subject to endogeneity problems. In particular the correlation between output per capita growth and inflows of remittances may arise from a stochastic determination of private migrants’ transfers, that is, these transfers may be influenced by trends and fluctuations of dependent variables. As a result, there could be a correlation between remittances and the country-specific error term, which would lead to biased and inconsistent coefficients of regressions.

In empirically designed studies problems related with endogeneity are frequently corrected by applying instrumental variable technique. The main problem is that ideal instruments do not exist [9]. Nevertheless, acceptable instruments would refer to variables which are highly correlated with actual predictors but not with error terms in all regressions.

Barro [7] used the earlier values of initial GDP and other explanatory variables in his work. His instruments are valid because he analyzed a relatively longer time span. In this paper such instruments may not be feasible since we do not consider a similar time period.

A question remains to be answered: how to address the problem of endogeneity then? The existing literature provides various indicators that may be used as instrumental variables given the fact that they are correlated with key predictors. Amuedo-Dorantes and Pozo [4] suggest to us the crop and livestock production indexes as relevant instruments. These instruments may have certain merit. However, all countries of the region do not report data on these variables.

**Concluding Remarks**

In this paper we estimated a model to explore empirically the impact of remittances on output per capita growth, investment and consumption patterns in former Soviet republics. We limited our analysis for a period of 2002 through 2010 as we were able to have a relatively complete dataset for this particular time period.

The key finding of our empirically motivated paper reveals that migrants’ transfers do not facilitate directly output growth in former Soviet republics. Migrants act as altruistic individuals and their financial relations with those who remain in places of origin occur under asymmetric information. Nonmigrants tend to decrease their labor supply and efforts at local markets and they seem be less involved in raising non-migrant labor income.

An interaction term between migrants’ transfers and population growth indicates that in general, post-Soviet countries experienced the positive impact of remittances on output due to an increase in population growth under the period of observation. Despite the fact that on average such an increase was below the threshold level in the region some key remittance-dependent republics experienced higher population growth rates that resulted in positive impact of transfers on GDP per capita growth.

In literature, our empirical study was the first attempt to explore and cover nearly all post-Soviet republics in a single paper. Some directions for further study can be to investigate the impact of remittances on appreciation of local currencies since such inflows occur spontaneously and they are not controllable. In this regard, how a government policy may be effective to tackle this problem successfully. Another possible area for further consideration may refer to the impact of remittances on demographic structure of working age population in recipient countries, in particular to what extent these financial inflows make local labor markets to be overwhelmingly represented by working women and older men.

Finally, we need to admit the fact that our analysis is based upon the official data on remittances which are recorded in countries’ balances of payment. We do not take into our consideration unrecorded and informal inflows that may account for about half of all remittances sent to migrant sending nations worldwide, and the post-Soviet region is not an exception.

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За последние десятилетие международный поток денежных переводов по всему миру значительно увеличился, став вторым по величине источником внешних финансовых поступлений. Денежные переводы мигрантов обладают экономическим потенциалом и способны оказать влияние на благополучие стран-получателей. Однако результаты предыдущих исследований, выполненные на примере различных эмпирических данных, достаточно противоречивы. Кроме того, взаимосвязь между денежными переводами мигрантов и экономическим ростом не была изучена на примере стран бывшего Советского Союза. Это может быть связано с тем, что бывшие советские республики не учитывали денежные переводы мигрантов в платежном балансе. Целью данной работы является исследование влияния денежных переводов на экономический рост на примере стран бывшего Советского Союза за период с 2002 по 2010 гг. на основе анализа панельных данных. Наш анализ включает в себя одиннадцать стран, за исключением России и тех республик, в которых денежные переводы мигрантов не учитываются (Туркмения, Узбекистан, Эстония). Результаты исследования позволяют сделать вывод, что переводы мигрантов непосредственно не способствуют экономическому развитию анализируемых стран бывшего Советского Союза. В такой ситуации мигранты выступают в качестве альтруистических индивидов, и их финансовые взаимоотношения с членами своих семей в странах выхода реализуются в условиях асимметрии информации. Считаем, что полученные результаты обусловлены спецификой используемых для анализа данных. Анализ базируется только на данных официальной статистики по переводам, отражаемых в платежном балансе рассматриваемых стран. Не принимаются во внимание неучтенные и неформальные потоки иностранных поступлений, которые могут составлять более половины всех денежных переводов мигрантов по всему миру в целом и в страны бывшего Советского Союза в частности.

Ключевые слова: миграция, рынок труда, денежные переводы, платежный баланс, экономический рост, бывшие советские республики, модель неоклассического роста, асимметрия информации, эконометрическое моделирование, анализ панельных данных.

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