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# MIGRATION AND REMITTANCES – CASE STUDY ON ROMANIA

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ABSTRACT: One of the most studied topics of each time in economics refers to the economic growth of a country and what causes it. There have been developed different theories throughout time and there have been questioned different possible relations between the growth rate and different variables. A highly debated causality refers to migration, remittances and growth, therefore, in this context, through this paper it is analysed the impact of remittances upon Romania's economy. The subject discussed is a very present-day issue that Romania is facing, so it is important to determine both the short-term and the long-term effects of the phenomenon. The paper builds mathematical models for testing the correlation between the growths of Romania (measured as GDP/capita).
KEYWORDS: Migration, remittances, GDP/capita, growth, Romania, emigrants, foreign direct investments

## ❖ INTRODUCTION

In the past couple of years migration has become a very hot topic of debate and analysis, as it is an ever growing component of contemporary society. It is considered a factor for stimulating global markets but also an instrument for regulating imbalances on the regional and local labour markets. Work related migration is today the most dynamic form of circulation.

One of the main positive consequences of international migration refers to remittances, financial transfers to the senders' country of origin, which are often seen as a compensation for the brain drain phenomenon and human capital outflow. Remittances increase the country's income from external sources and, as a result, not only does the living standard of the recipients grow but so does the level of local economic development, through consumption and investment. However, there isn't a consensus concerning their contribution to economic growth and new job creation.

In what concerns Romania, the transition period following 1990 led to significant restructuring, mainly throughout industrial markets. One can go as far as the disappearance of some industrial branches, bankruptcies and an overall destabilisation process for the country's economy in general. Financial problems led to a mass migration to countries like Italy or Spain. Temporary jobs abroad can be considered an adaptive strategy for almost 100% of Romanians. Once visas for EU entry were eliminated, labour related migration became one of the most important phenomena for social change in the country.

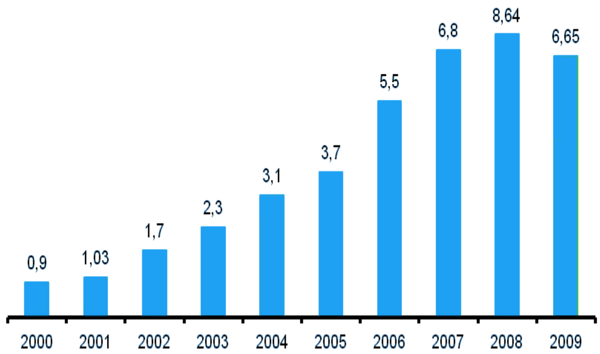
As for remittances, Romania is in the worldwide top ten and in the top at European level concerning the money sent by Romanians working abroad according to a UNDP (United Nations Development Programme) report of human development. Still, in the past 2 years remittances have significantly dropped for different reasons. As such this articles sets out to estimate the impact of this decrease.

## ❖ METHODOLOGY AND DISCUSSION. FIRST STEPS – HOW THE PHENOMENON STARTED TO SPREAD

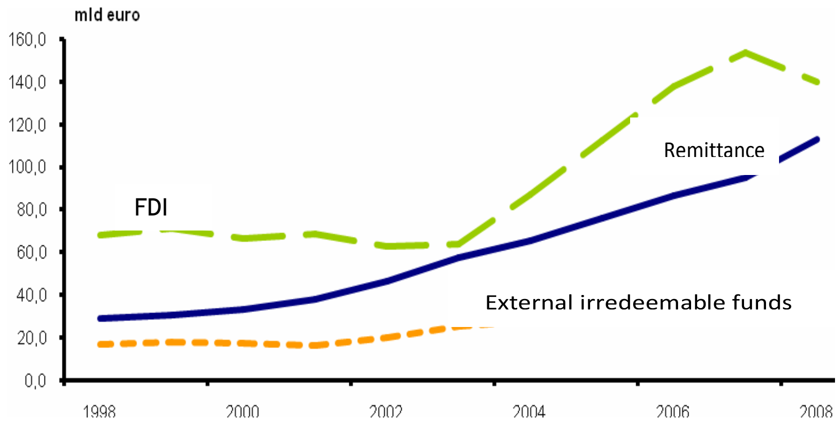
Migration has multiple causes, but the main one relates to the desire for financial comfort, and this is possible through emigration due to international wage differences. Other reasons wide spread in the Romanian society are the need for professional statement, the desire to provide a bright future for children or just young people characteristic need for independence. The real number of the Romanian population that chose the path of migration at this time is not known. Figures and official records say that almost 900,000 people left. The data provided by a study done by Romanian Academic Society [2], quotes the International Labour Organization which states that "approximately 47% of Romanians who work abroad have not had legal forms of employment (2004)".

Italian and Romanian authorities estimate more than 2,000,000 Romanian immigrants. The fact is that in Italy, even if the exact numbers are not known, Romanians are first among legal immigrants (a total of 555,997 persons). The number of illegal immigrants is not known but it is estimated that it would only be around 1.5 million.

Romanian migrants, although neglected by the authorities, are becoming more potential agents of development. Their private transfers (remittances) increased significantly to 0.9 billion Euros in 2000, from 1.03 billion in 2001 to 5.5 billion Euros in 2006 and 6.65 billion in 2009. The peak was reached in 2008 with a value of EUR 8.64 billion (see Chart 1). Such transfers tend to exceed the volume of foreign investments in 2007, at around 7.1 billion Euros (according to National Bank). Better managed labour migration would stimulate social development concerning personal, family and community levels, leading to a reduced rate of unemployment and poverty.




Source: National Bank of Romania
Chart 1. The evolution of direct transfers (remittances in billion lei)




Note: The graph is computed at global level and it shows the external private funds that are sent to this countries.
Source: Migrant remittances to developing countries [3]
Chart 2. External funding in developing countries

In this chart we can easily see the evolution of remittances from 2000 until the year 2009. In the year 2009 there was a decrease in remittances due to the financial crisis. Estimates show a strong decrease in 2010. In this context, the most important question that arises is what will be the effect of a decrease in remittances on the Romanian economy on the short, medium and long term. There are no relevant studies to indicate those aspects which make this question a difficult problem to quantify.

In Chart 2 we find an overview of the migratory phenomenon, which highlights the magnitude of the phenomenon at a global level. Developing countries are those that contribute most, with a rate of 87% of international migration, mainly because of poverty and low living standards. This chart is very relevant to link the main incoming funds in a country, i.e. non-reimbursable external funds, foreign direct investment and remittances. As can be seen from the chart, the level of remittances between 2003 and 2008 was very close to the level foreign direct investment, which means that the importance of remittances has increased dramatically in recent years.

The main cause for remittances is empathy, but the reasons behind these transfers can be classified thus:

- *endogenous* - those pertaining to migrants themselves, given an empathic attitude toward family and close ones back home. The level depends on the type of migration: temporary or permanent, migrant education and skills, etc)
- *exogenous* - those pertaining to the external environment, such as security in the transmission of funds, a reduction or cancellation concerning transfer charges, the geographical distribution of migrants and between differences in GDP between the country of origin and destination.

## THE EFFECTS OF MIGRATION AND REMITTANCES

It's hard to find a phenomenon that can produce a more complex set of economic effects than migration on the countries from which people migrate. As remittances are the most visible result of migration, we take two independent phenomena. The image below illustrates the main economic impacts of migration and remittances, emphasizing the positive and negative effects (Figure 1).

As observed in the graph presented above (Figures 1), remittances represent the second largest source of external financing after foreign direct investment (FDI) in the economy. Without this revenue, Romania's current account deficit would have been 21% by the end of 2008 instead of 16%. These remittances cover a shortfall of income, basic daily needs, ensure access to services, increase the standard of living and are believed to support growth in the country of origin of the worker. With the increase in imports generated by a consumer supported by remittances, and increased state budget revenues through import duties and taxes on consumption. At the same time, rising real interest rates and thus lowering the value of public debt, lower unemployment and hence the state-supported social services, benefit the country of origin of migrants.

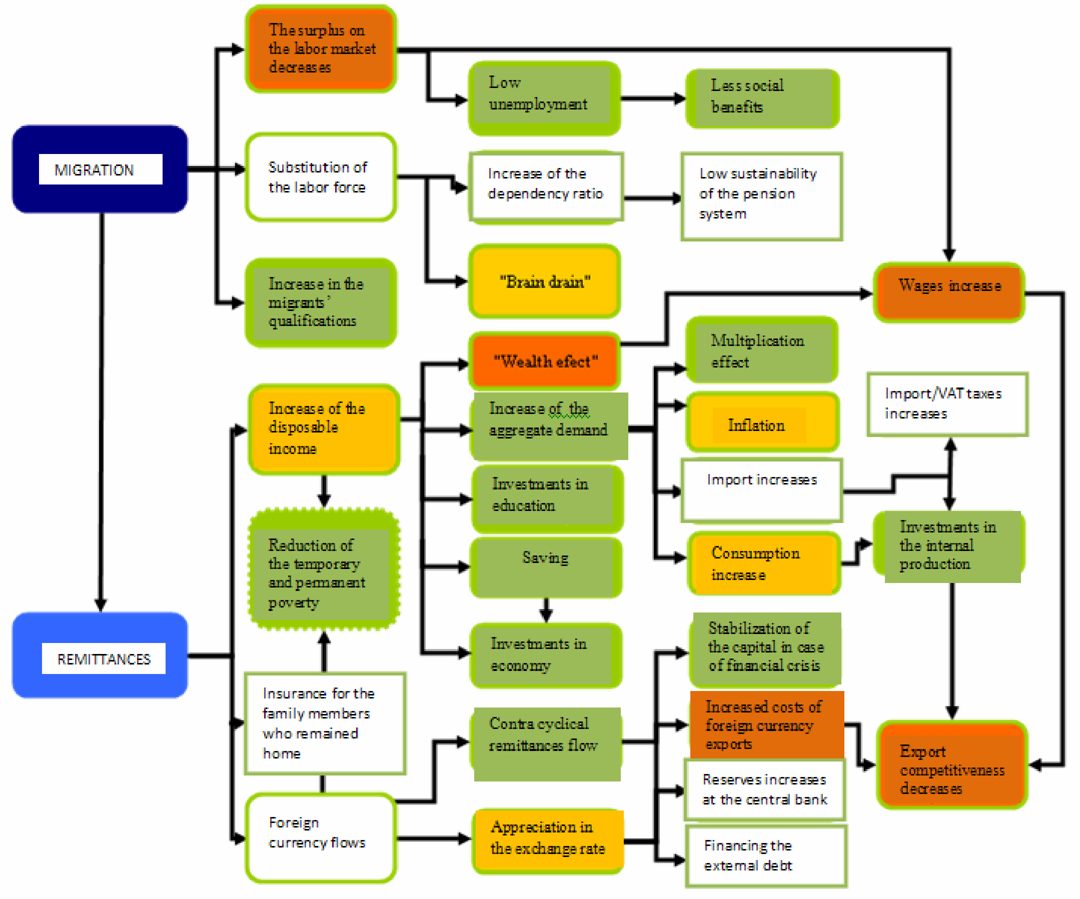



Figure 1. The economic effects of migration and remittances on the economy
Note: Green indicates the positive effects and orange the negative effects. Yellow represents the debatable elements in the branch literature. Source: Alexandru Culiuc[4]

Corresponding to the above, we can say that remittances are desirable in an economy and undoubtedly, remittances lead to a short-term positive impact by filling the needs of households participating in the scheme. The effects are further propagated in the economy through the multiplication effect - a large part of remittances is used to purchase goods and services. Three studies from different countries identify the values of this multiplier, ranging from 1.24 (Bangladesh - Stahl and Habib[5]) 1) to 3.2 (study from Mexico - and Taylor Adelman[6]).

Looking at the long-term contribution of remittances to economic growth we find conflicting opinions in literature. As these foreign funds increase, officials record levels, and the academic community fails to reach a consensus on the long-term impact of remittances on the economy and its development. The link between remittances and economic development has been a constant topic of debate in recent decades between migration researchers. While some authors and organizations say that it has a positive impact by developing regions of origin, other researchers are more sceptical. In principle, if we consider the brain drain, migration process is one that adjusts itself. If we take a region that has a surplus labour market, it will undergo a migration process until the market in that region will reach equilibrium.

However, there are a substantial number of disadvantages produced by high remittances, such as: feeding inflation, reduced interest in work on behalf of the beneficiaries, the social impact on family members remaining in the country of origin. In 2005, 9% of all households in an independent study declared that they have at least one family member abroad. In 2007 around 14% of all households in Romania had migratory experience.

## ❖ REMITTANCES AND ECONOMIC GROWTH

One way to assess the growth of a country is to measure the progress of GDP per capita. The chart below shows the comparative evolution of the indicator in Romania, Hungary and Bulgaria over the 1990 – 2008 period.

According to the graph above, we can say with certainty that the transition to a market economy had a positive effect on Romania's economic growth. But the question is how much did remittances contribute to this growth? Remittances help to influence the economy, and hence economic growth, through several channels of influence. An indicator that is part of GDP, and is influenced by direct transfers, is household consumption.

Increased consumption can directly affect the economy because a high aggregate demand stimulates domestic production. Thus, the economy grows. But we cannot speak for the large demand made on the basis of imports.

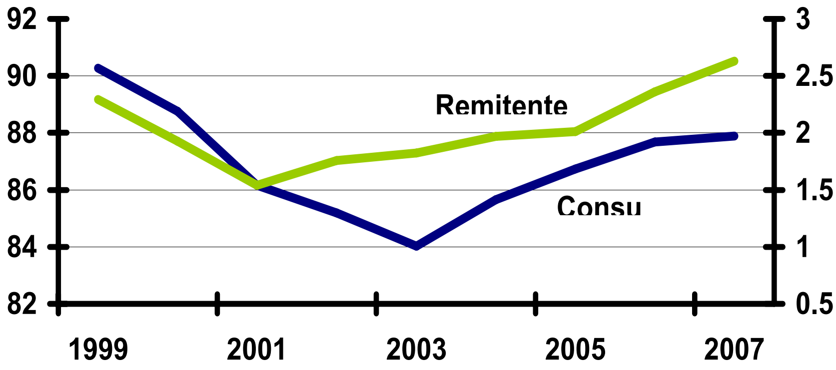



Chart 4. Evolution of consumption and remittances (real values). Source: IMF

"Dutch disease" is another issue closely related to imports and exports which also takes the form through currency appreciation. The leu appreciated in the period 2004-2008, depreciating in 2009 and then stabilizing. Thus, one can say that the national currency follows the remittances trend, but we cannot say with certainty that this assessment is an effect caused by remittances.

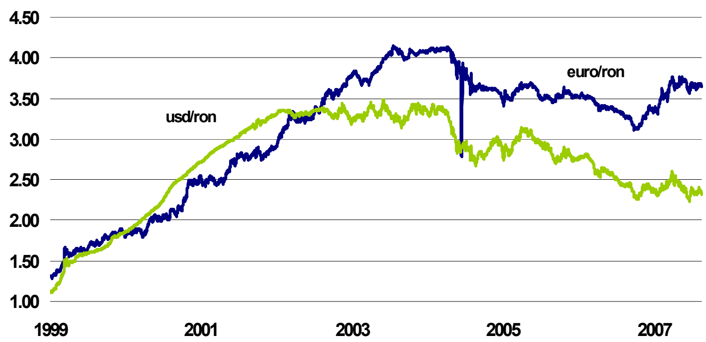



Chart 5. The evolution of the exchange rate. Source: National Bank of Romania

In what follows, I tried to highlight the link between remittances and GDP per capita, using annual data over the period 1990-2006 for remittances, GDP per capita, FDI and the number of migrants. All the following correlations and regressions are made using the EViews 5 statistical package.

In the first instance, I made the chart below to illustrate the direct relationship between remittances and GDP per capita. As far as it can be seen, it would seem that there is a direct linear correlation between the two variables.

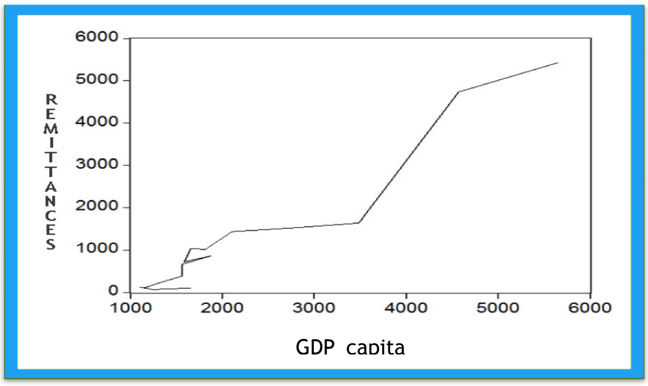



Chart 6. Correlation between GDP/capita and remittances

Through the simple unvaried regression, using the method of least squares we obtained the data found in the table below. These data reinforce the assumption that between GDP per capita and remittances there is a direct linear correlation. The high R-squared (0.9325) shows how much variation can be explained by variation of GDP/capita by remittances and zero values for samples and F-statistic indicates the validity of the model and that the two coefficients are statistically significant.

By slightly complicating the model, we want to see how much of the growth is due to remittances, foreign direct investment, namely the number of emigrants. For this, we used a multivariate regression, with GDP per capita as dependant variable and FDI and the number of migrants as independent variables.

It is noted that the parameter is statistically significant number for only 10% level of significance, but for α = 0.05, this is not statistically significant. In this model, the greatest influence on economic growth is due to, as expected, foreign direct investment. The influence of the number of immigrants is very low.

Trying to improve the model, we removed the number of migrants from the variables. We obtained a model that explains the GDP per capita variable proportion of 95.6%, both parameters being statistically significant for a significance level of α = 0.05.

Table 1. Univariate simple regression between GDP per capita and remittances
Dependent Variable: GDP_CAPITA

Method: Least Squares
Sample: 1990 2006
Included observations: 17

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| REMITTANCES | 0.795212 | 0.055205 | 14.40459 | 0.0000 |
| C | 1187.173 | 106.4590 | 11.15146 | 0.0000 |
| R-squared | 0.932582 | Mean dependent var | | 2154.437 |
| Adjusted R-squared | 0.928087 | S.D. dependent var | | 1270.151 |
| S.E. of regression | 340.6104 | Akaike info criterion | | 14.60949 |
| Sum squared resid | 1740232. | Schwarz criterion | | 14.70751 |
| Log likelihood | -122.1806 | F-statistic | | 207.4921 |
| Durbin-Watson stat | 1.871687 | Prob(F-statistic) | | 0.000000 |

Table 2. Multivariate regression between GDP per capita and remittances, FDI and number of emigrants

Dependent Variable GDP_CAPITA
Method: Least Squares
Date: 04/16/10 Time: 03:41
Sample: 1990 2006
Included observations: 17

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| REMITTANCES | 0.491389 | 0.112900 | 4.352437 | 0.0008 |
| FDI | 4.190867 | 1.327508 | 3.156943 | 0.0076 |
| EMIGRANTS | 0.006020 | 0.003390 | 1.776025 | 0.0991 |
| | 1017.110 | 127.5061 | 7.976951 | 0.0000 |
| R-squared | 0.964627 | Mean dependent var | | 2154.437 |
| Adjusted R-squared | 0.956464 | S.D. dependent var | | 1270.151 |
| S.E. of regression | 265.0217 | Akaike info criterion | | 14.19982 |
| Sum squared resid | 913074.2 | Schwarz criterion | | 14.39587 |
| Log likelihood | -116.6985 | F-statistic | | 118.1696 |
| Durbin-Watson stat | 1.323489 | Prob(F-statistic) | | 0.000000 |

Table 3. Multivariate regression between GDP per capita, remittances and FDI
Dependent Variable: GDP_CAPITA
Method: Least Squares
Sample: 1990 2006
Included observations: 17

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| REMITTANCES | 0.488657 | 0.121264 | 4.029700 | 0.0012 |
| FDI | 3.859385 | 1.411826 | 2.733611 | 0.0162 |
| C | 1189.265 | 88.98187 | 13.36525 | 0.0000 |
| R-squared | 0.956044 | Mean dependent var | | 2154.437 |
| Adjusted R-squared | 0.949764 | S.D. dependent var | | 1270.151 |
| S.E. of regression | 284.6826 | Akaike info criterion | | 14.29941 |
| Sum squared resid | 1134619. | Schwarz criterion | | 14.44645 |
| Log likelihood | -118.5450 | F-statistic | | 152.2497 |
| Durbin-Watson stat | 1.222042 | Prob(F-statistic) | | 0.000000 |

## ❖ CONCLUSIONS

There are many studies on migration and remittances, but most of them deal with the short-term effects of these phenomena. There is a long debate regarding long-term effects and conflicting results in different places.

In my opinion, through a rigorous economic analysis we could establish long-term effects of remittances at the local level, but generalising the results for all countries is extremely difficult if not impossible, due to differences that occur from country to country .

In the present study, it was tested if there is a link between the amount of remittances and GDP per capita and calculated its power and sense of connection. There were also taken into account two other factors, FDI and the number of migrants. The result is that in Romania, for the set of data from the period 1990-2006, FDI and remittances strongly influence the value of GDP per capita, whereas the impact of the number of migrants is not significant. Since the estimated relationship between GDP per capita and remittances is direct and linear in the period following the decrease of remittances, we can expect a decrease in GDP/capita to a certain extent due to reduced remittances.

In the short term, reduced remittances will lead to a lower level of consumption, leading to a decrease in state revenue (lower import duties and taxes on consumption). There are also chances of an increased budget deficit, which is not desirable, especially taking into consideration external debt, which should cover it. However, on the long term, with the decrease in remittances, inflation is no longer threatened if the other conditions remain the same.

As with any economic process, there is a trade-off between short and long term even between different phenomena such as inflation and unemployment characterized by the Phillips curve. What matters, ultimately, is achieving a balanced state, identifying the optimal level for both long term and short-term ones.

In conclusion, I believe that a certain level of remittances is good for any developing economy, but when this level is exceeded and constantly becomes higher, it can become a risky phenomenon on the long term.

## ❖ ANNEX

The data used for the regression can be found in the tables bellow and was taken from the National Institute of Statistics, Eurostat and IMF websites.

| Obs | PIB/CAPITA ($) | REMITTANCES (mil $) | FDI MIL LEI PRICES 1990 | EMIGRANTS (no. people) |
|---|---|---|---|---|
| 1990 | 1650.330 | 102.0000 | 0.000000 | 96929.00 |
| 1991 | 1244.200 | 69.00000 | 1.750000 | 44160.00 |
| 1992 | 1100.980 | 122.0000 | 4.270000 | 31152.00 |
| 1993 | 1158.480 | 116.0000 | 3.750000 | 18446.00 |
| 1994 | 1322.980 | 234.0000 | 6.290000 | 17146.00 |
| 1995 | 1564.180 | 392.0000 | 7.200000 | 25675.00 |
| 1996 | 1562.880 | 613.0000 | 9.340000 | 21526.00 |
| 1997 | 1564.510 | 662.0000 | 8.470000 | 19945.00 |
| 1998 | 1871.550 | 858.0000 | 6.930000 | 17536.00 |
| 1999 | 1584.840 | 722.0000 | 9.270000 | 12594.00 |
| 2000 | 1650.970 | 1024.000 | 124.3700 | 14753.00 |
| 2001 | 1815.500 | 1019.000 | 149.9000 | 9921.000 |
| 2002 | 2101.740 | 1437.000 | 126.9800 | 8154.000 |
| 2003 | 2736.970 | 1517.000 | 170.9300 | 10673.00 |
| 2004 | 3481.200 | 1640.550 | 256.6700 | 13082.00 |
| 2005 | 4568.880 | 4733.000 | 306.2800 | 10938.00 |
| 2006 | 5645.240 | 5417.564 | 440.8700 | 14197.00 |

## ❖ REFERENCES


[1.] Ratha Dilip (2003), „Worker Remittances: An Important and Stable Source of External Development Finance”, in *Global Development Finance: Striving for Stability in Development Finance*, Washington, DC: International Monetary Fund

[2.] Analysis and Prognosis Report, edited by Romanian Academic Society

[3.] Global development finance – edited by World Bank, International Monetary Fund – balance of payments

[4.] Integrating migration and remittances into a development strategy. The case of Moldova, Alexandru Culuic, 2006.

[5.] The Impact of Overseas Workers' Remittances on Indigenous Industries: Evidence from Bangladesh, The Developing Economies, Stahl and Habib, 1989.

[6.] Is structural adjustment with a human face possible? The case of Mexico, Journal of Development Studies, Adelman si Taylor, 1992.

[7.] Insan Tunali, "Rationality of Migration", International Economic Review, Vol. 41, No. 4 (Nov., 2000), pp. 893-920, Published by: Blackwell Publishing for the Economics Department of the University of Pennsylvania and Institute of Social and Economic Research -- Osaka University

[8.] World Investments Report 2009, Transnational Cooperation, Agricultural Production and Development, United Nations, New York and Geneva, 2009

[9.] www.bnr.ro

[10.] www.insse.ro

[11.] ec.europa.eu/eurostat

[12.] www.imf.org