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Development and side effects of remittances in the CIS countries: the case of Republic of Moldova

**Alexandru Stratan
Marcel Chistruga
Victoria Clipa
Alexandru Fala
Viorica Septelici**

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CARIM-East
Creating an Observatory of Migration East of Europe

Research Report
CARIM-East RR 2013/25

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European University Institute
Badia Fiesolana
I – 50014 San Domenico di Fiesole (FI)
Italy

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CARIM-East – Creating an Observatory East of Europe

This project which is co-financed by the European Union is the first migration observatory focused on the Eastern Neighbourhood of the European Union and covers all countries of the Eastern Partnership initiative (Belarus, Ukraine, the Republic of Moldova, Georgia, Armenia and Azerbaijan) and Russian Federation.

The project's two main themes are:

- (1) migration from the region to the European Union (EU) focusing in particular on countries of emigration and transit on the EU's eastern border; and
- (2) intraregional migration in the post-Soviet space.

The project started on 1 April 2011 as a joint initiative of the European University Institute (EUI), Florence, Italy (the lead institution), and the Centre of Migration Research (CMR) at the University of Warsaw, Poland (the partner institution).

CARIM researchers undertake comprehensive and policy-oriented analyses of very diverse aspects of human mobility and related labour market developments east of the EU and discuss their likely impacts on the fast evolving socio-economic fabric of the six Eastern Partners and Russia, as well as that of the European Union.

In particular, CARIM-East:

- builds a broad network of national experts from the region representing all principal disciplines focused on human migration, labour mobility and national development issues (e.g. demography, law, economics, sociology, political science).
- develops a comprehensive database to monitor migration stocks and flows in the region, relevant legislative developments and national policy initiatives;
- undertakes, jointly with researchers from the region, systematic and *ad hoc* studies of emerging migration issues at regional and national levels.
- provides opportunities for scholars from the region to participate in workshops organized by the EUI and CMR, including academic exchange opportunities for PhD candidates;
- provides forums for national and international experts to interact with policymakers and other stakeholders in the countries concerned.

Results of the above activities are made available for public consultation through the website of the project: <http://www.carim-east.eu/>

For more information:

CARIM-East

Robert Schuman Centre for Advanced Studies (EUI)

Convento

Via delle Fontanelle 19

50014 San Domenico di Fiesole

Italy

Tel: +39 055 46 85 817

Fax: + 39 055 46 85 770

Email: carim.east@eui.eu

Robert Schuman Centre for Advanced Studies

<http://www.eui.eu/RSCAS/>

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Abbreviations

BOP	Balance of Payments
CASE	Center for Social and Economic Research
CPI	Consumer Price Index
FDI	Foreign Direct Investments
GDP	Growth Domestic Product
IMF	International Monetary Fund
IOM	International Organization for Migration
NBM	National bank of Moldova
NBS	National Bureau of Statistics
NEER	Nominal Effective Exchange Rate
REER	Real Effective Exchange Rate
SDR	Special Drawing Rights

Abstract

Migration is a longstanding phenomenon. However, the impact of remittances on the countries of origins, makes migration a topic of special interest for many researchers. In the Republic of Moldova remittances have become a much discussed and much analyzed subject, Moldova ranking among the economies with the highest share of remittances in terms of GDP. What is more, remittances, unlike FDI, external trade and other sources of income, seem to have a significant impact on economic growth. Within the present work an attempt has been made to capture the positive and negative spillovers that migrants' remittances have on a country's socio-economic development. The study summarises previous findings and data sources related to remittances and their influence on the economy. Moreover, authors investigate the link between remittances and economic growth, investments, inflation, employment, human capital and poverty. The study combines the theoretical background with an analysis of the real trends and fluctuations in the Moldovan economy.

Абстракт

Миграция существует уже в течение очень длительного периода времени, однако ее масштабы и влияние, которые она оказывает на страну происхождения мигрантов посредством переводимых ими денег (термин, известный в англ. литературе как *remittances*), представляет особый интерес для многих исследователей. В Республике Молдова денежные переводы стали предметом оживленного обсуждения и анализа, принимая во внимание, что страна входит в группу стран с самой высокой долей денежных переводов в ВВП. Более того, этот внешний финансовый поток, в отличие от прямых иностранных инвестиций, внешней торговли и др., оказывает значительное влияние на экономический рост. В рамках данной работы были сделаны попытки представить положительное и отрицательное воздействие денежных переводов на социально-экономическое развитие страны. Исследование анализирует и обобщает выводы предыдущих разработок, опираясь на источники данных, связанные с денежными переводами и их влиянием на экономику. Кроме того, авторы изучают связь между денежными переводами и экономическим ростом, инвестициями, инфляцией, занятостью, человеческим капиталом и бедностью. Исследование сочетает в себе теоретические основы и анализ реальных тенденций и колебаний в экономике Молдовы.

Executive summary

Despite the magnitude and in, some cases, the major role remittances do have in many economies all over the world, the monitoring and estimation of these flows, as well their impact on home economies pose a lot of challenges for specialists in this area. We found that, concerning Republic of Moldova, no data exists on the real volume of the money transfers made by Moldovan emigrants to the country. All data rely on indirect measures produced by local and international institutions and think tanks that can be used to make an approximation of the volume of these flows, their structural characteristics and spillovers on country's social and economic development. The main sources in this context are: the Balance of Payments elaborated by the National Bank of Moldova that is considered the most relevant source to make an estimation of remittances' volume; the Household Budget Survey carried out by the National Bureau of Statistics (NBS) that presents data on remittances share on resident households income. Besides these statistical data, there exists many surveys elaborated using various qualitative research methods that captures many aspects of migration and remittances phenomenon in Republic of Moldova.

General trends of remittances to Republic of Moldova. The large migration outflows in the late '90 determined by critical social and economic situation have generated significant inflows of remittances – that represent additional foreign currency in the economy. Over time they have become an important source of income of emigrant's families and a relevant factor of national economy development. Their value amounts to 1611.7 million USD in 2011, exceeding considerably the FDI and ODA inflows that constituted, approximately, 274 million USD and, accordingly, 470.4 million USD (2010). Remittances form near 51% of FDI stock in the economy and 72.5% of earnings obtained from exports. A slight slowdown in remittances growth since the second half of the last decade caused a reduction of their share in GDP, from 35% in 2006 to 23% in 2011, yet Republic of Moldova ranks the third country in the region of Europe and Central Asia as regard remittances' weight in GDP and their per capita value. Despite severe economic conditions in the last years in the European countries were a great part of Moldovan emigrants work, they seem to be an enough resilient currency' inflow, fact determined by their general countercyclical character and the relative stability of Russian economy, from where originates 58.4% of remittances made in Republic of Moldova in 2011.

Remittances fuel consumption and because of scarce national production capacities, the imports increase in the same sense as remittances. It is hard to quantify how much of remittances are consumed on national products and on foreign. Thus our analysis depicted that restricting in the short-run the influence of GDP to the inflow of remittances gives moderate reactions to GDP. This can be attributed to a sort of altruistic behaviour of the migrants. Indeed, relaxing the restriction of short-run influence of remittances on GDP and restricting it in the long-run directs the conclusion that remittances have an altruistic cause¹. The IRF showed a moderate influence of remittances to economic growth, it can be partially explained by the fact that because of the consumption and imports the net effect of remittances on Moldova economic growth is small.

Otherwise, we should assume that the influence is bigger since it allows in the short-run for remittances to be influenced by investments. It is explained by the fact that remittances influenced the construction sector in Moldova.

Surprisingly, as it is, although we showed and argued that remittances fuel consumption still a part is channelled to investments. The influence, although relatively small, was clearly captured by the SVAR models used. What is more surprising is that migrants send more when investments are increasing. Partially, the explanation is attributed to the construction sector and the boom that followed after year 2000, when remittances exploded. Another cause can be because of the high propensity to

¹ However, these conclusions should be interpreted carefully. We would assume that this are first evidence, but other explanations are also valid.

consumption which, in turn, increased investments in retail and wholesale sectors. And, finally a plausible explanation is related to the fact that investments in banking sector increased after remittances boosted. Although, as shown in this paper, investments are constrained by financial development, it did not restricted investing in the sector and using in other operations the excessive reserve of the system.

The effect of remittances on inflation can be viewed from different perspectives. Under a flexible exchange rate regime, the resulting effect of a large inflow of remittances will be appreciation of the exchange rate and a rising price level. The inflow of remittances determines an increase in the household income, which lead to rise of aggregate demand. The higher demand can implies rise of inflation. Also a part of demand is oriented to non-tradable goods, thus generating inflation. These effects represent so called Dutch Disease.

When large inflows of foreign currency are remitted to home country, the conversion of this foreign exchange into domestic currency raises the money supply, thus fuelling inflation.

An increase in the household income results in a decrease of the labor supply. This in turn leads to higher production costs. This can potentially result in an increase in inflation.

The VAR model shows a small influence of remittances on inflation - the maximum effect of shock in remittances by one per cent has an impact on the prices in second quarter, only by 0.015%.

The explanation of low statistical influence of remittances on price level can be explained by some reasons. There are small share of non-tradable goods in composition of CPI and their evolution capture only small influence from transmission mechanism through increasing consumption of non-tradable goods. Remittances influence inflation from demand side, while in Republic of Moldova the price level is more sensitive to supply or structural factors like: low productivity in the sectors of national economy, inefficient management of state enterprises or lack of competition. Import prices, also have a great impact on inflation. Change in the value of imported goods by 1% contribute to a 0.47% increase of price level

A part of increased consumption, caused by larger inflow of remittances was directed to non-tradable and as result in 2006-2008 (period with higher share of remittances in GDP) some non-tradable sectors had higher growth than tradable – evolution which shows that Moldavian economy had symptoms of Dutch disease. At the same time the huge share of negative net export in GDP determines depreciation of national currency and compensates appreciation pressure from remittances inflow. As a result national currency has little appreciation - in 2003-2010 periods NEER had an insignificant appreciation by 0.3% and REER had a small strengthening by 3%.

On the other hand remittances have a small influence on unemployment rate. Increase by 1% in remittances inflow lead to an rise of 0,02 percentage point of unemployment rate. Because of inconclusive statistical relation between unemployment rate and wages it is quite difficult to argue that remittances affects inflation through unemployment.

It seems that for Republic of Moldova influence of remittances on wages come from public sectors. Increased consumption results in higher tax revenues. Government tends to increase salaries for budgetary employees (at least in some years). As a result, increase of average wage was characterized by higher growth rate of salary in public sector than in non-public sector. Further the influence of wages on inflation can be analysed in relation with labor productivity. In Republic of Moldova growth of salaries is higher than rise of labor productivity², as a result unit labor cost should have a positive influence on price level. Although, there are weak statistical connection between change of unit labor cost and inflation³, increase of salaries can have some impact on price level.

² Labor productivity was calculated as ratio between value added and employed people.

³ *T-students* criteria for unit labor cost variable in some explicative regressions for inflation take values lower than

Remittances from migrants to their family raise the income of the unemployed individuals from home. This will reduce the difference between the income of the employed and unemployed in the home country, thus causing the unemployment rate to rise.

In case of Republic of Moldova, members of households who receive remittances and decide to not become full-time employees may select between part-time job and unemployed status, thus affecting labor market. Analyses show that influence of remittances is limited in case of unemployment rate and is more consistent in case of part-time employment. Remittances have a very low impact on unemployment rate. Increasing by 1% of remittances implies an increase by 0.03 percentage points of unemployment rate. Increase of remittances by 1% determines a rise of part-time workers to employed population ratio by 0.17 percentage points. Investment has the greater impact on part-time employment.

The indirect impact of remittances on unemployment through aggregate demand is more complex. It is obvious that remittances increase disposable income, and as result, directly or indirectly, is influenced positively over macroeconomic variables like consumption, investment and GDP and which finally decrease unemployment.

Remittances impact on human capital development. The remittances impact on human capital development in Republic of Moldova is at some extent ambiguous. Confirming the hypothesis that remittances contribute to reduce liquidity constraints of receiving households to finance their children's education and thus influencing positively the development of human capital, the evidence shows that especially in rural area, households receiving remittances are more likely to invest in education, the remittances share being higher in disposable income of households with children's than without. Also, since 2000 a growth in preschool education enrolment rate can be observed. However, the decrease in general compulsory education enrollment rate in the last years, the modest trends in higher education system development and the insufficiency of high qualified specialists in the labor market, including the educational system indicate that the positive spillovers of remittances on human capital are partially offset by negative effects of the mass emigration of qualified specialist, the weight of persons with secondary professional, specialized and higher education in the stock of active population left abroad to work amounting to around 50%.

Remittances have helped to reduce absolute poverty in Moldova as perceived by the households themselves. Remittances represent one of the basic sources of income for households along with wages and social payments. At the same time it remains difficult to draw conclusions on the impact of migration and remittances on income distribution.

(Contd.) _____

2. In order to consider variable explicative *T-student* should be lower than -2 or higher than 2.

Introduction

Migration exists for a very long time. However its dimensions and the great impact it has on the home country of migrants, through the money they transfer to their families, relatives, friends, term known in existing literature as remittances, makes it a topic of special interest for many researchers. In Republic of Moldova remittances became a very discussed and analyzed subject, taking account that the country ranks among the economies with the highest share of remittances in GDP. More than that, this external economic flow, unlike FDI, external trade and others, seems to have a significant impact on economic growth. Within the present work have been made an attempt to capture the positive and negative spillovers migrants' remittances may have on country's socio-economic development. At the same time should be mentioned that these work cover geographical zone of Moldova that excludes the left side of the Dniester.

Over the past few years, migration has become a highly controversial and sensitive issue. Even from the soviet period, the Republic of Moldova was involved in migration flows within the Soviet Union, witnessing various forms of labor migration. The mobility of Moldovan people within the USSR was mainly determined by people searching for higher revenues in other regions of the Soviet Union, such as the Far East, Siberia and the Far North. At the same time, inhabitants of other soviet republics used to come to Moldova to participate in the country's industrialization process. Both volunteer and non-volunteer migration strategies were used for this purpose.⁴

The massive migration started in mid-1990's in the Republic of Moldova. Though migration was a relatively new phenomenon for Moldova, the population was driven mainly by economic factors. This economically-triggered migration was commercial in nature (aiming at procuring goods from abroad and selling them on the Moldovan market) and was oriented towards such countries as: Turkey, Poland, Russia, Romania and Germany.⁵ The increased complexity of the customs control procedure, as a result of the visa regime introduction, in tandem with the balanced prices in the former communist states, decreased the profitability of commercial migration for individual migrants. As a consequence, the commercial migration was replaced gradually by the labor migration after 2000⁶, boosted by the low standards of living and lack of means of subsistence determined by extremely small salaries, due to a low demand.

In the beginning of 1990's along with economic reasons emigration of Moldovan citizens was, that fostered by the worsening of ethnic relations and emerged military conflict - Transnistrian war of 1992 year. This factor caused refugees of 100 thousand persons.

The Republic of Moldova is affected by the emigration of its citizens for (seasonal or long-term) employment purposes.⁷

According to the World Bank data, in 2010 the stock of emigrants constituted almost 770.5 thousand peoples spread in more than 50 countries all over the world (see Appendice 1). That represent near 22% of the Moldovan population and almost a quarter of the active population⁸.

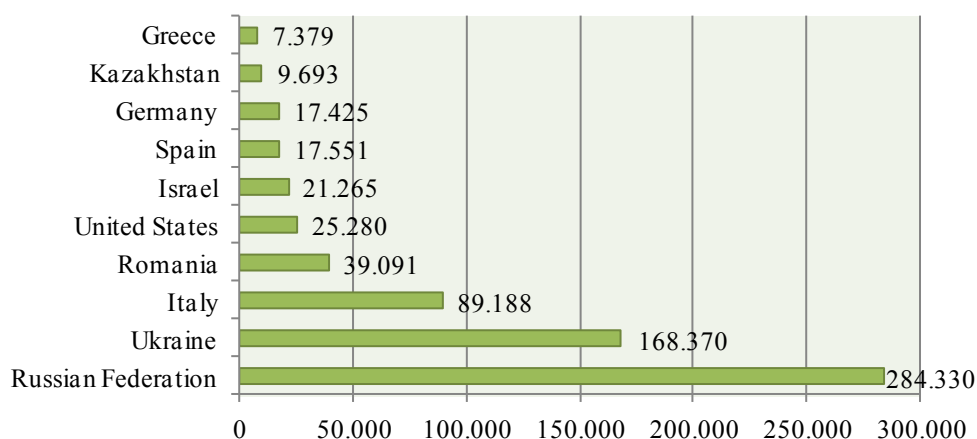
⁴ Zwager N., Gressmann W., Sintov R. (November 2010) Moldova: Market Study, Annex II, p.5. http://civis.md/Archive/IASCI%20-%20CIVIS_Anexa%20%20-%20Analiza_literaturii_Moldova_2010.pdf

⁵ Moşneaga V. referring to Евдокимова Л. Коммерческая миграция населения Республики Молдова: основные этапы и их характеристика [commercial migration of the population of the Republic of Moldova: main stages and their characteristics]. // Население Молдовы и трудовая миграция: состояние и современные формы [Population of the Republic of Moldova and labor migration: status and current forms]. – Chişinău, CAPTES, 2000, p.65-83.

⁶ Moşneaga V. (2009) Population of the Republic of Moldova in the context of current migration processes. Republic of Moldova - Transnistria: cooperation for a prosperous future, pag.156-172. Chişinău: Printing House.

⁷ Moldovan Migrants' Health. (2010) Impact of the Social-Economic Welfare. http://www.migratie.md/files/elfinder/documents/110_md_migr_health_impact_welfare_rom.pdf

Figure 1. Emigrants stock in top 10 countries of destination, 2010



Source: World Bank, Bilateral Migration and Remittances Database, disposable at: <http://www.worldbank.org/html/extdr/thematic.htm>

Migration phenomenon in Moldova can be characterized as an exodus of a great part of country's active population that of course raised a series of concerns about the further development of the economy. However in conditions when the own resources to increase significantly the population's standard of living in short and medium term are limited and the internal labor market is enough narrow, emigration can't be stopped and it became impossible to create incentive for all emigrants to return home. Or, in such conditions the best solution and the most recommended action is to analyse and take advantage of the migration spillovers on the home country's economic and social development.

The specialized literature mentions that the decreases in labor force, brain drain, and population ageing threaten the social insurance system safety. Some economists, for instance *Zwager, Gressmann, Sintov (November 2010)* state that the expectations that Moldovan migrants will return with new knowledge and experience could be unjustified, as Moldovan migrants are usually involved in low-skilled activities, which do not contribute to their professional growth. Moreover, the qualified people, such as doctors, teachers, engineers, etc., might lose their qualification due to the involvement in low-skilled activities abroad.⁹

According to *Tatarciuc A.*, migration has a negative impact on the quality of the local labor force, as the educational level of those who leave is much higher than the level of those who stay.¹⁰ *CASE (2008)*¹¹ estimates that the number of "new migrants" in the Republic of Moldova is higher in rural localities than in towns. The high rate of migration influences significantly the economic activity in the Republic of Moldova, in particular in rural localities.

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⁸ The number of Moldavians of 15 years old and over working or looking for a job abroad was 316.9 thousand in 2011, up by 1.9% compared to 2010.

⁹ Zwager N., Gressmann W., Sintov R. (November 2010). Moldova: Market Study, Annex II, p.8. http://civis.md/Archive/IASCI%20-%20CIVIS_Anexa%202%20-%20Analiza_literaturii_Moldova_2010.pdf

¹⁰ Tatarciuc A., Influence of migration on the labor market. "Public Policies" magazine, 19-23, p.20

¹¹ CASE - Center of Social and Economic Investigations Effects of Migration and Remittances in Rural Moldova and Poland's Case Study on migration management. The project is funded by the Ministry of Foreign Affairs of Poland as part of the Assistance Programme for 2008.

*IDIS Viitorul (2011)*¹² analyses the labor migration from the perspective of social protection. The social insurance system of Moldova is almost totally exempted from some payments, provided without complying with the principle of solidarity, ensuring protection only for the ensured. As a result, upon their return the people that currently work abroad will have the right to a pension only on the basis of the number of years worked in the country, or, if this number is not enough, only to the minimum pension. Thus, the social assistance system is currently facing difficulties with the provision of social aid due to the failure to monitor the revenue from remittances. In the future the returned migrants will be a burden for the social assistance system, unless they are involved in the social protection system.

The connection between migration and the social-economic state of migrants on their health status is presented in the *IOM Report (2010)*¹³, which shows that at the study moment the migrants group had the highest employment rate on the labor market, with 77.3% of them being employed fully or partially. Another differential aspect is that most migrants identified themselves as employed abroad (61.9%). In comparison with them, the employment rate of the family members that do not receive remittances was 43.6%, with the lowest employment rate among the family members that receive remittances - 38.5%. In terms of age structure, the migrants group is much younger, two thirds of them being under the age of 40 years. The average age is 36 years in case of migrants, 43 years in case of family members that receive remittances, and 47 years in the third group.

The same study shows that 6.5% of those who avoided seeing a doctor abroad stated that they were afraid to be seen by someone going to the doctor, most probably by representatives of authorities. The migrants, especially the illegal ones, are afraid that the employer will not employ them or will dismiss them when they hear about their health problems. Money is another aspect. The problem is not only the fees for medical services, but also the fact that one or even several working days might be lost when seeking medical care - a loss that a migrant cannot afford, as his/her main purpose is to earn money.

According to *CBS AXA¹⁴ studies (2007)*, the labor migration to CIS countries is usually determined by the immediate needs and poverty, whereas the migration to EU countries is mainly determined by the aspiration for a better level of living and better opportunities for migrants and their families. The migrants who target at Western countries come from families with a better social and economic state than the migrants who leave for CIS countries.

The studies made by *CBS AXA¹⁵* also show that a large part of the migrants with a low educational level migrate mainly to the CIS countries, while those from the EU countries have a higher educational level. The biggest part of migrants from Western Europe, especially from Spain, Portugal and Greece, has higher education. Only 27.3% of the Moldovan migrants work according to their qualification from the country of origin. Most of them (70.0%) are involved in activities totally unrelated with their occupation or qualification in Moldova. This causes the problem of human capital loss among the Moldovan migrants. According to a study made by the European Training Foundation, more than 60% of migrants with higher education, who returned to their native country in 2008, were involved in low-skilled works in the countries of migration¹⁶.

¹² Cantarji V., Vladicescu N. (2011) Social monitor labor migration from the Republic of Moldova: medium and long-term implications on the social insurance system, No. 11.

¹³ Moldovan Migrants' Health. (2010) Impact of the Social-Economic Welfare available at http://www.migratie.md/files/elfinder/documents/110_md_migr_health_impact_welfare_rom.pdf

¹⁴ Pantiru, M.C., Black, R., and Sabates-Wheeler, R. (2007). Migration and poverty reduction in Moldova. Sussex Center for Migration Research, Institute for Development Studies. DFID., p.15 with reference to Ghencea and Gudumac (2004)

¹⁵ Zwager N., Gressmann W., Sintov R. (November 2010) Moldova: Market Study, Annex II, available at http://civis.md/Archive/IASCI%20-%20CIVIS_Anexa%20%20-%20Analiza_literaturii_Moldova_2010.pdf pag. 51

¹⁶ European Training Foundation (ETF) (2009). Moldova: Country Report. Black Sea Labor Market Reviews, p.78

Another link between migration, training system and education and labor market is presented in *Patterns of Migration and Human Resources Development*¹⁷(2007). There are relations of cooperation between the international and local organizations, aiming at providing theoretical and technical assistance to the returned emigrants with the view of developing their entrepreneurial skills. As a rule, the returned migrants do not have practical knowledge to start up a business and need training in accounting, management, marketing and legal issues.

Omar Mahmoud et al. (2011) analyze the impact of emigration on the electoral results in the Republic of Moldova. The authors test the hypothesis that the emigration to West decreases the number of supporters of the Communist Party. For this purpose, authors analyze the correlation between the voting results at the parliamentary elections of 2009 and the emigration rates (separating the emigrations to the East from those to the West) at the community level. The analysis results show a significant negative statistical correlation between the votes for the Communist Party and the number of emigrants to the West: the communes with more emigrants to the West have voted to a lesser extent for the Communist Party. This analysis suggests that the countries of destination could accelerate the rate of political changes abroad through specific migration policies¹⁸.

One of the most relevant mean by which migration is supposed to have a great impact on the national economy are remittances.

Remittances, as the literature clearly shows, generally have a multilateral impact on key aspects of development. Although the migration process in Republic Moldova has been studied, much less attention has been paid to remittances as a complex phenomenon.

This paper seeks to fill the existing knowledge gap in the area related to complex effects of remittances on development in case of the Republic of Moldova. In order to elucidate the multiple influence of remittances this paper was divided into 8 chapters. First 2 are focused on review of literature related to remittances and statistical data on remittances available in the Republic of Moldova. The third part is dedicated to overview of remittances to the Republic of Moldova. The last 6 chapters reflect connection between remittances and different economic area, as follows:

- economic growth, investment and financial development;
- employment;
- inflation;
- human capital formation;
- poverty and income inequality.

1. Literature review (republic of Moldova)

In the case of the Republic of Moldova, the phenomenon of migration and remittances is tackled in various studies, mainly from the perspective of their impact on the social and economic development. Remittances inflow to Moldova has increased sharply during the past two decades, becoming the focus of a number of discussions and analyses made by researchers, public authorities and the entire civil society. A number of studies that reflect the different effects of remittances on the national economy were made. There are of relative unanimity among economists about the accuracy of conclusions from these investigations.

¹⁷ European Training Foundation (ETF) (2007) *Patterns of Migration and Human Resources Development*, p. 16

¹⁸ Berlinschi R., Clipa V. (2011) *Migration, remittances and development: several ideas from the recent literature and recommendations for the Republic of Moldova*, available at <http://akademos.asm.md/files/Migratii,%20remiteri%20%C5%9Fi%20dezvoltare%20.C%C3%A2teva%20idei%20din%20literatura%20recenta%20%C5%9Fi%20recomandari%20%C3%AEn%20cazul%20Republicii%20Moldova.pdf>

The most important effect of emigration, via remittances, refers to the economic growth. A number of studies illustrate the effect of remittances on the economic growth by using several hypotheses. For instance, the authors of *Business Opportunities for the Beneficiaries of Remittances Study (2010)*¹⁹ claim that the short-term economic growth in the Republic of Moldova depends highly on the flows of remittances. They increase the households' disposable revenues and, as a result, boost the consumption and tax revenues.

*Alexandru Culiuc (2007)*²⁰ states that the effect of remittances on growth through the savings and investments mechanism depends on the level of financial system development. On the one hand, an efficient financial system can channel the saved remittances towards the most lucrative projects. On the other hand, remittances can compensate the deficiencies of the financial system by eliminating the liquidity shortages whenever the financial system is not able to provide the needed funding.

*CIVIS (2010)*²¹ analyzed the link between migration and development in Moldova. One of the study conclusions is that, in spite of the limited investment opportunities provided by the Moldovan business environment, many migrants or their families, who have a certain capital, entrepreneurial spirit and are ready to assume certain risks, choose to invest. Their good will, energy and availability of capital for investments motivate them to start up new businesses. Unfortunately, the attempts to become independent and stay in Moldova fail many times, either because the business fails, or because the business does not meet the expectations. The same study shows that the returning migrants fail in their attempt to reintegrate on the Moldovan labor market. As a result, many of them migrate again.

Similarly, the authors of *Business Opportunities for the Beneficiaries of Remittances Study (2010)*²² try to identify the balance between the investment demand and potential investment offer from the flows of remittances in the Central Region of Moldova. Thus, the biggest real opportunities in industry, agriculture, constructions, services and trade were identified in the regions from the central part of Moldova, which have comparative advantages in most of these economic sectors.

Ghencea and Gudumac (2004) test the hypothesis of increased demand of remittances receiving households, which receive remittances for some non-tradable goods (services or constructions). In their study of labor migration and remittances in the Republic of Moldova confirm the assumption of increased demand of migrants' families for constructions and service that led to boosting profits of the enterprises in this sector.²³

Most of the studies analyze the correlation between remittances and unemployment. *Berlinschi and Clipa (2012)* believe that the most direct effect²⁴ of emigration on the economy of a country is the

¹⁹ This study was developed under the Encouraging Innovative Use of Remittances in Productive Rural Investments Project. The project is supported financially by the International Fund for Agricultural Development and is implemented by Business Consulting Institute (Republic of Moldova), in partnership with ProRuralInvest (Republic of Moldova) and Foundation for Economic Development and European Integration (Romania). Authors: Viorel Roşcovan, Roman Palanciuc, Veaceaslav Zaharia, Mihai Roşcovan

²⁰ Culiuc, A. (2007) Productive use of remittances Perspectives for Moldova. Disposable at: http://www.culiuc.com/papers/aculiuc_remittances_memo.pdf, pag.5

²¹ CIVIS/ IASCI (2010), Strengthening the Link between Migration and Development in Moldova, available at <http://siteresources.worldbank.org/INTECA/Resources/WBMoldovaReport.pdf> pag. 41mbx

²² Business Opportunities for the Beneficiaries of Remittances Study (2010), available at http://www.bci.md/media/files/Studiu_Oportunitati_afaceri_remitente_final.pdf pag. 8

²³ Mîsliţcaia I. (2009) Remittances for the Republic of Moldova: a way to survive or a chance to succeed? A thesis submitted in partial fulfillment of the requirements for the degree of MA in Economics, Kyiv School of Economics, available at <http://kse.org.ua/uploads/file/Remittances%20for%20the%20Republic%20of%20Moldova.pdf>, pag.6

²⁴ Berlinschi R., Clipa., V. (2011) Migration, remittances and development: several ideas from the recent literature and recommendations for the Republic of Moldova, available at <http://akademos.asm.md/files/Migratii,%20remiteri%20%C5%9Fi%20dezvoltare%20.C%C3%A2teva%20idei%20din%20literatura%20recenta%20%C5%9Fi%20recomandari%20%C3%AEn%20cazul%20Republicii%20Moldova.pdf>

decrease in the labor force. If the capital and technologies remain unchanged - the diminution of the labor force implies higher equilibrium wages and/or lower unemployment, as well as a decrease in the national output.

The specialized literature refers largely to the effect of remittances on poverty reduction and impact on the revenue distribution. *Alexandru Culiuc*²⁵ (2007) states that “the effect of migration on revenue distribution is ambiguous. On the other hand, the poor are more motivated to emigrate, whereas the rich can cover easier the emigration costs”.

The importance of remittances for household budgets is described in *Effects of Migration and Remittances in Rural Moldova and Poland's Case Study on migration management*²⁶ (2008). Thus, the households that receive remittances regard them as a main source of revenue for their household in 43.8% cases. Salaries are the main source of revenue only for 29% of households, and pensions - for 13%. Given the disproportional distribution of remittances, even if the amounts of remittances from abroad are relatively small, they are frequently regarded as the main source of revenue.

Remittances bring both benefits and costs for Moldova and its citizens. To diminish the negative effects of remittances and to strengthen and develop the advantages of this phenomenon, studies, analyses and projects were implemented via the agency of local organizations, state authorities and other studies managed by international donors. Using these studies it is possible to start analyzing various aspects of remittances - causes and flows, economic and social consequences, impact on individuals/families and society. Thus, on the basis of specialized literature and experience of other countries, projects could be implemented to encourage circular migration and temporary return of qualified migrants and remittances.

2. Data sources for recording remittances in the republic of Moldova

In spite of the fact that remittances inflows are very difficult to be estimated, due to the complexity of the phenomena, some data sources exist that can be relevant in analyzing them. The main source in this context is the Balance of Payments that is used most often to account the value of remittances, it being considered as well the most reliable. The BOP is elaborated by the National Bank of Moldova and published quarterly and annually online²⁷.

In the Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual (BPM 6), Appendice 5 (IMF, 2009) and International Transactions in Remittances: Guide for compilers and users (IMF, 2009), IMF proposes new recommendations on estimating personal remittances. However, taking into account that NBM is still elaborating the Balance of Payments based on the fifth edition (except the SDR allocations item that is recorded according the Sixth Edition of the IMF's Balance of Payments and International Investment Position Manual) (NBM, 2010) recommendations, remittances in Republic of Moldova are calculated taking into consideration the following three components of the BOP:

- **Personal transfers** (component of the current account). These transfers are one direction transfers and consist of current transfers made by migrants who are employed in new economies and considered residents²⁸ there;

²⁵ Culiuc A. (2007) Productive use of remittances Perspectives for Moldova, http://www.culiuc.com/papers/aculiuc_remittances_memo.pdf, pag 3

²⁶ Center of Social and Economic Investigations Effects of Migration and Remittances in Rural Moldova and Poland's, CASE Study on migration management. 2008. pag.31

²⁷ http://www.bnm.md/en/balance_of_payments

²⁸ According to *BPM 6*, “the residence of households is determined according to the center of predominant economic interest of its members.” The general guideline for applying this principle is “being present for one year or more in a territory or intending to do so is sufficient to qualify” as being a resident of that economy.

- **Compensation of employees** (component of the current account). The chapter includes the income of border, seasonal, and other short-term workers who work in an economy where they are not resident as well as the income of resident workers who are employed by a nonresident entity in the home country;
- **Migrant transfers** (component of the capital account). It refers to capital transfers of financial assets of migrants while moving from one country to another and intending to stay more than a year (J. Reinke, 2007).

Remittances are defined as “household income from foreign economies arising mainly from the temporary or permanent movement of people to those economies.” (IMF, 2009) A similar definition can be found at International Organization for Migration (IOM) that associate migrant remittances to monetary transfers that a migrant makes to the country of origin or in other words, financial flows associated with migration. Considering the above definitions and the existing methodology for evaluating remittances at the national level, some shortcomings can be identified:

1. First of all, the remittances inflows counted according the BOP accounts reflect only the official transactions, while a great part of remittances’ inflows are supposed to take place through informal channels²⁹;
2. Into the compensation of employees category are included as well wages received by residents working in nonresident organizations in the home country, embassies etc., that cannot effectively be qualified as migrants. As well, the total amount of employees compensation is recorded within this subcategory, it may be not remitted entirely in the home country;
3. Personal transfers include all individual to individual transfers between residents and nonresidents, so they are not limited to migrants’ transfers that can overestimate the volume of remittances

As mentioned above, the BOP records give the most exact data on the remittances size. However, «The household budget survey” carried out by the National Bureau of Statistics (NBS) presents some issues that can be used to analyze other aspects of remittances or rather their impact on the population living standards. The present survey doesn’t estimate the total amount of remittances inflows, but it reflects the remittances’ share in households’ income. The survey covers all resident households /individuals across the territory of the country. All members of the selected households are subject to registration, including those absent for an extended period (over 1 year) if they maintain family ties with the household to which they belong.

The data are disaggregated according the urban or rural residence; geographical zone, excluding the left side of the Dniester; socioeconomic status: farmers, employees in the agricultural sector, employees in the non-agricultural sector, retired persons and others; family structure etc. The data for the survey are collected monthly and statistics data are elaborated and disseminated quarterly and annually on the NBS³⁰. However some conclusions can be made on the importance of remittances for different categories of households, as in the case of remittances’ data extracted from the Balance of Payments, they are to some extent underestimated. An argument in this respect is that the respondents usually hesitate to declare their real incomes during the interviews and the survey (Matthias Luecke, Toman Omar Mahmoud, Pia Pinger; 2007).

The statistical data offered regularly by NBM and NBS can be supplemented by other relevant studies. Many surveys have been held focused on analyzing migration and remittances’ patterns in

²⁹ No data exists on the volume of informal flows of remittances, however according to the IOM-CBS Axa panel household survey on labor migration and remittances almost 40% of migrants make their transfers through personal means or by other informal channels like (bus drivers, conductors and others).

³⁰ <http://statbank.statistica.md/pxweb/Database/RO/04%20NIV/NIV01/NIV01.asp>

Republic of Moldova. Despite they apparently address the main issues and use mainly the same research techniques: surveys and interviews; their findings are rather complementing each other, focusing on aspects and target group that may vary. In this context can be mentioned "The Moldovan National Public Opinion Survey on Remittances" conducted from December 16th to January 16th, 2007 by the European Bank for Reconstruction and Development and their partner Bendixen & Associates. The results are based on a sample size of 2,073 Moldovan adults. Within the survey were addressed a wide range of aspects relating to migration and remittances as their demographics (age, sex, region, level of education etc.), linkages between senders and recipients, channels and frequency of transfers, purposes for which the household income sourced from remittances is expended, the remittance recipients confidence in the national banking system, their investment potential and others (EBRD, 2007).

"The panel household survey on labor migration and remittances" conducted by the International Organization for Migration and the Center of Sociological Investigations and marketing Researches - CBS AXA that is available for the years 2002-2004 and 2006-2008. The 2008 survey is the second wave of the panel survey, re-interviewing the approximately 4000 households first surveyed in 2006. It focuses more on analyzing migration trends and structure, however some issues related to remittances was addressed as well: their impact on poverty reduction and households' welfare, on consumption growth, channels of remittances transfer to Moldova etc. (Matthias Luecke, Toman Omar Mahmoud, Andreas Steinmayr, 2009);

Also, CBS AXA has held another survey which aim is to evaluate the impact of migration and remittances on behavior of rural households and localities. The research was conducted on a representative sample of 1537 people aged 18 years and over from rural areas (CASE, 2008).

More recently, there was performed one more study in the area by the Centre of Sociological, Politological and Psychological Analysis and Investigations (CIVIS) jointly with International Agency for Source Country Information (IASCI) which main objective was to evaluate the migration and remittances impact on economic growth in Republic of Moldova. Besides the analysis of secondary data, within the research were used qualitative techniques as focus groups and semi structured interviews. Overall, there were organized 18 interviews with stakeholders and 54 discussions with migrants and beneficiaries. Unlike the previous mentioned studies, this one focuses mainly on migrants or remittance receivers that have invested in the home country or have had investment projects. The information resulted from the carried out interviews refers to the impact of remittances on development, especially on the means of transfer used in this scope, their impact on poverty reduction, their distribution among spending on consumption and investments, including on education and health (CIVIS & IASCI, 2010).

Besides the data delivered by the national public bodies and the above mentioned surveys, the World Bank offer additional information on the cost of sending and receiving small amounts of money from one country to another through its "Remittance Prices Worldwide" database (<http://remittanceprices.worldbank.org/Country-Corridors/to-Moldova/>). The database is useful to make cross-country comparison and an analysis of the available services and their costs over time. For Republic of Moldova data are offered only for transfers made from Russian Federation, Italy and Germany since the 2008 year – the oldest data.

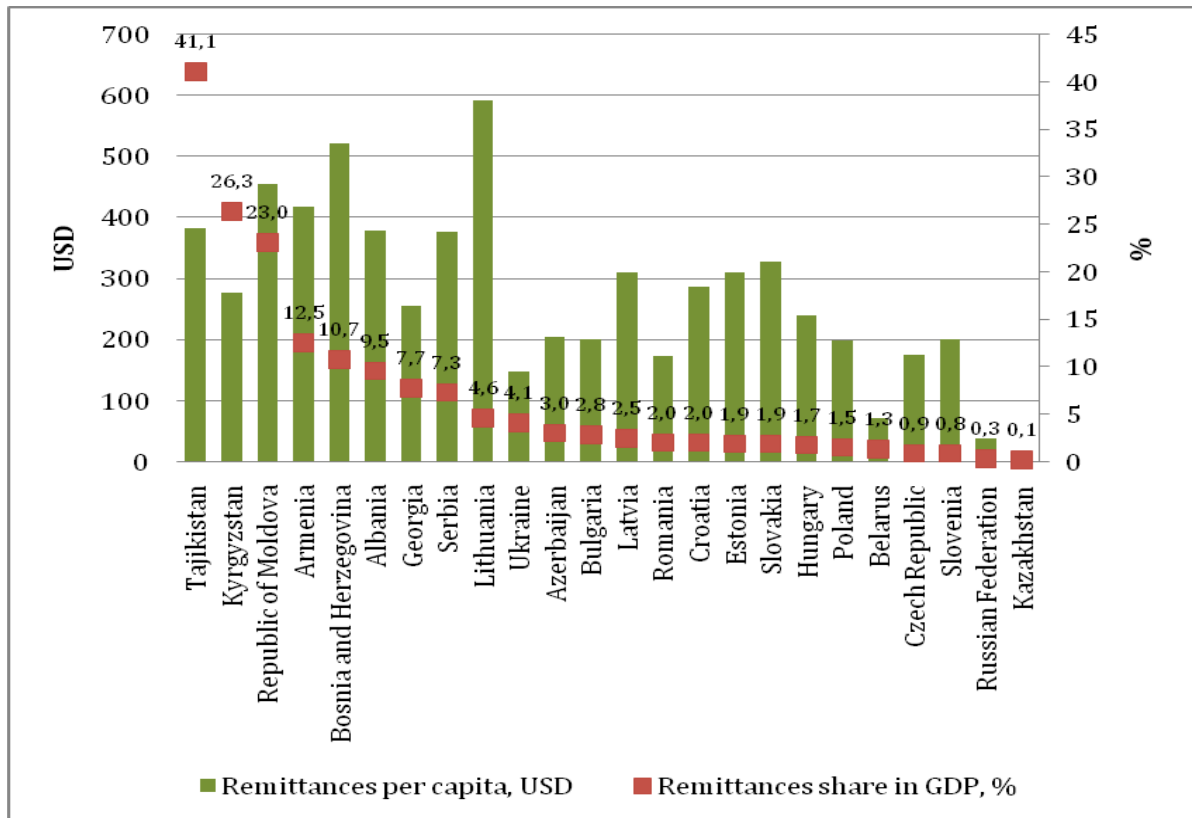
3. Overview of remittances in the republic of moldova

Republic of Moldova ranked among the leader economies in the world as concerns the remittances share in GDP and their per capita value in 2011³¹. In 2011 the volume of remittances accounted 1611 million

³¹ In 2011, Republic of Moldova was the fifth economy in the world as regarding the share of remittances in GDP, and although still no data exists for some regions receiving large remittances it seems to rank among the top 20-25 economies as concern their volume per inhabitant.

USD, accounting for 23% of GDP. Thus each inhabitant received on average 452.7 USD that is much more than the recorded average monthly salary of 272.3 USD. As share of GDP and their per inhabitant volume, the Republic of Moldova ranks the third among the countries in the Eastern Europe and Central Asia region. However, the relative high values are determined rather by the low level of Moldovan population and its GDP compared to other countries in the region, than by the value of remittances. In nominal terms, the value of remittances was much higher in such countries like Poland (7602 million USD), Ukraine (6716 million USD), Russian Federation (5666.6 million USD), Romania (3750 million USD), Serbia (3718.8 million USD), Tajikistan (2680.5 million USD) and others.

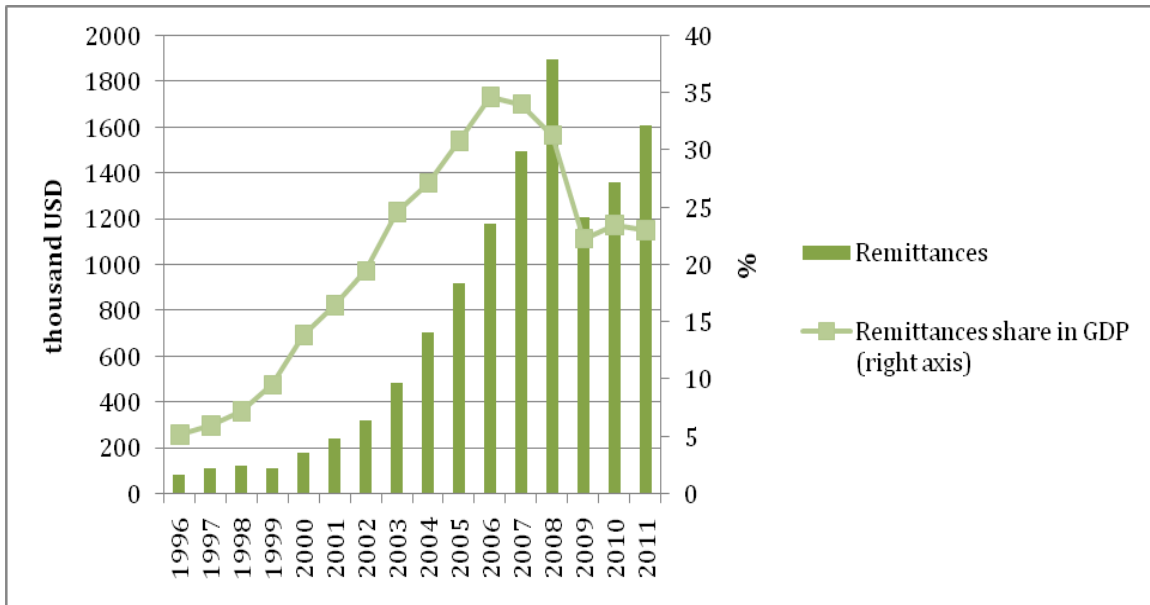
Figure 3.1. Comparative aspects regarding the remittances' share in GDP and their per capita value in the countries from Eastern Europe and Central Asia



Source: UNCTADSTAT, <http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx>

Also should be mentioned that since the second half of the last decade Moldova has witnessed a noticeable decrease on its remittances share in GDP. In the first half of the last decade remittances increased at a remarkable annual average of 42.5%. Since 2004, excepting the 2009 crisis year when a drop of 36% have been recorded, they have continued to increase, but at slower rate, along with a moderation or even decrease of migrants outflow in some years.

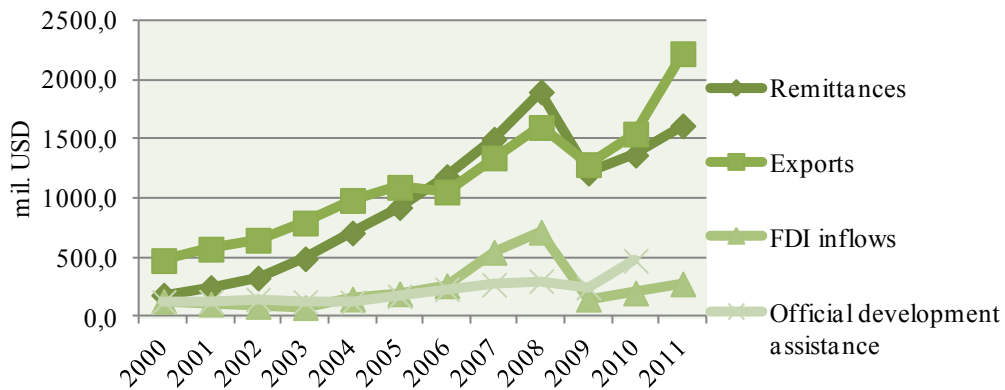
Figure 3.2. Trend of remittances inflow to the Republic of Moldova



Source: National Bank of Moldova and National Bureau of Statistics of Republic of Moldova

Remittances represented in the last years an important inflow of foreign currency in the economy – their value being significantly higher than FDI and official development assistance inflows, and according to 2011 data constituting 72.5% of exports value and almost 51% of the FDI stock. More than that, due to their relative rigidity to the external shocks, remittances seems to alleviate the negative evolutions of other flows of foreign currency that are more volatile.

Figure 3.3. The main financial inflows in Republic of Moldova

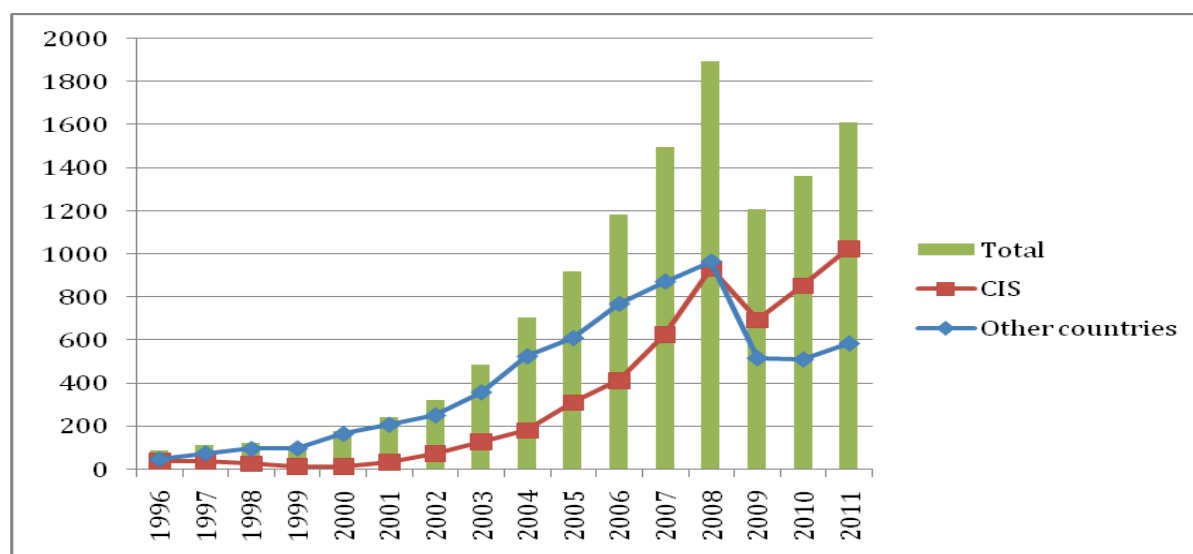


Source: UNCTADSTAT, <http://unctadstat.unctad.org/ReportFolders/reportFolders.aspx>

As the main destination of Moldovan emigrants is CIS countries, accounting for 60.3% of emigrants stock in 2010, it is not surprising that the most of remittances come from this region – almost 63.7% (in 2011). From them 91.5% are transfers originating from Russia Federation and 6% from Ukraine. After a significant drop of remittances made by Moldovan emigrants in Russia in the late 90s, in line with an increase of those from other countries, the former mentioned weight decreased from 41% (36 million USD) in 1996 to 6% (10.8 million USD) in 2000. An explanation for this trend

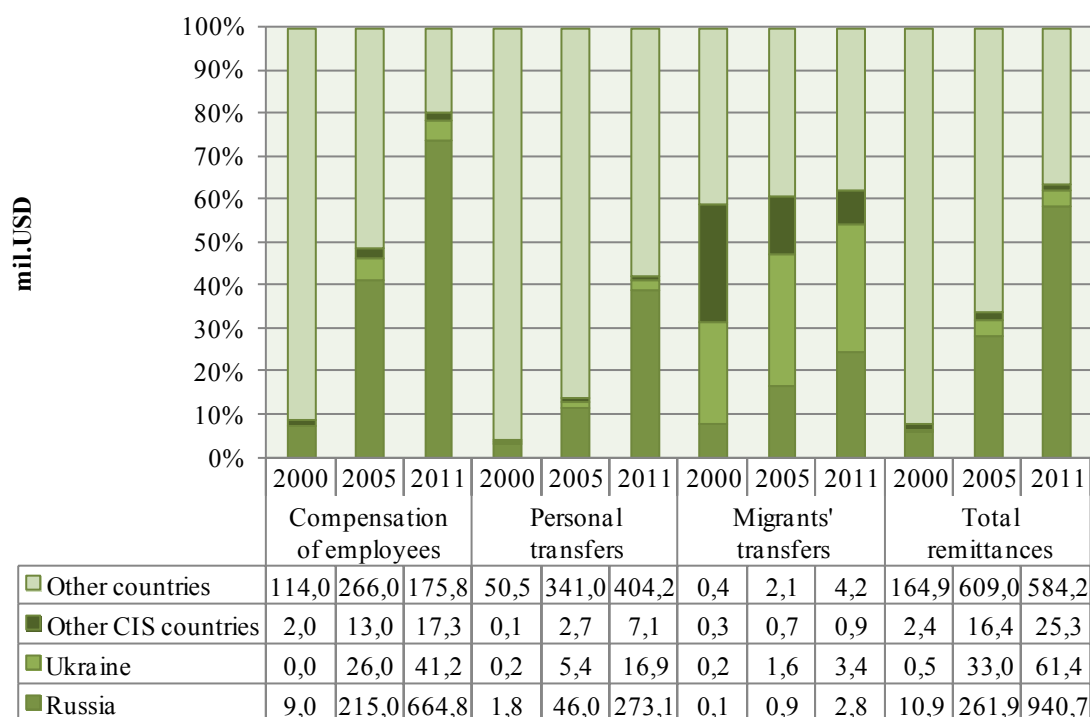
can be the severe crisis that the former soviet countries was passing through in the late nineteen', however it should be mentioned that the volume of total remittances to Moldova was at that time very small, not exceeding 200 million USD.

Figure 3.4. The remittances in Moldova by main sources of origin



Source: National Bank of Moldova, http://www.bnm.md/en/balance_of_payments

Thus till 2008, the remittances was coming predominantly from other countries than Russia Federation. At the same time, since 2001 till 2008, remittances inflow from the later have increased continuously with an annual average rate of 76% that exceeds more than twice the annual average rate of growth of total remittances (of 34.6%). Even in conditions of the crisis that hit the world in 2008, remittances from Russia proved to be more resilient, decreasing in 2009 by 23.8% compared to 46.5% of those from other countries, except CIS region. Also the former resumed its upward trend from the pre-crisis period immediately in 2010 unlike the later that was still declining. These trends determined a radical change in remittances structure, Russia weight exceeding 50%. The structural change in favor of Russia and the relative steady inflows from this direction can be explained by their seasonal character, as well as by the economic evolutions that prove to be more stable in the east countries compared to the Occident. Even during the last crisis, that was the developed countries that suffered the deepest depression and harder recover.

Figure 3.5. Geographical structure of remittances in Republic of Moldova

Source: National Bank of Moldova, http://www.bnm.md/en/balance_of_payments

Noticeable changes can be seen in remittances' structure according to the BOP chapters as well. The remittances composition is dominated by employees' compensation, represented mostly by cross border and seasonal workers compensation that accounted 899 million USD or 55.8% of total remittances in 2011. Most of remittances recorded under this account came from CIS countries, most exactly from Russia Federation with a share of 73.9%. At the same time, a considerable increase occurred in personal transfers made by migrants resided abroad more than a year that can reflect in our opinion the migrants' propensity to legalize their stay in the host countries, and consequently, the growth of transfers made by legal channels. This assumption can be argued by the results of other studies held in this area M. Luecke, T. Omar Mahmoud, A. Steinmayr (2009) and CISVIS/IASCI (2010) that show an improvement in residence status of Moldovan emigrants, especially in EU and other countries, excluding CIS countries.

Table 3.1. Structure of remittances by main components, million USD

	1996	2000	2005	2011
Nominal value, million USD				
<i>Compensation of employees including border, seasonal, and other workers</i>	84.0	125.0	520.0	899.0
<i>Personal transfers</i>	3.1	52.6	395.1	701.4
<i>Migrants' transfers</i>	0.1	1.0	5.2	11.3
<i>Total personal remittances</i>	87.2	178.6	920.3	1611.7
Structure, %				
<i>Compensation of employees including border, seasonal, and other workers</i>	96.4	70.0	56.5	55.8
<i>Personal transfers</i>	3.5	29.4	42.9	43.5
<i>Migrants' transfers</i>	0.1	0.6	0.6	0.7
<i>Total personal remittances</i>	100.0	100.0	100.0	100.0

Source: National Bank of Moldova, http://www.bnm.md/en/balance_of_payments

Due to illicit migration phenomenon and the use of various informal channels to transfer money in the home country with lower expenses, it is very difficult to record the real volume of remittances inflows. Although, according to the same studies and to the World Bank data on Remittances' Price which show that a lot of financial institutions offering money transfer services, including rapid transfers do exist and the cost to perform the transfers are slightly decreasing, we tend to assume that the share of remittances made using informal channels is decreasing as well.

Table 3.2. Costs of sending remittances to Republic of Moldova

	Russia Federation		Italy	
	200 USD	500 USD	200 USD	500 USD
<i>MTO Average</i>				
2008	2.73	2.37	-	-
QI 2009	2.17	2.17	-	-
QI 2010	2.6	2.34	9.44	5.96
QI 2011	2.29	2.09	9.66	6.48
QI 2012	2.14	1.97	8.72	5.28
<i>Bank Average</i>				
2008	-	-	-	-
QI 2009	-	-	-	-
QI 2010	-	-	5.4	2.16
QI 2011	-	-	4.73	1.94
QI 2012	-	-	5.4	2.19
<i>Total Average</i>				
2008	2.78	2.39	-	-
QI 2009	2.17	2.17	-	-
QI 2010	2.60	2.34	8.47	4.78
QI 2011	2.29	2.09	8.53	5.30
QI 2012	2.14	1.97	7.41	4.06

Source: World Bank Remittance Price Database,
<http://remittanceprices.worldbank.org/Country-Corridors/to-Moldova/>

4. Influence of remittances on growth, investment and financial development

Remittances and growth

Among studies dedicated to relationship between remittances and economic growth there are no common point of view. The main debates about the impact of remittances on growth refer to the use of remittances for productive investment that would contribute to long-run development. But, impact on economy should be viewed not only from the point of view of remittances-investment relationship. As Glytsos³² pointed out remittances can affect positive economy in some of following ways:

- management of remittances (e.g. by banks);
- extension of investment credit allowed by the increase in the liquidity of banks from remittance deposits;

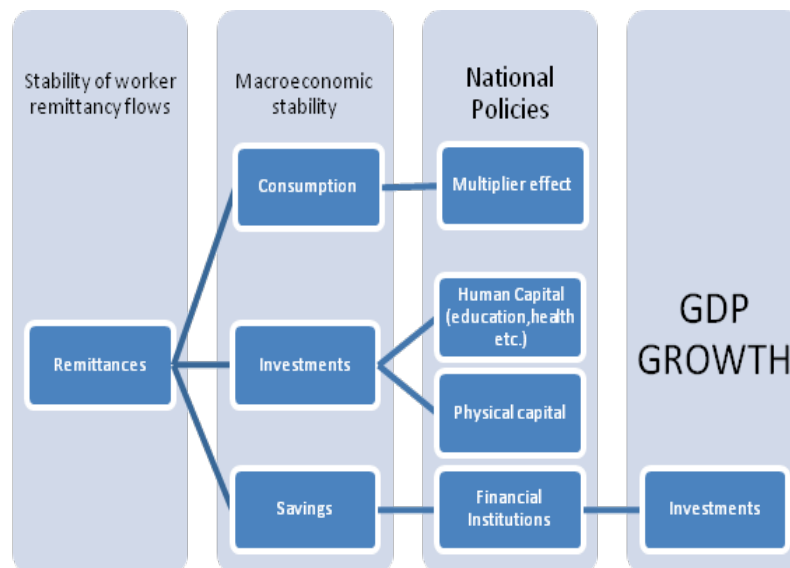
³² Nicholas P. Glytsos (October 2005) "The contribution of remittances to growth: A dynamic approach and empirical analysis," *Journal of Economic Studies*, Emerald Group Publishing, vol. 32(5), pages 468-496.

- investment in human capital in the form of spending on certain consumption items (e.g. education, health);
- purchase of more investment goods from abroad, made possible by remittances;

And to this we add some more:

- smoothing income inequality in short term;
- diversification;
- improving financial intermediation and improving other institutions;
- growth of investment as a result of the multiplier effects of spending on consumption.
- Summarizing we can make the following chart:

Figure 4.1 Influence of remittances on GDP



Source: author's elaboration

A more exhaustive chart can be depicted from A. Culiuc (2006) which mainly points out the same directions, but adding more explanatory variables, thus presenting a wider picture of how remittances influence economic activity.

Summarizing, for Moldova, remittances influence economic activity through labor market by reducing labor supply and as consequence increasing wages. Remittances influence disposable income directly, influencing savings, investments (including in education and other social services) and consumption. This in turn influences tax collections and fosters internal demand. Moldova does not have the productive capacity to meet the increasing aggregate demand. The huge increase in imports is driven mainly by the boom of the aggregate consumption. An analysis of the situation reveals that workers' remittances are financing a large part of the trade deficit (Figure 4.2).

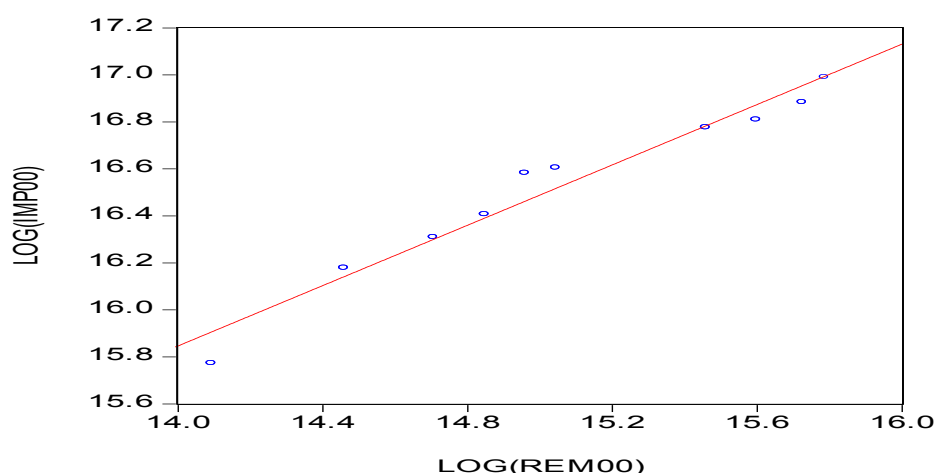
Worker's remittance began to grow at fast rates after the regional crisis in 1998. Since then, despite a recovery of national economy the flow of emigration has intensified, thus, the estimated number of the migrant contingent is nearly 590,000 persons³³. This number constitutes more than 30 % of economically active population. According to the National Bank of Moldova (NBM), remittances to GDP ratio are estimated at more than 30 % in the last 3 years.

³³ National Bureau of Statistics, www.statistica.md.

Workers' remittances have become the single most important net source of foreign exchange currency in Moldova. Obviously, such high levels of workers' remittances have huge macroeconomic consequences. Workers' remittances have played a significant role in boosting growth in recent years, through their effect on consumption. Indeed, GDP growth is driven mainly by growth of consumption. This is not a sustainable growth, because it does not stimulate investments and potential GDP.

Worker's remittances have increased households disposable income which in turn has sustained high consumption growth rates. According to the CBS-AXA survey, on average, remittances constitute at least 65% of the income of the recipient family in 41% of families with a migrant and between 35-65% for another 25%. The largest part of remittances is used to meet basic current consumption needs and the remainder to buy houses and land.

Figure 4.2. Correlation between imports and remittances in the Republic of Moldova



Source: author's calculations according to National Bureau of Statistics data

We could conclude that in principle and in line with most of the scholars, in the short run, remittances have a benefic effect on economic growth, given the effects on consumption. Papers³⁴ for Pakistan and Mexico, one of the biggest receivers of remittances, suggest that the multipliers are quite high, especially in Mexico.

Moldova is also a country with high remittances to GDP flows, we could expect same conclusions. Poverty rate decreased dramatically in recent 10 years, so if in short run we support the idea that remittances alleviate poverty and increase economic activity, then in the long run this evidence is not conclusive.

A clearer idea of how remittances could influence GDP growth could be found in the paper *Income and Distribution Effects of Migration and Remittances: An Analysis Based on CGE Models for Selected CIS Countries*³⁵. Based on a CGE model the team tried to describe how Moldovan economy would have looked like in 2004 without remittances. The methodology used implied Social Accounting Matrix that included national accounts data, household budget survey, labor force survey and other relevant information. Another study using standard computable general equilibrium (CGE) was conducted by Atamanov *et al.* (2008). They analysed the income and distribution effects of migration and remittances in Ukraine and three smaller CIS economies, namely Moldova, Georgia and the Kyrgyz Republic. Their conclusion is that the effect from a loss in terms of real GDP from

³⁴ Nishat and Bilgrami (1991) for Pakistan and Adelman and Taylor (1990) for Mexico

³⁵ *Income and Distribution Effects of Migration and Remittances: An Analysis Based on CGE Models for Selected CIS Countries*, Luecke, M., Mahmoud, T., CASE-Center for Social and Economic Research, 2008.

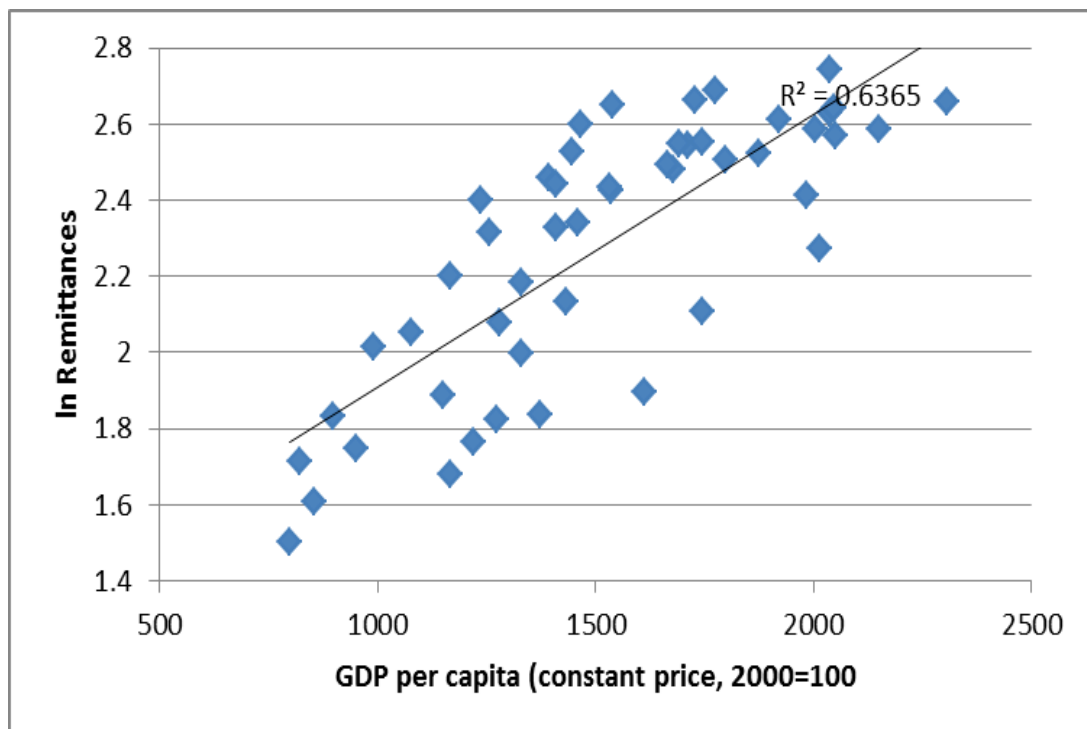
reduction of remittances, migration and TFP is much larger in smaller countries than in bigger. The results for Moldova (10.9%), Georgia (13.3%) and the Kyrgyz Republic (13.8%) are much larger than for Ukraine (7.1%)³⁶.

Iradian (2007) used the panel regression approach and analysed an extended set of explanatory variables compared to previous empirical studies on the determinants of growth in transition economies. This included the output recovery index, workers’ remittances, terms of trade, and the EBRD market reform index. In doing so he found that the remittances to GDP ratio was positively related to per capita real GDP growth and total factor productivity growth in the transition sample. For the CIS as a whole, remittances were estimated to have accounted for about 0.9 percentage points of the 5.2 percentage points predicted change in growth rates between 2001–2006 and 1996–2000.

However, it is important to note, that the majority of the findings related to Moldova are based on CGE modelling, which has a serious drawback, it a static model and the dynamics are hard to capture. Especially, if we are looking to see whether remittances influence or not economic growth and investments.

First let us see if there is any correlation between growth and remittances (aggregated from Balance of Payments according to IMF methodology). The results represented in the figure 3.1 are in line with our previous arguments and shows a clear correlation between remittances and GDP in Moldova. Pearson correlation coefficient is 0.76. Note, that remittances influence disposable income and afterwards consumption and through aggregate expenditures, GDP.

Figure 4.3. Correlation between remittances as share of GDP and GDP per capita, Q1 2000 - Q1 2012



Source: author’s calculations based on NBM and NBS data

Further investigations on the nature of the existing relationship could be found in the next sections of the paper.

³⁶ Atamanov, A. and Mogilevsky, R. (2008), “Technical Assistance to CIS countries” CASE Network Studies and Analysis. No. 369. Center for Social and Economic Research CASE. Warsaw.

Remittances, investment and financial development

In economic literature TFP is usually associated with efficiency, in our case remittances can affect TFP growth only through investments and spill-overs in the productive sectors of the economy. In other words, in this context, TFP growth depends on the level of development of financial system and financial intermediation.

Investments and capital accumulations are other channels through which economic growth can occur. In this case and financial intermediation and development of the recipient country is essential.

Mainly, the effects can be summarized as follows, pressures on financial intermediation because of additional resources in the country, and must lead to development of the sector. Also, it must lead to a decrease in interest rates and reduce macroeconomic volatility (Chami, Hakura and Montiel, 2009). In the case of Moldova these effects have not materialized much. First, one problem is that it is hard to quantify which part of the remitted inflows is channelled to investments. Second, because of the structure of those who receive remittances, it is more likely for them to consume than to invest (Ghencea and Gudumac, 2004). In Moldova poorer households can send a migrant abroad in CIS countries and without encountering any barriers (travel is cheap and visa is not required to enter). In this case, higher share of remittances does not increase the marginal propensity to invest³⁷. The poorer the households more is spent on social needs and consumption. And third it is because of weak financial intermediation.

In our view the major problem to why remittances are not channelled to investments and capital accumulation is because of the Moldovan financial system. Moldovan financial system failed in providing financial resources to real sectors of the economy. First, we see it a problem of lack of competition in the banking system and between the banking system and other possible financial intermediaries. In 2011, there was an increase in the volume of deposits of the commercial banks of the Republic of Moldova. Thus, by the value of banking deposits, the market is concentrated in 5 commercial banks, which own 75% of total.

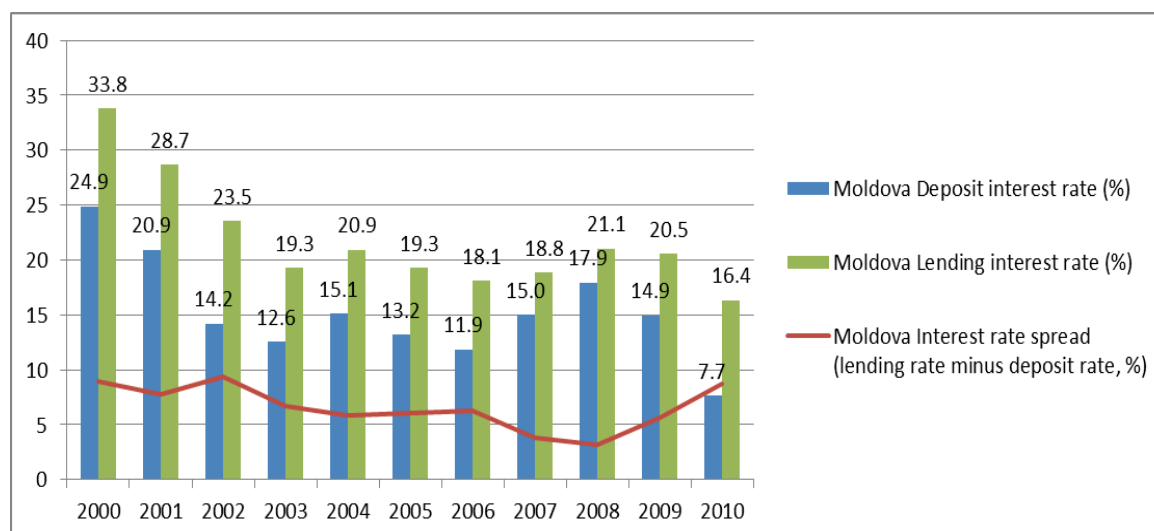
In 2011, the market concentration index (the Herfindahl-Hirschman index) shows only a relative degree of banking market concentration in Moldova. The calculation of the *concentration indicators* of this segment of the market (CR-4³⁸) and the Herfindahl-Hirschmann Index (HHI)) shows that in 2010 a level of 1210³⁹ points was recorded, so the banking market is characterized by a *moderate degree of concentration*, which implies a satisfactory level of competition. In this case, it is a sign, that the inflow of remittances failed to put pressure on the competition of the banking sector. Another indirect evidence is the high level of liquidity in the system. All the above mentioned factors are not evidence of efficient financial intermediation. However, an alternative to the banking sector is **the microfinance sector**. The analysis of the microfinance sector shows that, although it accounts for about 2.0 percentage of GDP, the rate of penetration of microfinance services remains a poor indicator at national level. Thus, the banking system is some kind of monopoly; there are no alternatives.

Second indirect evidence is related to high cost of capital. As earlier noticed, economic theory, predicts a decrease in interest rates because of high level of remittances. However this is not the case for Moldova. The real interest rates on loans and deposits have shown declining trends during the years. Thus, the balanced developments of the interests would mean a constant supply of finance to the real sector, that would support a uniform growth of the economy, gradually and without major fluctuations. However, some businesses and business people consider that interest rates in Moldova are high.

³⁷ Mislitcaia I. (2009) Remittances for the Republic of Moldova: A way to survive or a chance to succeed?,

³⁸ Market concentration ratio (CR-4) is calculated as the percentage ratio between the volume of sales by the four companies (market leaders) and total sales of all companies within the limits determined by the services market.

³⁹ Herfindahl-Hirschmann Index (HHI) is calculated as the sum of squared percentage of the market shares of each participant. The market is considered weakly concentrated when the indicators are at the level: $HHI < 800$. The market is considered moderately concentrated when the indicators obtain the following values: $800 < HHI < 1.800$. The market is considered excessively concentrated when the indicators are in the range: $1800 < HHI < 10.000$.

Figure 4.4. Evolution of interest rates on loans and deposits.

Source: according to World Bank database.

A distinctive contribution of remittances to the financial system is related to the structure of loans and deposits in the Republic of Moldova. Not only that Moldova faces a currency mismatch, but because remittances are not channelled to investments it has a disproportionate **degree of maturity**. This problem is that large remittance inflows in US dollars or Euros contribute to the dollarization/euroization of the receiving economies. In most CIS countries, foreign currency has been extensively used in both cash and deposit form.

In Moldova most of the deposits are short-term deposits and most loans are long and medium-term. The largest share of deposits, about 55 per cent belongs to deposits in local currency and about 45 per cent in foreign currency.

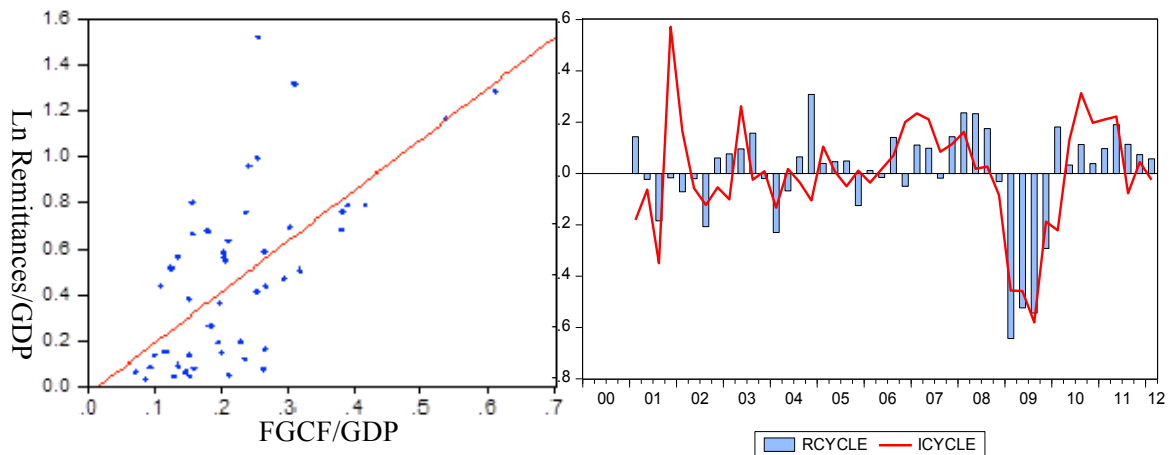
Table 4.1. Structure of loans and deposits

Deposits' structure by maturity (per cent)	2007	2008	2009	2010
Bank deposits in foreign currency with a term less than one year	96.5	96.5	96.5	92.5
Bank deposits in foreign currency with a term more than one year	3.5	3.5	3.5	7.5
Bank deposits in national currency with a term less than one year	89.4	95.0	95.9	92.4
Bank deposits in national currency with a term more than one year	10.6	5.0	4.1	7.6
Loans' structure by maturity (per cent)	2007	2008	2009	2010
Bank loans in foreign currency with a term less than one year	26.7	31.1	28.1	26.7
Bank loans in foreign currency with a term more than one year	73.3	68.9	71.9	73.3
Bank loans in national currency with a term less than one year	41.5	39.2	40.6	32.3
Bank loans in national currency with a term more than one year	59.4	60.8	59.4	67.7

Source: National Bank of Moldova

At the same time, remittances have positively affected the government fiscal revenue in the short run, but they might imply negative effects in the long run. The increasing inflow of remittance has alleviated the fiscal burden of the government and has helped to finance social spending. Nevertheless, in the long run, fiscal balance might be negatively affected by the financing of the pensions. Indeed, emigration changes the demographic dependency ratio by decreasing the number of contributors to the pension system.

Figure 4.5. Correlation between investments and remittances and cycles of the mentioned variables.



Pearson correlation coefficient is 0.64 Pearson correlation coefficient is 0.65

Source: Author's calculations based on NBM and NBS data.

Note: the vertical axis =- growth rates of the mentioned variables

The depicted figure shows a certain level of correlation between investments and remittances and a first indication that for Moldova a relation could exist. Remittances become extremely important for Moldovan economy after 2005-2006, when their share in GDP grew dramatically, since then investments and remittances follow more or less the same cycles. Probably, one explanation is the fact that investments are pro-cyclical, strongly correlated to GDP and because of the investment accelerator. The last follows, a common accepted idea that in good times more is invested. In other words, economic activity increases because of an inflow of remittances and, from the other side, investments increase because of a boost in economic activity (accelerator effect).

Empirical analysis on the nature of the relationship between economic growth, investments and remittances.

Data and methodology. For analysing the relations between remittances growth and investments we used quarterly data for the period 2000Q1-2012Q1. In the case of short-run, economic theory and previous arguments are relatively straightforward indicating that remittances through disposable income influence consumption and, finally, GDP. In case of investments, in theory part of remittances will be channelled to investments taking into account the already mentioned conditions.

In case of the long-run, the evidence is not obvious, that is why, it is necessary for us to understanding how economic growth and investment would react to shocks of remittances.

The method used is based on structural vector auto regression (SVAR), which is commonly utilized for forecasting systems of interrelated time series and for analysing the dynamic impact of random disturbances on the system of variables.

The model can be generically described by the following model:

$$Y_t = [\Delta GDP, \Delta Remittances, \Delta Investments]$$

The variables taken into account are: *GDP*, which expresses the modification in real time of the gross domestic product, expressed in million lei, in 2000 reference prices; *Remittances*, which expresses the aggregation of three lines from Moldovan BoP (compensation of employees, transfers of natural persons and transfers of migrants); and *Investments*, which expresses the gross fixed capital formation, expressed in million lei, in 2000 reference prices. All variables have been de-seasoned and they are all expressed in a logarithmic form.

The method used implies the use of integrated time series. Thus, all series were differentiating in order to transform them in first order integration series - I(1). The models, tests for the VAR structure validation and for the validation of the hypotheses concerning the residuals, show the fact that both models are steady and the residuals are uncorrelated, are normally distributed and homoscedastic. The tests could be offered on request.

Afterwards, we estimated the equation without restrictions and identified the optimal number of lags. The number of lags chosen for VAR is 4, following the criterion for selecting the lag number.

Results

An aspect of the exercise implies the determination of the Granger causality. This test allows us to understand which variable Granger cause another. The test shows the causality, in Granger way⁴⁰, between GDP per capita, remittances as share of GDP and investment as share of GDP.

The results point out that, both remittances as share of GDP and investment as share of GDP Granger causes GDP per capita. At the same time, remittances in a Granger way cause investments and the opposite causality runs from investments to remittances. Interesting to notice the causality between investments and remittances, the explanation for this aspect is not straightforward, this means that investments Granger cause remittances. One explanation could be that once the construction sector started to develop, those who were receiving remittances bought more immovable properties. The findings can be depicted from a more generic form below, the arrows mean Granger causality:

Remittances as share of GDP → GDP per capita
 Investments as share of GDP → GDP per capita
 Investments as share of GDP → Remittances as share of GDP
 Remittances as share of GDP → Investments as share of GDP
 GDP per capita → Investments as share of GDP

Finally, we estimated the SVAR model imposing restrictions. The short run restrictions have the following matrix form:

$$\begin{bmatrix} 1 & a_{12} & a_{13} \\ a_{21} & 1 & a_{23} \\ a_{31} & a_{32} & 1 \end{bmatrix} \times \begin{bmatrix} e_{GDP} \\ e_{investments} \\ e_{remittances} \end{bmatrix} = \begin{bmatrix} u_{GDP} \\ u_{investments} \\ u_{remittances} \end{bmatrix}$$

⁴⁰ It is not causality, but Granger causality, because the concept and definition of causality is far more complex than a linear representation of relationship between two variables.

A residuals shocks

We assume that remittances are not contemporaneously affected by GDP and investments, thus a lower triangular matrix appears to be more consistent with economic theory. The other option would imply that GDP is not contemporaneously affected by remittances and investments, which is not the case. Thus, our restrictions will be $a_{21} = a_{31} = a_{32} = 0$, meaning that GDP and investments do not affect during the same period remittances.

Long-run restrictions are imposed by setting elements of a matrix, typically to zero. In this paper we impose zero restrictions on the elements of the matrix such that some structural shocks do not have long run effects for some of the variables.

$$\begin{bmatrix} GDP \\ Investments \\ Remittances \end{bmatrix} = \begin{bmatrix} c_{11} & c_{12} & c_{13} \\ c_{21} & c_{22} & c_{23} \\ c_{31} & c_{32} & c_{33} \end{bmatrix} \times \begin{bmatrix} u_{GDP} \\ u_{investments} \\ u_{remittances} \end{bmatrix}$$

$$\mathbf{X} = \mathbf{C} \mathbf{u} \text{ (shocks)}$$

Matrix \mathbf{X} is represented by each variable in the model and is the quarterly change in the deseasonalised level of logarithm of the underlying variable. The long-run identifying restrictions are specified in terms of the elements of the \mathbf{C} matrix. The focus in this exercise was to depict the long run responses of GDP and investments to remittances. We imposed restrictions on a shock of GDP and/or investment to influence remittances and also we imposed restrictions on GDP and investments to their own innovations. The economic rationale is clear, for example GDP cannot go back to its initial level after an increase in levels. Thus, our long-run restrictions will be $c_{11} = c_{31} = c_{22} = c_{32} = 0$, meaning that we will not allow in the long run GDP per capita and investment share in GDP to influence remittances as share of GDP.

Impulse Response Functions (IRF). Since we are mostly preoccupied by the aggregate result of the innovations we are presenting the accumulated responses to structural shocks. In SVAR with short restrictions, a shock in remittances, a 1% increase, leads to insignificant reaction from GDP - 0.005% in the third quarter after impact and slightly the shock fades away till the end of the period. Impulse responses generated with SVAR and long-run restrictions reveal that GDP increases by 0.03% on impact, decreasing to 0.01% in the second quarter and having a slight increase during the last quarters, but not reaching the peak of the first quarter.

Figure 4.6. Short run restrictions. Accumulated response of GDP to a shock in remittances

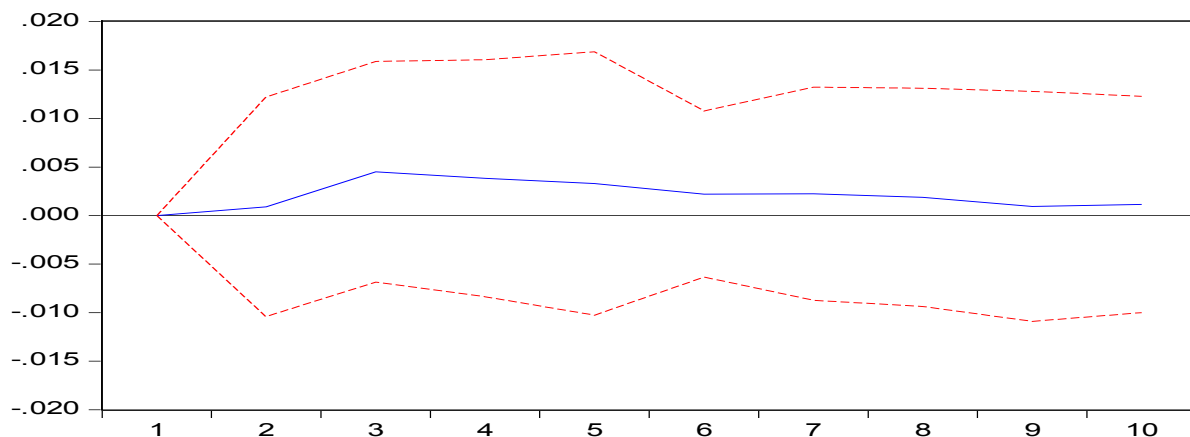
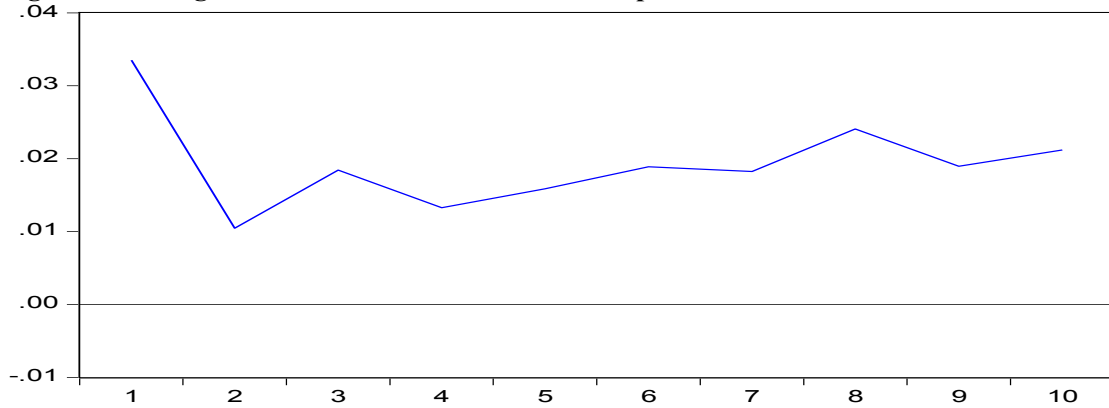
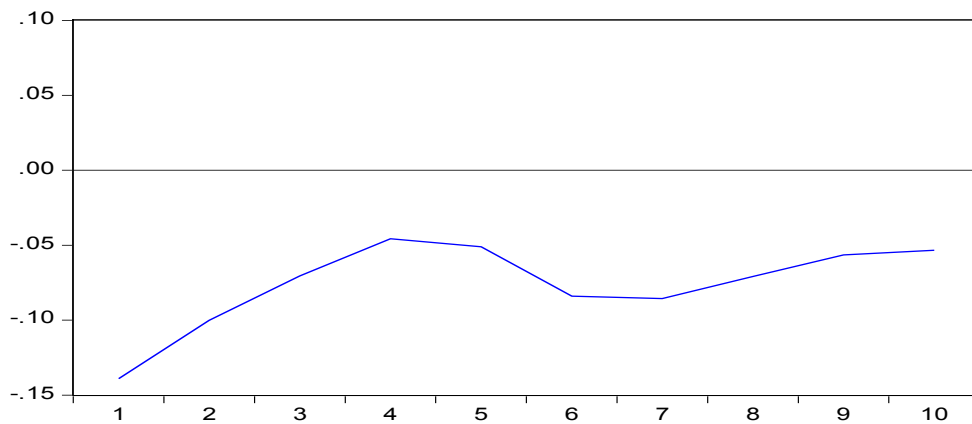


Figure 4.7. Long run restrictions. Accumulated response of GDP to a shock in remittances



A SVAR imposing long-run restrictions is more realistic. In the long-run the influence of economic growth on remittances is restricted, it is hard to believe that fluctuations in Moldovan GDP is an important cause of remittances and it contravenes with the research done in the field so far. Note an interesting behaviour of remittances, a 1% shock in GDP leads to negative response from remittances. In other words, remittances increase when GDP decreases.

Figure 4.8. Long run restrictions. Accumulated Response of remittances to a shock in GDP



The IRF for the investment variable is presented below. The results are more straightforward and the same for both SVARs with short-run restrictions and long-run restrictions. With long-run restrictions imposed there we found no evidence of influence of investments on remittances.

On the other side, with short-run restrictions, a 1% increase in remittances leads to steady increase in investments till the fourth quarter, afterwards the effect steadily fades away.

Figure 4.9. Short run restrictions. Accumulated response of investments to a shock in remittances

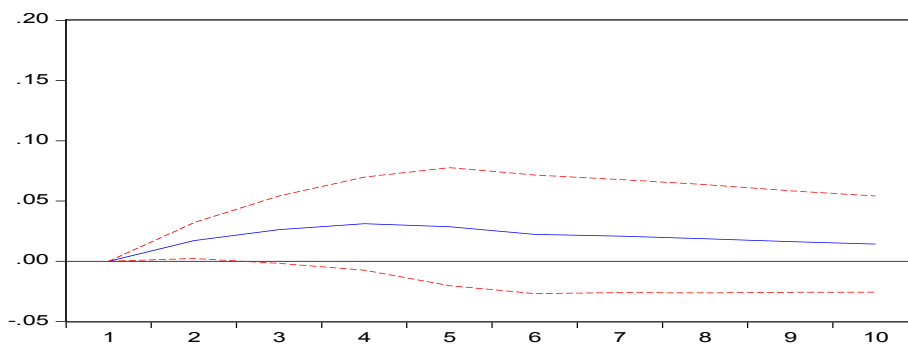
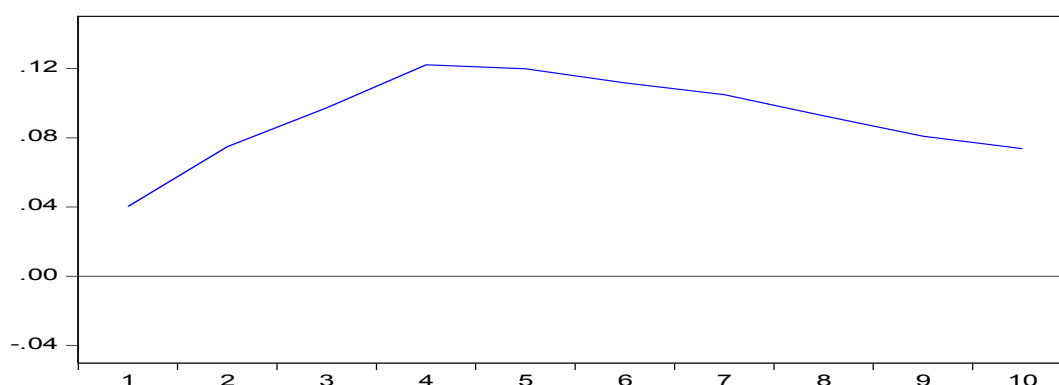


Figure 4.10. Long run restrictions. Accumulated response of investments to a shock in remittances

With long-run restrictions, a 1% increase in remittances leads to a 0.04% increase in investments on impact, reaching 0.08% after one quarter and reaching after three quarters the accumulated peak response of 0.12% in the fourth quarter.

5. REMITTANCES AND EMPLOYMENT

In the Republic of Moldova there is continuous reduction of unemployed persons. The main reason of this evolution is the decreasing of active population. In 2000-2011 the number of active population reduced from 1654.7 to 1257.5 thousand persons and unemployed people decreased from 140.1 to 84 thousand persons. The elaborated regression shows that a decrease of active population by 100 people leads to a reduction of unemployed by 13 persons (see APPENDICE 3).

Table 5.1. Active and unemployed population, thousand

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Active population	1616,7	1615	1473,6	1432,5	1422,3	1357,2	1313,9	1302,8	1265,3	1235,4	1257,5
Unemployed population	117,7	109,8	117,1	116,5	103,7	99,9	66,7	51,7	81	92	84

Source: elaborated by author using data from <http://www.statistica.md/category.php?l=en&idc=107&>

Many studies have focused on the effects of population flows on the economic prospects of natives, however, the impact of migration on the labor market in the home country has received far less attention⁴¹. For the Republic of Moldova in some studies there are mentions about the connection between about emigration and unemployment. Berlinschi and Clipa (2012) conclude that the most obvious effect of emigration on the economy of a donor country is the reduction of labor force.

Funkhauser (1992) notes that one influence of remittances on the home country's labor market is related to income effect. Remittances from migrants to their family raise the income of the unemployed individuals from home. This will reduce the difference between the incomes of those employed and unemployed in the home country, thus limiting employing intentions and causing the unemployment rate to rise. However, the receipt of remittances could reduce participation rates because of the *income effect*, high levels of remittance flows into local labor markets may increase aggregate demand and hence the demand for labor⁴².

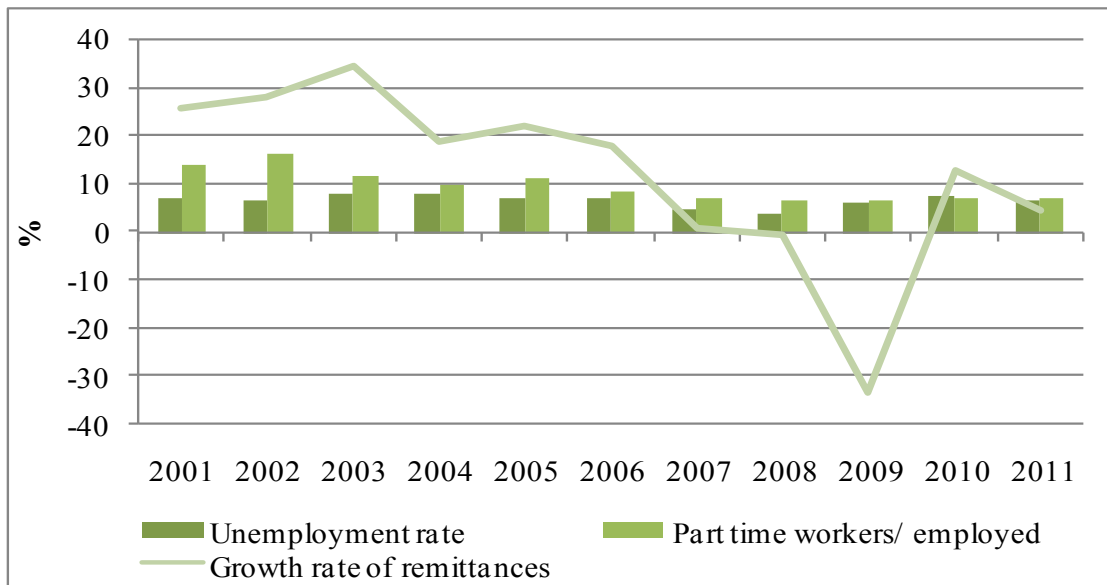
⁴¹ Drinkwater S., Levine P., Lotti, E. (2003) The Labor Market Effects of Remittances, University of Surrey, p. 1. available at: <http://doku.iab.de/grauepap/k040109f29.pdf>

⁴² Drinkwater S., Levine, P., Lotti E. (2003) The Labor Market Effects of Remittances, University of Surrey, p. 4. available at: <http://doku.iab.de/grauepap/k040109f29.pdf>

In case of Republic of Moldova we analyze the impact of remittances on labor market from 2 perspectives: influence on unemployment rate and on part-time employment. The members of households who receive remittances and decide to not become a full-time employee can select between part-time job or unemployed status, thus affecting labor market.

The growth rate of remittances⁴³ has a very volatile evolution. During 2001-2008 periods it oscillates between 34.5% and -33.2%. There is no stable evolution of unemployment rate. It decreased till the crises of 2009 year, taking minimal value of 4% in 2008. After 2008 was an increase in employment rate, it varies between 6.4-7.4%. The share of part-time workers in employed population has a more stable evolution, being characterized by downward trend, between 2001 and 2011 it decrease from 14.2% in 2001 to 7.3% in 2011.

Figure 5.1. Remittances and employment indicators



Source: elaborated by authors using data from <http://www.statistica.md/index.php?l=en>

To estimate the possible impact of remittances on participation rate was elaborated 2 regressions.

In both regressions as explicative variables was used remittances (as difference of logarithm) and investment (as share of GDP). In first regression independent variable is unemployment rate, in second regression endogenous variable is a share of part-time worker in employed population. Remittances, investment and GDP were expressed in prices of 2000 year.

Remittances have a very low impact on unemployment rate. Increasing by 1% of remittances implies an increase by 0.03 percentage points of unemployment rate. Investment has the main influence over unemployment rate. An increase by one percentage point of investment to GDP ratio leads to reduction of unemployment rate by 0.21 percentage points (see APPENDICE 4).

Remittances have a greater influence over part-time employment. Increase of remittances by 1% determines a rise of share of part-time workers to employed population by 0.17 percentage points. Investment has a greater impact on part-time employment. The ratio between part-time worker and employed will reduce by 0.25 percentage points if investment to GDP ratio increases by 1 percentage points (see APPENDICE 5).

⁴³ Growth rate of remittances refers to real growth rate. Remittances are converted in MDL and expressed in prices of 2000 year.

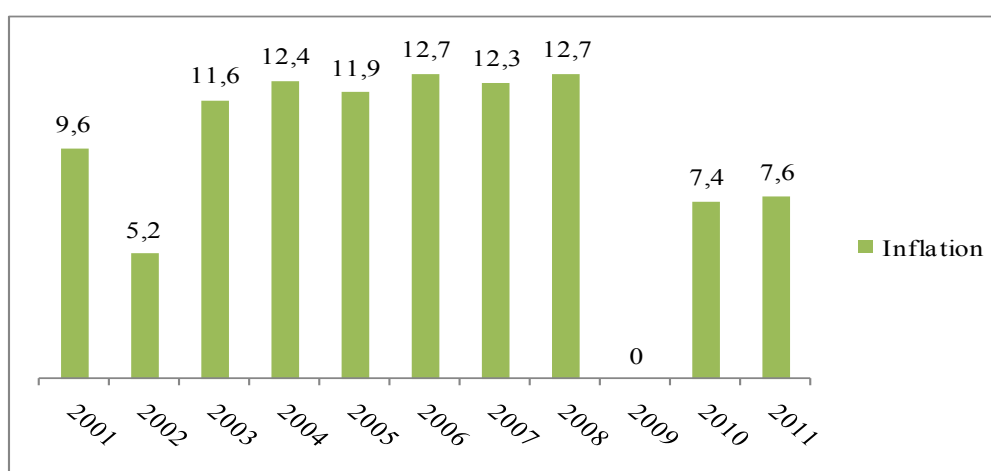
Although regressions have an inconclusive result for Durbin-Watson tests we consider that sign estimations show that remittances affect labor market through *income effect*. This influence of remittances is limited in case of unemployment rate and is more consistent in case of part-time employment.

The indirect impact of remittances on unemployment through aggregate demand is more complex. It is obvious that remittances increase disposable income, and as result, directly or indirectly, is influenced positively over macroeconomic variables like consumption, investment and GDP and which finally decrease unemployment. Our estimations shows that in the Republic of Moldova remittances have a consistent impact on investment and as result, indirectly, reduce unemployment.

6. REMITTANCES AND INFLATION

The Republic of Moldova historically faced quite high levels of inflation. Until the international economic crisis of 2009 year (with some exception), inflation increased annually with values over 10%. The tendency changed in the post-crisis years and we witnessed a reduction of the prices growth rate.

Figure 6.1. Evolution of inflation in the Republic of Moldova



Source: elaborated by authors using data from: <http://www.statistica.md/pageview.php?l=ro&idc=335&id=2344>

The relationship between remittances and inflation is a less studied subject for Republic of Moldova. Culiuc (2007) stated that the inflow of remittances cause a nominal exchange rate appreciation and increase in aggregate demand that is partially spent on non-tradable goods⁴⁴ therefore creating inflationary pressure. IEFS researchers (2011) sustained this issues and think that a possible increase of currency inflows to the country might cause the symptoms of the Dutch Disease, this effect may be characterized by 2 aspects: appreciation of Moldavian leu and increase of inflation due to rise of non-tradable goods' prices.

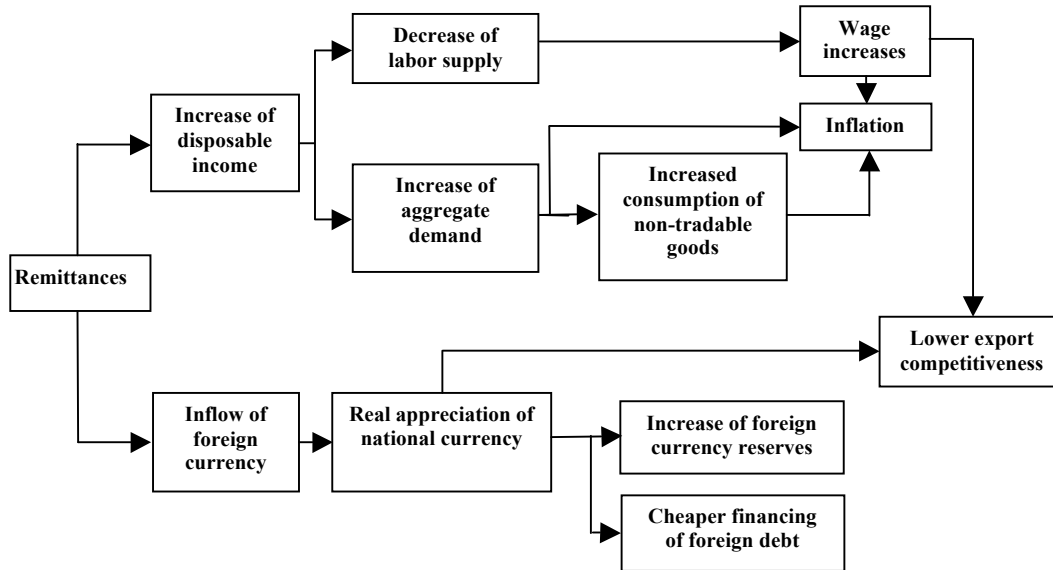
The effect of remittances on inflation can be viewed from different perspectives: through rise in household income which results in a decrease in the labor supply and through increase of demand, particularly for non-tradable goods. Under a flexible exchange rate regime, the resulting effect of a large inflow of remittances will be appreciation of the exchange rate and a rising price level. The inflow of remittances determines an increase in the household income, which lead to increase in aggregate demand. The higher demand can implies rise of inflation. At the same time, a part of demand is oriented to non-tradable goods and price of these goods increase, thus generating inflation.

⁴⁴ Non-tradable goods, can only be consumed in the economy in which they are produced; they cannot be exported or imported. The examples of non-tradable goods are: housing rent, service of lawyers, doctors, teachers, haircuts.

The impact of remittances on price level can be associated to other transmission mechanism: when large inflows of foreign currency are remitted to home country, the conversion of this foreign exchange into domestic currency raises the money supply, thus fuelling inflation.

Acosta, Mandelman, and Lartey (2007) develop a micro-founded dynamic stochastic general equilibrium model that can explain the increasing price level when remittance is high⁴⁵. They consider a transmission mechanism: an increase in the household income (due to remittances) results in a decrease in the labor supply. This in turn leads to higher production costs, contributing to a further contraction of the tradable sector. This can potentially result in an increase in inflation.

Figure 6.2. The impact of remittances on inflation and exchange rate



Source: elaborated by authors

In relationship between remittance and inflation it is important to know which way the direction of causality is running. A large body of research has shown that remittances tend to respond very strongly to prices. A study on Mexico found that a 1% increase in the CPI inflation is associated with a threefold increase in remittance volume⁴⁶. In order to analyze the presence of mutual causality between remittances and price level was used a VAR model. Two variables were included in the model: quarterly remittances and quarterly CPI, for the period of Q1 2000 - Q1 2012 (base period is Q1 2000). Time series which represent evolution of remittances and CPI was seasonally adjusted using TRAMO SEATS techniques. Further logarithmic data was differentiated, and as a result time series became stationary.

According to VAR model, 1% shock in inflation leads to a rise of remittances in second quarter by 1.4%, after that effect fade out. On the other hand the influence of remittances on inflation is marginal - the maximum effect of shock in remittances by one per cent has an impact on the prices in second quarter, only by 0.015%.

⁴⁵ "Do remittances induce inflation? Fresh evidence from developing countries", available at: <http://www.thefreelibrary.com/Do+remittances+induce+inflation%3F+Fresh+evidence+from+developing...-a0255363327>

⁴⁶ Basher Syed A., On Inflation and Macroeconomic Activity, available at: <http://www.syedbasher.org/newscol/Inflation&Macro.pdf>

Table 6.1. The response of inflation and remittances to shocks

	Q1	Q2	Q3	Q4	Q5	Q6	Q7
Response of inflation to 1% shock of remittances growth, %	0	0.015	0	0	0	0	0
Response of remittances to 1% shock of inflation growth, %	0	1.44	-0.08	0.12	-0.01	0.01	0

Source: elaborated by authors

The explanation of low statistical influence of remittances on price level can be explained by some reasons. There are small share of non-tradable goods in composition of CPI and their evolution capture only small influence from transmission mechanism through increasing consumption of non-tradable goods.

There are opinions that monetary factors in the Republic of Moldova have a small impact on inflation. IEFS (2011) estimated on the base of VAR model that 1% increase in monetary aggregate M0 has a maximum effect in 3 months generating an inflation of 0.06%⁴⁷. In the same context should be mentioned that remittances influence inflation from demand side, while in Republic of Moldova the price level is more sensitive to supply or structural factors. Important influences on prices have variables like: low productivity in the sectors of national economy, inefficient management of state enterprises or lack of competition.

Import prices, also have a great impact on inflation. There was elaborated a regression with inflation, expressed as differentiated logarithm of CPI, as independent variable and unit value of import⁴⁸ and trend as explicative variables. Data about CPI, remittances and unit value of import was taken from National Bureau of Statistics. All variables were expressed in prices of 2000 years. Regression shows that changes in the value of imported goods by 1% contribute to a 0.47% increase of price level (see APPENDICE 6).

The evolution of some non-tradable sectors shows that Moldavian economy had symptoms of Dutch disease. We assume that a part of increased consumption, caused by larger inflow of remittances was directed to non-tradable and as result in 2006-2008 (period with higher share of remittances in GDP) some non-tradable sectors had higher growth than tradable.

Table 6.2. Growth rate of Moldavian economic sectors, %

SECTORS		Average growth rate 2003-2005	Average growth rate 2006-2008	Average growth rate 2009-2011
TRADABLE	Agriculture	3,6	1,1	1
	Industry	9	-0,8	-1,3
NON-TRADABLE	Constructions	15,4	13,3	-3,1
	Real estate	8,3	13,7	3,6

Source: elaborated by authors using data from <http://www.statistica.md/category.php?l=ro&idc=191&>

Other effect of larger inflow of remittances is the appreciation of exchange rate, which deteriorates the current account (imports became cheaper and more attractive) and affects negatively the competitiveness of exports (by making national products more expensive in relative prices). But in Republic of Moldova huge share of negative net export in GDP determines depreciation of national

⁴⁷ Institute of Economy, Finance and Statistics, Moldovan Economic Trends (2011) Nr. 2 (Q II), p. 58. Disposable at: <http://www.iefs.md/ro/activitatea-iefs/publicatii/met/149-institutul-de-economie-finane-i-statistic-iefs-a-lansat-ediaa-a-doua-a-publicaiei-trimestriale-de-analiz-economic.html>

⁴⁸ The unit value of import was used as an approximation of import prices.

currency and compensate appreciation pressure from remittances inflow. In 2003-2010 NEER had an insignificant appreciation by 0,3%, and REER had a small strengthening by 3%.

Table 6.3. Evolution of indicators reflected external economic flows to Republic of Moldova

	2003	2004	2005	2006	2007	2008	2009	2010	Average growth rate 2003-2010
Share of net export in GDP, %	-33.5	-30.3	-40.7	-46.6	-51.6	-52.8	-36.6	-39.3	
Share of remittances in GDP, %	24.6	27.1	30.8	34.7	34	31.3	22.3	23.5	
NEER growth rate, %	8.9	-8	4	5.6	-0.8	-14.1	-9.1	10.7	-0.3
REER growth rate, %	4.9	-11.4	1.1	-0.8	-7.2	-14.3	-5.2	8.9	-3

Source: elaborated by authors using data from:

<http://statbank.statistica.md/pxweb/Database/RO/13%20CNT/CNT01/CNT01.asp>,

http://www.bnm.md/md/balance_of_payments,

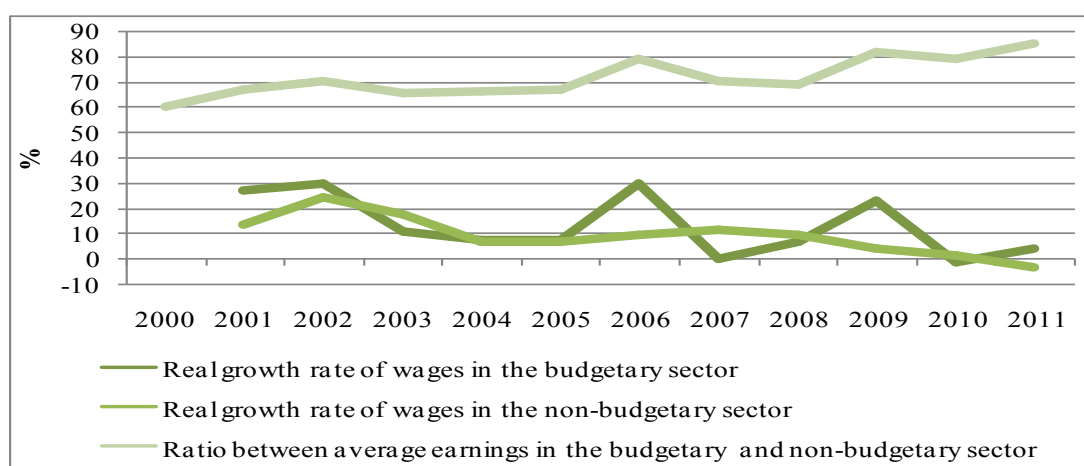
<http://www.imf.org/external/pubs/ft/weo/2012/01/weodata/index.aspx>.

Note: For NEER and REER a negative growth rate represent appreciation.

To test different hypothesis about connection between remittances and unemployment, was elaborated some regressions using LS method. It was selected annual data for: GDP, investment (gross capital formation), unemployment rate. Data about these indicators was taken from National Bureau of Statistics. All variables were expressed in prices of 2000 years.

According to the regression (see chapter REMITTANCES AND UNEMPLOYMENT) remittances have a small influence on unemployment rate. An increase by 1% in remittances inflow leads to a rise of 0,02 percentage point of unemployment rate. However, investments have higher impact, an increase by 1 percentage point of investment to GDP ratio determines a decrease by 0.21 percentage points of unemployment rate. In case of inconclusive statistical relation between unemployment rate and wages, at least for annual data, it is quite difficult to affirm that remittances affect inflation through unemployment.

For the Republic of Moldova a plausible hypothesis is that the influence of remittances on wages comes from public sectors. Increased consumption, determined by large flow of remittances, result in higher tax revenues, especially from indirect taxes. Government preferred to use their increased sources to increase financing of social payments, including salaries for budgetary employees (at least in some years). As a result increase of average wage was characterized by higher growth rate of salary in public sector (an average of 15% in 2001-2011 period) than in non-public sector (an average of 9.2% in 2001-2011period).

Figure 6.3. Evolution of wages in budgetary and non-budgetary sectors

Source: elaborated by authors using data from: <http://www.statistica.md/index.php?l=ro#idc=34&>

Note: budgetary sectors include organizations financed from public budget

The influence of wages on inflation can be analyzed in relation with labor productivity. In Republic of Moldova growth of salaries is higher than rise of labor productivity⁴⁹, as a result should be some pressure on prices - the unit labor cost, which is calculated as ratio between wages and labor productivity, should have a positive influence on price level. Although, there are weak statistical connection between change of unit labor cost and inflation⁵⁰, increase of salaries (partly from rising of budgetary wages, which indirectly is influenced by remittances) can have some impact on price level.

7. Remittances impact on human capital development

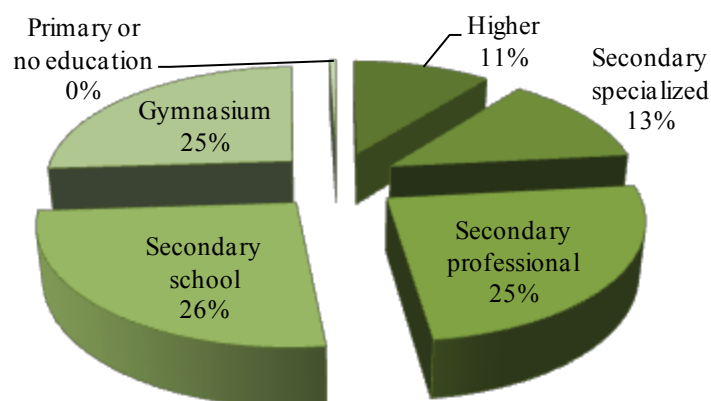
Human capital, as was argued in many empirical studies, has a great contribution to productivity growth and therefore on economic development. For this reason, we will not concentrate on proving this correlation, the aim of the present chapter being to test the contribution of migrants' remittances to human capital development in Republic of Moldova: a balance of positive and negative spillovers being presented.

Human capital can be defined as the peoples' acquired capacities which are developed through formal and informal education at school, at home, and through training, experience, and mobility in the labor market (J. Mincer, 1981). International migration phenomenon usually is seen as a "brain drain" process or a loss of high qualified persons that are very precious for the labor market and which negative effect can be most apparent in developing countries. The outflow of human capital can be critical in the last mentioned as compared to the developed countries from many reasons. On the one side, the discrepancies in the quality of educational system and, consequently, the number of high qualified specialist they produce make every left specialist a sensible loss. On the other side, taking into account that the main reason of this category of population in less developed countries to leave is the large gap in wages and living standards between their countries of origin and that of destination the probability they will return home is very low. A confirmation in this sense is the findings of CISVIS/IASCI (2010) study based on a series of interviews and focus groups with migrants and stakeholders. It states that in most cases migrants, when taking the decision to return home face big difficulties to integrate into the labor market and to start their own business due to barriers presented in the business environment. So in short time they have to give up and to leave repeatedly.

⁴⁹ Labor productivity was calculated as ratio between value added and employed people.

⁵⁰ *T-students* criteria for unit labor cost variable in some explicative regressions for inflation take values lower than 2. In order to consider variable explicative *T-student* should be lower than -2 or higher than 2.

Figure 7.1. Structure of Moldovan emigrants stock aged 15 years and older that are working or looking for a job abroad according their level of education, 2011



Source: Elaborate by authors based on Statbank of the National Bureau of Statistics of the Republic of Moldova, <http://statbank.statistica.md/pxweb/Database/EN/03%20MUN/MUN07/MUN07.asp>

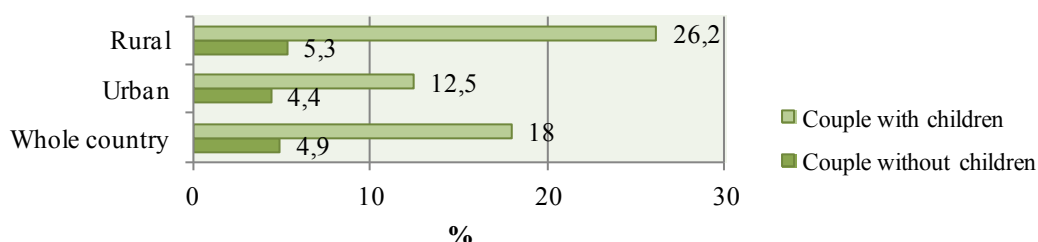
As can be seen in the figure above, in 2011, 48% from the Moldovan active population emigrated abroad to work was persons which have completed secondary professional (25%), specialized (13%) and higher education (11%). Over the past two decades, in condition of very low wages a mass exodus of doctors and teachers has been recorded that causes an insufficiency of specialists in the area (CIVIS/IASCI 2010).

In conditions of right policies, this flight of human capital can be compensated by fostering the return of high skilled emigrated persons, especially of the young generation that have emigrated to study abroad and to acquire new valuable competencies; a gain of human capital can be acquired even in the case of emigrants left to perform less qualified jobs in the host countries, that have at return relatively higher skill endowment that is more appreciated in the home country (C. Dustmann, I. Fadlon, Y. Weiss, 2009). However, a very important channel through which migration may spurs human capital development is the improvement in children's school attendance due to remittances received. An analysis of literature on the effects of remittances on education and health of family members left behind reveals the positive effect of remittances in the educational attainment and healthcare in various countries of the developing world. By relaxing the household's liquidity constraints, remittances allow increasing investments in education (I. Mara, E. Narazani, N. Saban, A. Stojilovska, I. Yusufi, S. Zuber, 2012).

The emigration flows from Moldova that would be also the case for most developing countries is determined mainly by populations' aspirations for a better life for them and for their families. As shown in the studies held by different organizations in Moldova focused on analyzing migration patterns, the leaving population can be characterized by persons aged up to 50 years from low income households. According CIVIS/IASCI 2010 study a large contingent of them, almost 71% are married persons and their primary motivation factor to send money home is to support their families – spouses and children. So it will not be surprisingly that a great part of remittances received by households in the country of origin is used for the purpose of consumption. The Moldovan National Public Opinion Survey on remittances (2007) shows that approximately more than three quarters of the money they receive are spent on basic daily expenses such as food, housing, clothing, utilities and medicine. More than that, 63% of respondents declared that all the money they receive are spent on these purposes. At the same time, almost 27% stated education as another important purpose apart daily expenses to spend their income originated from remittances.

Education is one of the remitting objectives and savings priorities of migrants; they send money to finance their children's education, the education of their brothers/sisters, or their own education that would be the case of most students leaving abroad within different programs to earn money (CISVIS/IASCI, 2010). Especially in rural areas remittances are of increased importance to develop children's education taking into account disparities in the rate of literacy, enrollment rate in pre-school education and general compulsory education compared to urban areas.

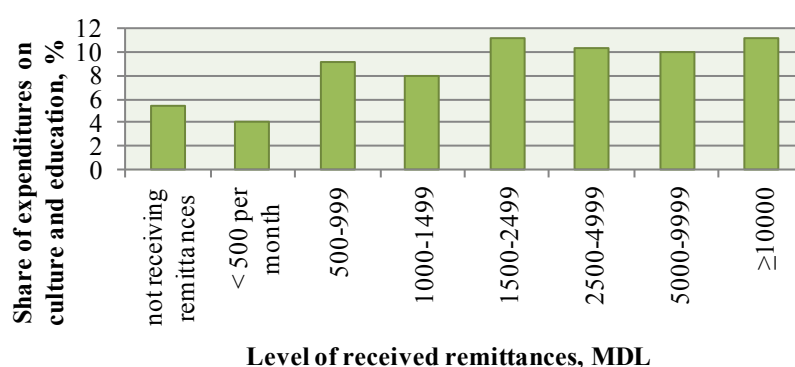
Figure 7.2. Share of remittances in households' disposable income, 2011



Source: Elaborate by authors based on Statbank of the National Bureau of Statistics of the Republic of Moldova, <http://statbank.statistica.md/pxweb/Database/EN/04%20NIV/NIV01/NIV01.asp>

From the data available from the Household Budget Survey, carried out by the National Bureau of Statistics can be seen clearly that income from remittances is significantly higher in households with children, especially in households from rural area. While remittances' shares in the income of households with children living in cities represent 12.5%, in rural areas this indicator shows a value that is more than twice higher. A study performed by Center for Social and Economic Research (2008) on migration and remittances impact on rural areas development suggests that the share of expenditures on educational and cultural purposes in the budget allocations of remittance-receiving households is higher compared to those not receiving. Households receiving more than 500 lei per month spend on education and cultural activities a sum that may vary between 7.9% and 11.2% of total household monthly expenditures.

Figure 7.3. Share of expenditures for culture and education in rural household expenditures according to their level of monthly average remittances received



Source: Elaborate based on CASE study (2008)

The NBS data on households' expenditures structure exhibits figures that are significantly lower. The average annual share of education in households' average monthly expenditures in rural areas represented 0.4% in 2007-2011, registering a growth trend from 0.1% to 0.7%. In urban areas it increased twice from 0.7% to 1.4%. Also no apparent relationship can be seen between households' remittance income and their expenditures on education. While in urban areas the correlation

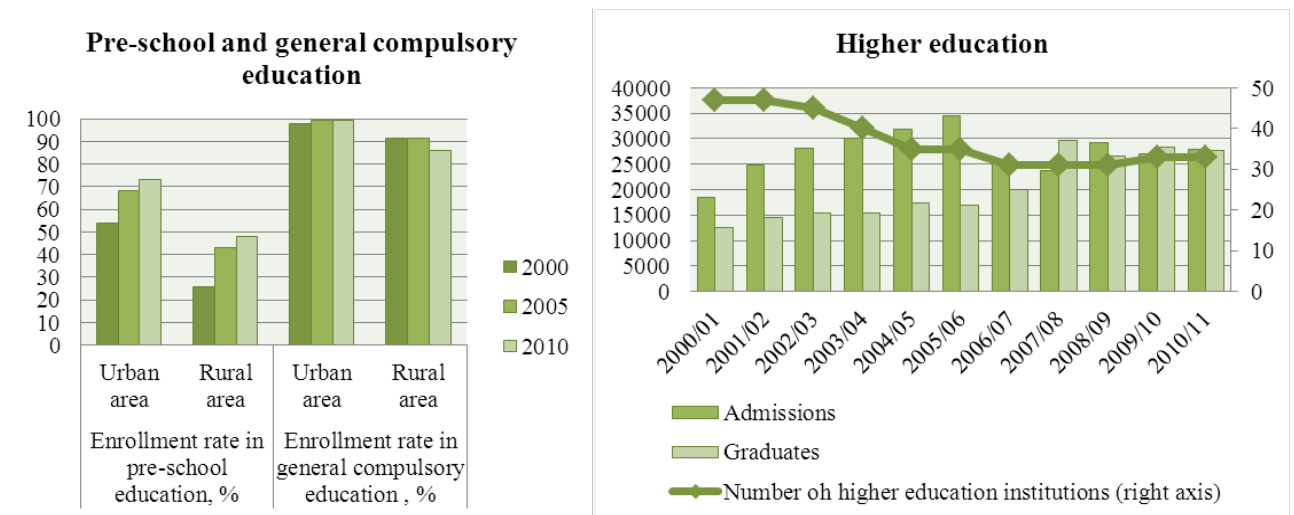
coefficient for the two variables for the last five years is -0.2 in rural areas it takes a value of 0.01. Despite these data do not reflect clear evident tendencies, indirectly can be concluded that remittances in rural areas play a most important role in financing children’s education that in the cities, due to lower income of households in the former.

Although still insignificant, migrants’ donations contribute as well to education development. Especially in rural areas where social cohesion is stronger and migrants are much attached to their community, they tend to support it in various ways, making donation particularly to sustain religious causes, education or infrastructure projects (Matthias Luecke, Toman Omar Mahmoud, Andreas Steinmayr, 2009).

As seen from the above finding, a part of remittances sent by Moldovan citizens working abroad are used to finance their children education that would contribute to a general improvement of indicators characterizing human capital development. However, looking at the education system in Moldova not significant progresses can be seen.

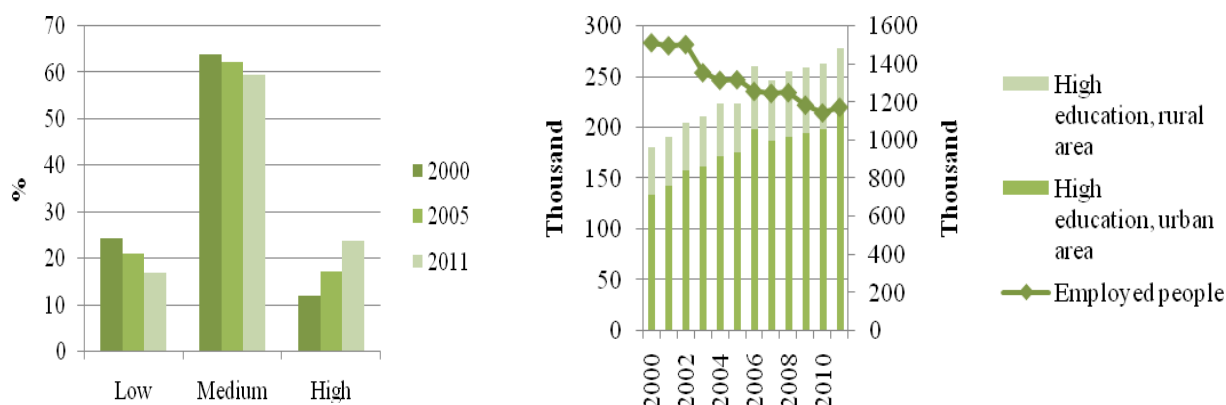
- According to the Human Development Report, Republic of Moldova ranks quite high compared to other countries in terms of literacy rate – in 2009 from 101 countries, Republic of Moldova ranked on the 24-th position. However, looking at time evolution, the value of the indicator has not changed significantly. In 2006, according to NBS data, adult literacy rate increased with 0.1p.p from the preceding year, reaching 99.6%. Till 2009 it kept the same value, following a 0.1p.p drop in 2010;
- Despite the positive trend in enrollment rate in preschool education both in urban and rural areas, enrollment in general compulsory education evaluated much slower. More than that, it has registered a negative evolution in 2010 compared to 2005, tendency more visible in villages;
- Situation in the higher education system cannot be characterized as having much better evolutions. After a strong decrease in 2006 in number of admissions to higher education, it followed a period of slight but very instable improving.

Figure 7.4. Evolution of educational enrollment rate in rural and urban areas



Source: Elaborate by authors based on Statbank of the National Bureau of Statistics of the Republic of Moldova, <http://statbank.statistica.md/pxweb/Database/RO/ODM/ODM.asp>

At the same time, as can be seen in the figure 7, a significant improvement has occurred in the rate of graduated students. These changes can be reflected in the increase of the number of high educated people employed in the labor market, while employment in the economy has followed a decreasing trend since 2000. So their share in the labor market, however low enough yet – less than a quarter in 2011, had a good evolution in the last years compared to that of people with lower level of education.

Figure 7.5. Educational attainment of the labor force

Source: Elaborate by authors based on Statbank of the National Bureau of Statistics of the Republic of Moldova, <http://statbank.statistica.md/pxweb/Database/RO/ODM/ODM.asp>

Although poor performances in human capital development in Republic of Moldova could be explained by the deficiencies of the existing policies and regulations, they can be explained as well by negative spillovers effects produced by migration and remittances. Migrants remittances reduces the financial constraints of their families allowing a more large access to education for their children, but according to many studies UNICEF (2008), CIVIS/ IASCI (2010) held in this field migration has a strong negative impact on psychological and emotional state of children, that affect their academic performance.

8. Remittances and poverty

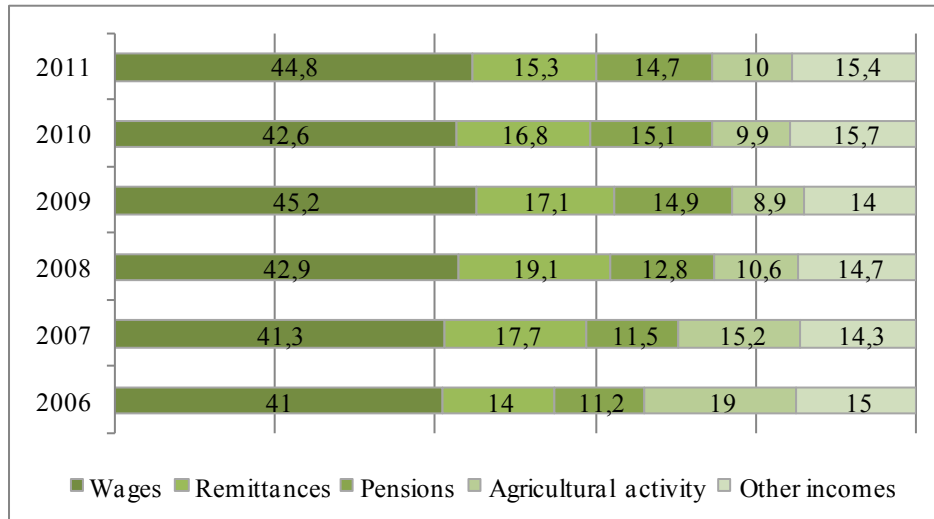
Impacts of remittances on poverty and income inequality have been a focus of many economic researches. However, findings often have been contradictory, and a unifying approach about influence of remittances on inequality has been elusive. Most studies conclude that international remittances have reduced poverty either directly or indirectly. De Haas (2007) argue that there is certainly an element of truth to this logic, there is also a clear danger of unrestrained optimism concerning the potential of remittances to reduce poverty and inequality. First, there is a tendency to overestimate the magnitude of migration and remittances. Second, the observation that remittances significantly contribute to income stability and welfare in developing countries does not necessarily imply that they contribute to poverty alleviation⁵¹.

In the case of Republic of Moldova it is well documented that remittances have helped to reduce absolute poverty in Moldova as perceived by the households themselves (Luecke, Omar Mahmoud and Pinger, 2007)⁵². Remittances represent one of the basic sources of income for households along with wages and social payments, and during 2006-2011 years its shares vary between 14 and 19.1%.

⁵¹ Haas H. (2007) Remittances, Migration and Social Development. A Conceptual Review of the Literature, United Nations Research Institute for Social Development, , pag. 11. available at: [http://www.unrisd.org/80256B3C005BCCF9/\(httpAuxPages\)/8B7D005E37FFC77EC12573A600439846/\\$file/de_Haaspaper.pdf](http://www.unrisd.org/80256B3C005BCCF9/(httpAuxPages)/8B7D005E37FFC77EC12573A600439846/$file/de_Haaspaper.pdf)

⁵² Luecke M., Mahmoud, T., O., Steinmayr A. (2009) Labor Migration and Remittances in Moldova: Is the Boom Over?, International Organization for Migration, pag. 27. available at: http://www.iom.md/attachments/110_2009_05_05_remmit_boom_over_eng.pdf

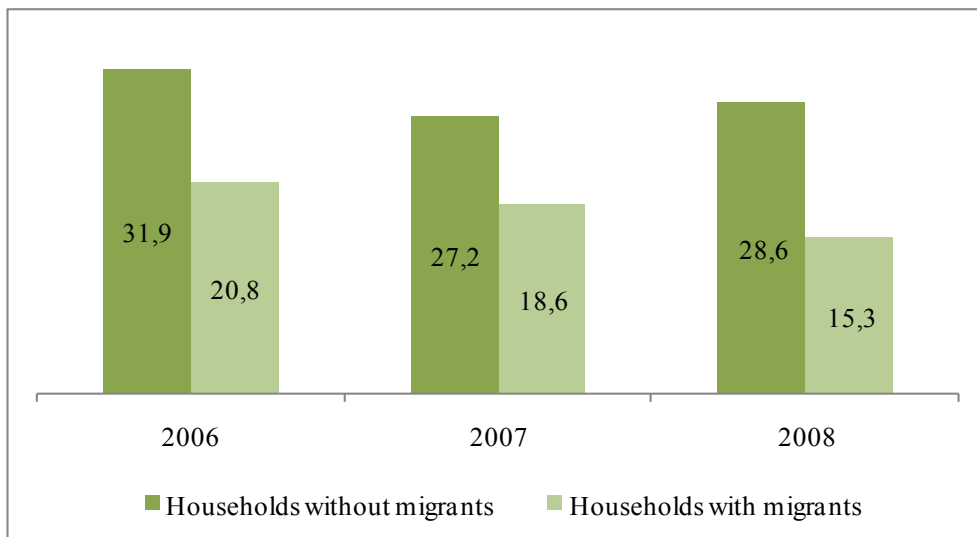
Figure.8.1. Disposable income by sources of income, %



Source: elaborated by authors using data from: <http://www.statistica.md/category.php?l=ro&idc=445&>

Resources obtained from remittances significantly influence access to goods and services for recipient households, thus reducing social exclusion. For these households is recorded the lower incidence of poverty.

Figure 8.2. The share of households with and without emigrants, %



Source: National Bureau of Statistics, *Abordări ale excluziunii sociale în Republica Moldova*, 2010, p. 89

Although there are evidence about that migrant households are on average one third richer in terms of household income per adult equivalent than non-migrant households, overall, it remains difficult to draw conclusions on the impact of migration and remittances on income distribution. Furthermore, all income groups are better off on average as a result of migration and remittances. At the same time, better-off households benefit significantly more from migration and remittances than poorer households⁵³.

⁵³ Luecke M., Mahmoud,T., O., Steinmayr A.(2009) Labor Migration and Remittances in Moldova: Is the Boom Over?, International Organization for Migration, pag.30. available at: http://www.iom.md/attachments/110_2009_05_05_remmit_boom_over_eng.pdf

Conclusions

The migration phenomena and the effects it produces over the social and economic development of the country through the remittances channels became an important concern of the national authorities in the last decade. However, it should be noted that the focus of decision makers' policies in this area have changed over time. At the beginnings, when migration was growing at alarming rates the main concerns was linked to methods of stopping it; then when the size of the phenomena became high enough and analyzing the causes of the population outflow was acknowledged that it would be hard to stop it, the focus moved on ensuring the necessary conditions for legal migration and employment in the host countries. In the last years, however, the later issues have not lost from their importance; policy makers became very mindful of how to increase migration spillovers for the host economy. One of the most relevant channels in this context is taking actions to channel the migrants' remittances into uses that will spur the national economy growth. As could be seen the channels through which remittances can influence the economic and social development of the country are multiple and quite different. At the same time, the remittances positive spillovers are offset, sometimes, by migration negative effects.

In case of Moldova the analysis of relationship between growth, investments and remittances, proved that the growth model based on remittances does not yield in the long-run. Moreover, it argues that the relation between remittances and growth is ambiguous in Moldova. Economic growth proved to be not sustainable in medium to long term, it is necessary to identify and develop other engines of economic growth. Although, the influence of remittances in Moldova to other sectors, especially in reducing the poverty may have a positive result, the influence on economic growth, in a straightforward relationship, is proved to be unclear. A more positive result is in regards to investments, but lack of a well performing financial sector, does not allow for Moldovan economy to benefit from remittances.

In this context, in order to benefit from remittances and encourage a sustainable GDP growths there are some pylons/conditions to be met. **First**, it is important to assure the stability, at least for medium-term period, of these flows, because of their importance to the disposable income and poverty. **Secondly**, macroeconomic stability is another goal of the policy makers. **In addition**, finally, sound national policies that encourage the development of quality factors of economic growth (factors that are shifting the potential GDP). Speaking in the terms of economic growth theory, remittances may appear to be similar to FDI (other private international capital flows) and/or influence capital accumulation, labor force growth, TFP. In any case, in order to ensure sustainable growth, Republic of Moldova is obliged to perform reforms that improve business climate. A better business climate will stimulate productive use of remittances. These reforms refer to a wide range of actions:

- ✓ improving physical infrastructure;
- ✓ reducing corruption and bureaucracy;
- ✓ reform of judiciary system;
- ✓ enhance the development of the financial system;
- ✓ ensuring fair competition in sectors of national economy.

Among the policies that have had good results can be mentioned:

- ✓ legalization of labor export and increasing its efficiency. The export of labor forces can be improved by state through offering information about employment opportunities in foreign countries and some support for obtaining job in other country (preparation of documents, judicial consultancy). In this way can rise the stability of remittances;
- ✓ socio-economic integration of migrants and their remittances. Thorough different incentive, remittances can be attracted in financing infrastructure and even educational institutions.

Other direction of action for policy makers is creating the appropriate conditions for remittances' transfers, including lowering the costs of international transactions via banking system. It could produce multidirectional effects: increasing the money transfers through formal channels and thus improving statistics data on remittances; increasing the disposable income of households that receive money from abroad.

Summarising, main constraints in using remittances in a more productive way are associated with little transfer sums, limited access to the financial market, market failures, too little knowledge about migrant's needs and investment climate.

For Moldova we recommend: stimulating collective investment programs, launching Hometown Associations, fortifying the influence of Moldavian Diaspora, the implementation of specialized international financial products, diversification of financial products offered to migrants and their families, launching programs that stimulate SME's development.

Stability of the remittances is very important in short and medium term in order to maintain living standards. At the same time, sound macroeconomic policies and structural reforms are needed. It is necessary to promote official way of transfer the remittances and long-term economic policies must not rely on remittances.

Management of economic migration and remittances is also needed in order to assure the stability of the flows. Thus, we recommend: migration management, external labor occupation policies. It includes external labor agreements, information offices, temporary labor contracts, reduction of costs to migration, utilization of migration as know-how experience.

Also, there could be specified the following measures:

- Reduction of the negative effects of remittances;
- Fighting the effects of Dutch disease, fighting poverty and inequality;
- Encouraging positive effects. Increasing the volume of remittances that can be invested;
- Creation of special funds, encouraging financial diversification and assuring non-banking financial institutions to act properly;
- Increasing the volume of deposits due to remittances and decreasing the interest rate for long-term credits – it will provide sources for long-term investment projects;
- Investments in human capital;
- Promotion of national policies that will encourage the process of brain gain and will stimulate education and health of the population.

The only way to channel remittances to investments is to assure a daily expense for those receiving remittances. This means higher incomes. This is why none of the above instruments will not work ***without a sustainable growth national program***. That should enhance the investment business climate, fight corruption and promote competition and finally, restructure the Moldova's economy.

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APENDICES

APPENDICE 1

Emigrants stock according to the country of destination, 2010

<i>EU countries</i>		<i>CIS countries</i>	
Italy	89,188	Russian Federation	284,330
Romania	39,091	Ukraine	168,370
Spain	17,551	Kazakhstan	9,693
Germany	17,425	Belarus	2,543
Greece	7,379	<i>Other countries</i>	
Portugal	4,287	United States	25280
Latvia	3,354	Israel	21265
Ireland	3,335	Canada	6112
Cyprus	832	Turkey	2614
Czech Republic	827	Australia	736
France	727	Switzerland	198
United Kingdom	609	Norway	151
Lithuania	536	Japan	140
Poland	483	Georgia	124
Austria	448	New Zealand	85
Belgium	361	Argentina	60
Sweden	265	Other	61524
Denmark	190		
Netherlands	152		
Finland	108		
Hungary	55		
Luxembourg	18		
Total	770,528		

Source: World Bank, Bilateral Migration and Remittances Database ,<http://econ.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTDECPROSPECTS/0,contentMDK:22803131~pagePK:64165401~piPK:64165026~theSitePK:476883,00.html>

APPENDICE 2.1**Estimation output for VAR model with GDP, investment and remittances as variables**

Vector Auto Regression Estimates
 Sample (adjusted): 2001Q2 2012Q1
 Included observations: 44 after adjustments
 Standard errors in () & t-statistics in []

	DLOG(GDP)	DLOG(I)	DLOG(REMIT)
DLOG(GDP(-1))	-0.636767 (0.17759) [-3.58555]	-0.034909 (0.22659) [-0.15406]	0.231806 (0.75893) [0.30544]
DLOG(GDP(-2))	-0.172812 (0.20951) [-0.82483]	0.231037 (0.26732) [0.86428]	-0.611359 (0.89533) [-0.68283]
DLOG(GDP(-3))	0.011270 (0.20921) [0.05387]	0.320806 (0.26694) [1.20181]	-0.505692 (0.89406) [-0.56561]
DLOG(GDP(-4))	0.022228 (0.17984) [0.12360]	0.567705 (0.22946) [2.47412]	-0.074174 (0.76853) [-0.09651]
DLOG(I(-1))	0.089845 (0.12709) [0.70696]	0.463067 (0.16215) [2.85581]	1.551120 (0.54309) [2.85608]
DLOG(I(-2))	0.016964 (0.13202) [0.12850]	-0.098755 (0.16844) [-0.58629]	0.971105 (0.56416) [1.72132]
DLOG(I(-3))	0.187706 (0.13749) [1.36525]	0.121926 (0.17542) [0.69505]	0.233996 (0.58755) [0.39826]

	DLOG(GDP)	DLOG(I)	DLOG(REMIT)
DLOG(I(-4))	-0.190577 (0.11676) [-1.63224]	-0.480219 (0.14897) [-3.22357]	0.566141 (0.49896) [1.13465]
DLOG(REMIT(-1))	0.006735 (0.04218) [0.15970]	0.128067 (0.05381) [2.37994]	-0.156916 (0.18023) [-0.87063]
DLOG(REMIT(-2))	0.020783 (0.04432) [0.46893]	0.028717 (0.05655) [0.50784]	-0.326461 (0.18940) [-1.72370]
DLOG(REMIT(-3))	0.009007 (0.04233) [0.21279]	0.035315 (0.05401) [0.65389]	-0.445037 (0.18089) [-2.46023]
DLOG(REMIT(-4))	-0.026627 (0.04285) [-0.62143]	-0.026243 (0.05467) [-0.48003]	-0.177810 (0.18311) [-0.97108]
C	0.022772 (0.01054) [2.16105]	-0.005175 (0.01344) [-0.38493]	0.091705 (0.04503) [2.03649]

APPENDICE 2.2**Estimation output for VAR model with GDP, investment and remittances as variables**

R-squared	0.428323	0.644051	0.410251
Adj. R-squared	0.207029	0.506265	0.181961
Sum sq. resids	0.041009	0.066758	0.748906
S.E. equation	0.036371	0.046406	0.155429
F-statistic	1.935535	4.674268	1.797059
Log likelihood	91.08633	80.36578	27.18000
Akaike AIC	-3.549379	-3.062081	-0.644545
Schwarz SC	-3.022232	-2.534934	-0.117398
Mean dependent	0.014510	0.024497	0.070191
S.D. dependent	0.040844	0.066043	0.171848
<hr/>			
Determinant resid covariance (dof adj.)		5.10E-08	
Determinant resid covariance		1.78E-08	
Log likelihood		205.2267	
Akaike information criterion		-7.555759	
Schwarz criterion		-5.974318	
<hr/>			

APPENDICE 3**Estimation output**

Dependent Variable: UNEMPLOYED

Method: Least Squares

Date: 08/31/12 Time: 20:57

Sample: 2000 2011

Included observations: 12

UNEMPLOYED=C(1)+C(2)*ACTIVE POPULATION

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-84.25779	45.55289	-1.849669	0.0941
C(2)	0.129304	0.032090	4.029369	0.0024
<hr/>				
R-squared	0.618842	Mean dependent var		98.35000
Adjusted R-squared	0.580726	S.D. dependent var		24.65362
S.E. of regression	15.96356	Akaike info criterion		8.529506
Sum squared resid	2548.352	Schwarz criterion		8.610324
Log likelihood	-49.17704	Hannan-Quinn criter.		8.499584
F-statistic	16.23582	Durbin-Watson stat		1.430534
Prob(F-statistic)	0.002402			

Source: elaborated by authors

APPENDICE 4**Estimation output**

Dependent Variable: UNEMPLOYMENT RATE

Method: Least Squares

Date: 08/31/12 Time: 20:41

Sample (adjusted): 2001 2011

Included observations: 11 after adjustments

UNEMPLOYMENT RATE = C(1) +
+C(2)*INVESTMENTS/GDP+C(3)*DLOG(REMITTANCES)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.120244	0.014632	8.217809	0.0000
C(2)	-0.210915	0.054698	-3.856032	0.0048
C(3)	0.027254	0.011867	2.296615	0.0507
R-squared	0.729843	Mean dependent var		0.067621
Adjusted R-squared	0.662304	S.D. dependent var		0.012426
S.E. of regression	0.007221	Akaike info criterion		-6.796624
Sum squared resid	0.000417	Schwarz criterion		-6.688107
Log likelihood	40.38143	Hannan-Quinn criter.		-6.865028
F-statistic	10.80621	Durbin-Watson stat		1.522396
Prob(F-statistic)	0.005327			

Source: elaborated by authors

APPENDICE 5**Estimation output**

Dependent Variable: PART TIME WORKERS/EMPLOYED (PT/PO)

Method: Least Squares

Date: 08/31/12 Time: 20:39

Sample (adjusted): 2001 2011

Included observations: 11 after adjustments

(PT/PO)=C(1)+C(2)*DLOG(R)+C(4)*DLOG(INV)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.082869	0.005503	15.05772	0.0000
C(2)	0.249901	0.041676	5.996227	0.0003
C(4)	-0.177798	0.042346	-4.198655	0.0030
R-squared	0.820241	Mean dependent var		0.097083
Adjusted R-squared	0.775301	S.D. dependent var		0.033717
S.E. of regression	0.015982	Akaike info criterion		-5.207647
Sum squared resid	0.002044	Schwarz criterion		-5.099130
Log likelihood	31.64206	Hannan-Quinn criter.		-5.276052
F-statistic	18.25202	Durbin-Watson stat		2.584684
Prob(F-statistic)	0.001044			

Source: elaborated by authors

APPENDICE 6

Estimation output

Dependent Variable: DLOG(CPI)

Method: Least Squares

Date: 08/27/12 Time: 22:02

Sample (adjusted): 2001 2010

Included observations: 10 after adjustments

DLOG(CPI)=C(1)+C(3)*DLOG(UNIT VALUE OF IMPORT)

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	0.067404	0.005939	11.34919	0.0000
C(3)	0.494307	0.070062	7.055260	0.0001
R-squared	0.861536	Mean dependent var		0.090795
Adjusted R-squared	0.844228	S.D. dependent var		0.039480
S.E. of regression	0.015582	Akaike info criterion		-5.308536
Sum squared resid	0.001942	Schwarz criterion		-5.248019
Log likelihood	28.54268	Hannan-Quinn criter.		-5.374923
F-statistic	49.77669	Durbin-Watson stat		1.926140
Prob(F-statistic)	0.000107			

Source: elaborated by authors