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The Developmental Effectiveness of Remittances:  
Case Study on Huedin Town, Romania





# The wiiw Balkan Observatory

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# **The Developmental Effectiveness of Remittances**

## **Case study on Huedin town, Romania**

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July 2006

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## Abstract

Relying on survey data from Huedin, a town in Romania, we seek to provide an empirical evidence for the hypothesis according to which remittances could have either a positive or negative developmental impact at community level. For this, we inquire about the perceptions of migratory processes with focus on the possible effects of remittances in the local economy. Our first finding is that residents share a common view on the reasons of migration, namely that it has been triggered by the large pay levels that exists between the level of local and the Western European labor markets and that migration opportunity was enhanced by the lifting of visa requirements for Schengen countries. We have also found that remittances constitute a significant source of liquidity inflow and that the ways in which repatriated earnings were spent have influenced the performance of the local economy. We conclude that a reinterpretation of migration is required in order to capture the investment and entrepreneurial aspects of the phenomenon. In the formal model proposed in Appendix 2, we make a first attempt to conceptualise migration as a sector of the local economy in which migrants are entrepreneurs, who invest in migration activities to produce the composite commodity remittance.

JEL Classification: F22, O15, O16

Keywords: Remittances, migration, development, Romania

## 1. Introduction

The repatriated earnings of migrant workers, also known as remittances, represent for many countries one of the top three sources of external financing along with foreign direct investment and developmental assistance. This is largely attributable to the steady increases in migration and in remittance transfers over the last decade. By no surprise, just like in the case of other international transfers, remittances are distributed unequally among beneficiary countries and their developmental effects are highly context specific. In parallel with increasing remittances, we can also observe a widening of the pool of countries benefiting from remittances. For instance, some of the Central and Eastern European (CEE) countries have been increasingly gaining weight on the international map of remittance beneficiary countries. According to the International Monetary Fund's Balance of Payment Statistics Yearbook, 2003, six CEE countries were among the top 30 remittance beneficiary countries in the world. Thus, in 2002, Poland benefited from USD 3.8 billion, ranking the seventh. Another example is Romania, which recorded USD 1.6 billion in remittances. In the following years, these amounts have increased, thus by 2004 Romania reached USD 2.1 billion in remittances, contributing to GDP formation by 3.35 per cent. This amount represents some 1% of global remittances, which in 2004 were estimated to be USD 216 billion (Ratha, 2005). The amounts mentioned above include only the official transfers.

There is an extensive literature discussing remittance flows and their impact on various macro- and micro-economic factors in the countries of Africa, Latin America, and South East Asia. In contrast, much lesser attention is dedicated to the impact that remittance flows have had in the countries of Central and Eastern Europe. The reasons for this state of affairs are twofold. On the one hand, CEE countries are mostly newcomers to the international remittance market. On the other hand, attention has been mostly directed towards other factors, such as transition to market economy and the European integration process. Nevertheless, in 2004, the CEE region attracted over 11 per cent of all world remittances (Ratha, 2005).

The literature identifies a large set of factors that are considered to influence national remittance revenues, such as the nature of remittances, the context and nature of migration, the share of labour force working abroad, the legislative rules and institutional structures affecting migrants and remittances, and the specific linkages that migrant workers maintain with their home country. Given the lack of sufficient theorization, findings are often methodology driven and – because there is very little control of the different factors – results are problematic to interpret. For instance, Amuedo-Dorantes and Pozo (2004), using a sample of 13 Latin American and Caribbean countries, found that remittances had led to real exchange rate appreciation producing a loss in external competitiveness. Based on a sample of 71 developing countries, Adams and Page (2005) found that the increase in international migration and remittances had produced a significant decrease of poverty. These findings raise the issue of remittances having possible differentiated effects at micro (household) and macro-economic levels. For this reason, it is important to identify the critical factors that could improve the positive impacts of remittances at individual level, while reducing their possible negative effects at community or national levels.

The key objective of this research is to inquire about the linkages that exist between labour migration and development by mapping the various micro and macro level variables that influence the hypothesised relationship. For this reason, we put forward a schematic model to interpret the possible linkages between migration and development. We give special attention to EU member states' immigration policies in terms of the sustainability of the supposed developmental impact of migration.

Because the lack of systematic data on the nature of migration and the volume of remittances impedes the accuracy with which the patterns and dynamics of migration and remittances can be evaluated and provides limited knowledge about the true developmental effect of the financial flows, we gathered household level data, by applying a structured interview questionnaire, at the level of one settlement in Romania, namely Huedin.

The paper is structured in five sections. The second section presents the main academic debates related to the possible macro and micro level impacts of remittances, followed by the introduction of the main concepts of the model proposed to assess the developmental impact of remittances. Section 4 is a case study using data collected in Huedin, Romania, with the main findings being presented in line with the proposed interpretation model. The last section includes the conclusions.

## **2. Developmental Effects of Remittances: Theory and Empirical findings**

We have already seen that repatriated earnings of migration are major sources of external financing for many developing countries. However, a debated issue has been how migration and remittances contribute to development and what the factors that enhance or diminish their theoretical developmental impact are.

Despite the initial over-enthusiasm of the international development community about the possibility for migration and associated remittances to become one of the most effective development resources, evidence indicates that remittances alone do not lead to development and economic growth. Therefore, unsurprisingly, migration in itself cannot be considered to be a universal solution for addressing all development related problems. The extent to which migration and remittances contribute to development depends on both micro and macro level factors in the source and host economies.

The literature on the possible developmental impact of remittances can be grouped according to the level at which this is envisaged to occur. On the one hand, there are the macro-economic level studies. For instance, Hermele (1997) argues that remittances do not contribute to development because they are mostly spent on consumption rather than productive investment goods. Using Albanian data, Haderi et al. (1999) find that remittances have a major impact on inflation and exchange rates. Daianu (2001) shows that for the case of Romania, they prove to be important in financing balance of payment deficits. In a study of the experiences of Mediterranean countries in using remittances to balance foreign trade deficits, Glytsos (2002) finds that success is highly dependent on government policies dealing with these issues. Chami et al. (2003) identify a Dutch Disease effect if remittance-led investment shifts from the industrial sector towards the agricultural one.

There are also authors who point out the possible negative externality effects of remittances, for instance, on property markets (e.g. Bracking, 2003) and on income equality (e.g. Stark, 1991). Some (e.g. Martin and Straubhaar, 2001) consider remittances do not lead to the development of productive capacities and do not produce macro-economic imbalance due to

their fluctuations. Others (such as Buch and Kuckulenz, 2004) show that these migration based repatriated revenues tend to be more stable than private capital flows. Consequently, at macro level, remittances are not a guarantee for development as they might have both positive and negative effects depending on the peculiar context in which they are assessed. This state of affairs in the literature indicates that the factors under study are insufficiently conceptualised.

On the other hand, evidence at micro-economic level shows that remittances provide various types of support to migrant workers' households or extended families. Household level evidence indicates that remittances produce a net benefit for migrants' families, which may not necessarily have long-lasting welfare-improving implications. The lasting nature of remittance revenues depends on factors that include, among others, the reasons of remitting, the methods used to remit, the way remittances are spent, and the policies regulating remittances.

The literature identifies a varied set of reasons behind remitting. Stark (1991), Stark and Lucas (1998), and Yang (2003) find evidence that remittances fulfil risk sharing functions within the family under conditions of economic shocks and transformations. Agarwal and Horowitz (2002) find that remitting is an altruistic act that is motivated by the responsibility of migrants towards their families. Cox et al. (1998) draw attention to the fact that migrants also pay for different services in their source economy, such as looking after their live-stock during the period they spend working abroad. Other studies carried out by Cox and Jimenez (1992) and Poiries (1997) underline the role that remittances play in financing investments and loan repayments. Hoddinott (1994) makes a compelling case of remittances as an instrument of inter-temporal investment in inheritance. Although these distinctions are useful, it is not always possible to identify and isolate one of these as being the motive of remitting. Most of the time, migrants name a combination of these factors as their reasons for remitting.

The way in which remittances are spent could influence the sustainability of remittance benefits in the long term. If remittances are spent only on current consumption goods, then future consumption has to be financed from future remittances. Alternatively, if remittances are saved or invested, this could lead to financing future consumption in a sustainable way. However, the literature (e.g. Lowell and Findlay 2001) suggests that there is a whole set of spending practices. Based on a review of several articles, Sander (2003) summed up the following ones: daily needs and expenses, educational and medical expenses, purchase of durable goods, investment in housing and socio-cultural life, and income/employment generating activities.

There are few empirical analyses that focus on the externality effects of remittances at the local economy level. These indirect impacts of remittances (Hugo, 2003 p. 21) could be either positive or negative depending on the extent and usage of remittances. Glytsos (1993) looks at the general multiplier effect of remittances and estimates it to be 1.7 for the case of Greece. Other studies show that remittances affect the local physical infrastructure (Alarcon, 2002), the local capital market development (Ballard, 2002), the emergences of development institutions (Meyers, 1998), and property markets (e.g. Bracking, 2003). Solimanos (2003, p.12) distinguishes among “effects on savings, investment, growth, consumption, and poverty and income distribution”. This tenet of the literature allows for translating the possible developmental effects of remittances as an issue of designing policies that enhance the saving and the investment of remittances and thus creating positive externalities.

### **3. The model**

We have seen evidence in the literature that migration strategies and remitting propensities are influenced by both micro (individual, household) and macro social factors. Micro-economic models provide useful insights into individual migration decisions and into the way in which various migration opportunities shape migration and remitting decisions. In contrast, macro-economic models describe the macro-economic and political contexts which shape migration lifecycles and remitting behaviour. To capture the impact of policies at settlement levels on growth and poverty we need to design an analysis being able to capture the aggregate effects at the micro and the macro levels. For this reason we propose the adoption of the CGE model able to account for the different factors influencing the relationship between migration/remittances, policies and development (growth and income distribution effects) at the settlement level. We propose a three-tier model.

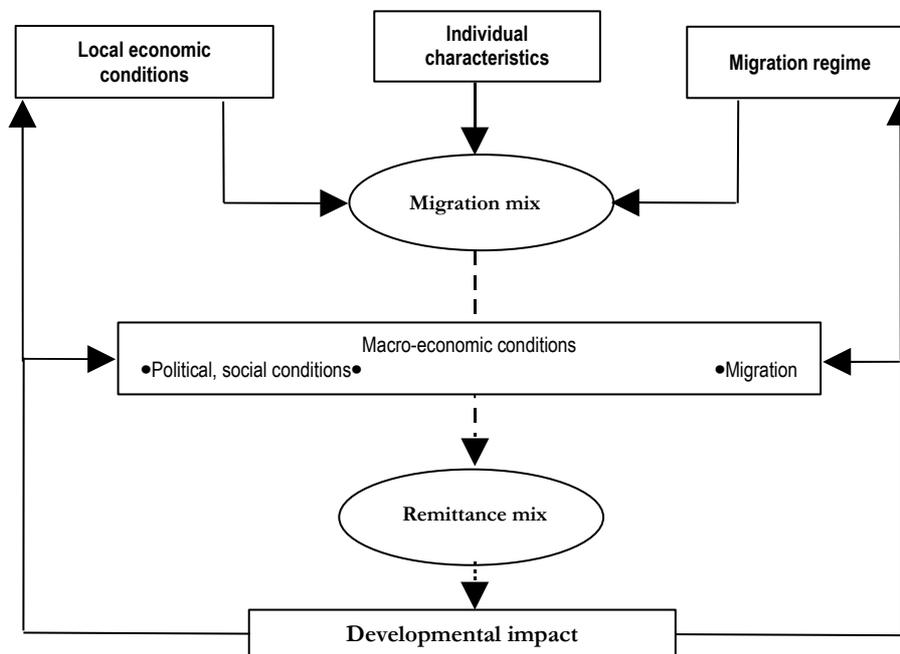
The first tier concerns the structure of the settlement level *migration mix*. This is envisioned as being determined by the personal characteristics of individuals, the local economic conditions of the source labour market and the existing migration regime. The goal is to estimate the impact of existing labour market conditions in the source local economy (i.e. job opportunities and security, earning levels etc.) and labour mobility opportunities and constraints on migrant selectivity. At the level of migration regime, for modelling purposes, we distinguish between domestic and international labour mobility. We also acknowledge different forms of international labour movement regimes. First, there is the situation full freedom of movement by the elimination of all institutional restrictions (i.e. entry restrictions) to travel and administrative constraints on seeking and accepting jobs. Second,

when people travel freely, but there are restrictions in accepting jobs. Third, there are limitations both to travel and seeking and accepting jobs. For instance, the regime in which people can travel for non-employment purposes and stay for limited time on the territory of the country visited. Forth, there is no travel and job seeking opportunities.

The second tier regards the composition of the return to migration at the settlement level, which for simplicity is defined in terms of *remittance mix*. Remittance composition is considered to be influenced by both micro and macro factors. At the micro level, we consider the individual characteristics of migrants. While at the macro level we distinguish among a series of institutional, transfers infrastructures and macro-economic conditions.

The third tier accounts for the various developmental impacts of the specific migration mix and the remittance mix of given local labour market. At this layer we seek to assess the poverty alleviation impact of migration, both in terms of growth and income distribution among households migrant and non-migrants ones.

Model of interpretation



In the following we will shortly discuss each of the key components of the proposed model of analysis.

*The migration mix*

When considering voluntary labour migration, the literature discusses the propensity of individuals to migrate considering their main socio-economic characteristics, such as age, gender, level of education, economic situation, etc. Several hypotheses have been formulated and evaluated regarding the relevance of personal characteristics in terms of the likelihood of migration. Different migration selectivity was shown for education attainment, age, gender, family status, etc. The way in which migration is undertaken is conditioned by the migration regime. The two most important dimensions in which the individual characteristics and the migration regime collide are the time horizon of migration and the chosen method of migration. Thus, migrants can be categorised by the various forms of temporal/circular or permanent migration in which they engage. Similarly, we can group labour migrants according to their legal status. If considering the two dimensions simultaneously for a settlement or the larger national level, we can conceptualise the *migration mix* as follows.

The migration mix

		Type of labour migration	
		Regular	Irregular
Length of migration	Temporary/ return	Guest worker programs Seasonal worker programs	Violation of legal status Overstay
	Permanent/ emigration	Green card programs Family unification	

We could expect that under a similar migration regime, the personal characteristics will, to a large extent, decide in which category migrants will find themselves. For instance, Hugo (2003) found that strict immigration policies are incentives for migrants to shift from temporary to permanent migration. At the same time, the ability to travel to the target labour market without having to obtain visas allows for possible violations of legal status (i.e. engaging into work related activities). In conclusion, having knowledge about the migration mix of a given community, more precisely, the distribution of migrants with different legal status and length of working abroad could be used as a proxy for their ability and capacity to remit (e.g. illegal migrants have limited access to formal financial services).

### *The remittance mix*

In the most general definition, remittances are the surplus income transferred by migrants to the source country. In a panel study comprising 87 developing countries, Buch and Kuckulenz (2004) identify a series of factors that influence the magnitude and volatility of remittances. They term the various effects of the different factors as the *hybrid nature of remittances*. This suggests that overall remittance flows in a country are an aggregate of many different individual and societal peculiarities, which all need to be dealt with in order to understand the magnitude and volatility of remittances.

The International Monetary Fund's Balance of Payments Statistical Yearbook differentiates three categories of remittances. *Worker remittances* stand for monetary transfers sent by migrants to their home country for a period longer than one year. In case migrants work abroad for less than a year, and consequently send money home for a period shorter than a year, transfers are termed *compensations for employees*. The amounts remitted by permanent migrants are termed *migrant transfers*. In other conceptions, remittances also include – besides financial transfers – goods, skills and knowledge acquired while working abroad (Williams, 2005) and a series of values related to work and life.

Besides this classification, transfers by migrants can also be categorised according to, among others, the reasons of remitting, the direct beneficiaries of remittances, the method of transfer, the usage of remittances, the periodicity of transfers undertaken, the amount of transfers, and so on. Choices at the level of each of these dimensions influence the possible developmental impact of remittances.

As presented in Section 2, the literature provides several competing hypotheses to explain why migrant workers remit. In terms of remittance beneficiaries, we also have a diversity of situations depending largely on the family situation and the social status of migrants. The most frequent transfers are the ones sent to family members. Family members can also act as intermediaries, for instance, when the transfers are meant for loan repayment, situation in which the direct beneficiary is the lender.

Transferring remittances from the host country to the country of origin may occur through formal or informal channels. The most often used channels for formal transfers include various forms of money wire services and bank transfers. Informal channels could be with or without compensation. Non-compensatory transfers occur in the situation when the

amounts are taken into the country of origin by the migrant, or some acquaintances on a reciprocity basis. Compensatory transfers through informal channels involve the service of intermediaries such as coach drivers working on migrant routes, or individuals specialised in transferring money. The choice of the transferring method depends on the transfer fee, the speed of transfer, and the risks of losing the money. Another distinction could be drawn between individual and collective transfers. For instance, organised diaspora could set up special funds to finance various activities in the country of origin.

Based on a review of several articles, Sander (2003) found the following as being the most often mentioned usages of remittances:

- *Daily needs and expenses* – these represent spending on basic goods, such as food, or paying utility bills and basic services.
- *Medical/ health care expenses or education* – representing the purchase of medical services and typically covering costs of education for children.
- *Consumer durables* – these include the purchase of televisions, washing machines, vehicles and so on.
- *Investing in the house and household* – these often include upgrading or building housing or buying land or livestock.
- *Investments in socio-cultural life* – spending remittances, for instance, on customary community support to insure reciprocal support to the family.
- *Loan repayments* – some households finance their debts from remittances, in cases when migrants have loans to repay.
- *Savings* – remittances are used by beneficiary households to ensure safe retirement or reduce risks.
- *Income or employment generating activities* – remittances can also be used as a start up capital for new businesses.

According to the classical view, the productivity of remittances depends on whether these are used for consumption or for investment purposes. Nevertheless, there are several inconsistencies in this approach, as the productivity of remittances could largely depend on a series of micro and macro social factors. For instance, the inter-temporal utility of savings depends on returns, but also on the usage of remittances at a later time. Departing from the classical dichotomous definition of remittance productivity, Carling (2005) formulates an important distinction among different types of remittance flows with major consequences for remittance policy developers. Thus, the author distinguishes among intra-family transfers, personal investment transfers, collective transfers, and social security transfers.

### *Policy variables*

Having discussed the migration mix and the remittance mix, we will now shortly discuss the various policy factors that influence the developmental impact of remittances, namely the macro-economic conditions, the political-social conditions, the migration institutions, and the transfer infrastructure.

*Macro-economic factors* – The possible direct and indirect multiplier effects of remittance flows are influenced by the macro-economic factors that exist in both the host and source countries. The country of origin factors studied by the literature in most details include the impact of inflation as a proxy for macro-economic instability, the extent to which there are competitive foreign exchange regulations and interest rates, as well as the extent of political and economic stability. For instance, according to Quibria (1997), labor migration produces different effects for various groups, but the net effect depends on the amounts of remittances. This was somewhat challenged by El-Sakka and McNabb (1999), who – in a study on Egypt – found that the lack of competitive interest rates and exchange rates lead to remittances being saved abroad or diverted into the black market, leading to low multiplier effects. Choucri (1986) showed that policies seeking to capture remittances have a reverse effect and fuel the development of an informal hidden economy, which in turn has an important impact on the macro-economic performance of a given country. The results of Sayan's (2004) study show that the fluctuation in remittance flows is procyclical for the country of origin's GDP, but at the same time acyclical for the host country's GNI. This suggests that remittances not only contribute to development, but could play a macro-economic stabilizing role in situations of crises. Nevertheless, Glytsos (2002) draws attention to the potential impact of remittances on inflation under conditions of rigid supply. Furthermore, we need to keep in mind Amuedo-Dorantes and Pozo's (2004) findings, according to which remittances possibly lead to the appreciation of the real exchange rate, resulting in decreases in the international competitiveness of domestic products.

*Political, social conditions* – An increase in political and social instability could have a negative impact on returns to migration in various ways. First of all, it could be a push factor to change migration strategy, increasing the share of emigrants to that of temporary migrants. It can also influence remittance flow by restricting it to daily consumption purposes, with surplus amounts being saved in the host country. The migrants' assessment of the general opportunities in their country of origin could be of major importance in their willingness to return and invest.

*Migration institutions* – A significant share of migration occurs through family and acquaintance networks, migrants assisting their fellow citizens in finding out about job

opportunities, providing information on means of travel, and offering temporary housing, or even small loans. These informal institutions are complemented by official or formal job intermediation.

*Transfer infrastructure* – The transfer of remittances has important associated costs in terms of transfer fees, time for the beneficiaries to receive the transfer, and risks of the money being lost. There is a large variety of methods by which transfers take place. An important distinction is made between formal and informal mechanisms.

The most often used formal mechanisms are postal services, money wire transfers, and various bank services. Orozco (2004) identifies the competitiveness of the banking sector and the availability of various financial services as the main explanatory factor for the costs of remitting. The costs vary by country, the amount transferred and the speed of transfer.

Informal transfer systems also exist, as they serve those migrants to which the formal financial mechanisms are unattractive for various reasons. For instance, being illegal in a country might limit one's access to the services of financial institutions. Similarly, seasonal workers tend to bring their saved earnings home themselves. Buencamino and Gorbunov (2002) review a large number of informal systems, among which the *hawala* system (South Asia and parts of the Middle East); *padala* (Philippines), the Chinese *fei-chien* ("flying money") system, the *hui kuan* (Hong Kong), *phei kwan* (Thailand), and so on. It is estimated that the amounts remitted through informal transfer systems are at least equal to the amounts transferred through formal mechanisms.

In appendix 2 we present a first variant of the CGE model to interpret the emergence of the migrant economy at the local level.

#### **4. Case Study on Huedin Town, Cluj County, Romania**

In this section, we apply the conceptual framework outlined above to assess the migration context and the main developmental impact of remittances in a town of Romania, namely Huedin. This case study is also intended to exemplify how specific policies can be identified to enhance the developmental impact of remittances.

For the case study, we applied a structured interview questionnaire at the level of Huedin, a town of approximately 9,900 inhabitants (approx. 3,100 households) in Cluj County, Romania. The main reasons for selecting Huedin include the fact that it is sufficiently large

to allow for the identification of the remittance mix, but small enough to be able to evaluate the main migration related processes in the town.

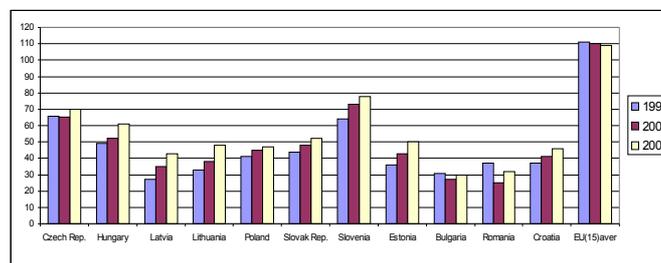
The randomly selected sample included a total of 260 households, drawn from the pool of all households at the settlement level. This sample size allows inference at settlement level with an acceptable margin of error no more than plus or minus 3 per cent, with a confidence level of 95 per cent. The survey data is complemented by official data on migration and remittances available at different public institutions (e.g. Romanian National Bank, National Office for Migration, Ministry of Finance) and settlement level statistical reports.

The case study is divided into five parts. The first part outlines the general national context. In the second part we seek to assess the migration mix profile of Huedin, the third part consists of the various dimensions of remittances for our case, and the fourth part is an assessment of the role of various macro factors. The last part discusses the developmental impacts of the specific migration mix and the remittance mix for Huedin town.

#### 4.1. Background

In the early 90's it turned out that the developmental and revenue gap among Western and Eastern European countries was much larger than previously considered. If we look at the GDP scores of Central and Eastern European countries compared to the 25 European Union member states, we see that Romania's GDP per capita is only slightly above 30% of the average.

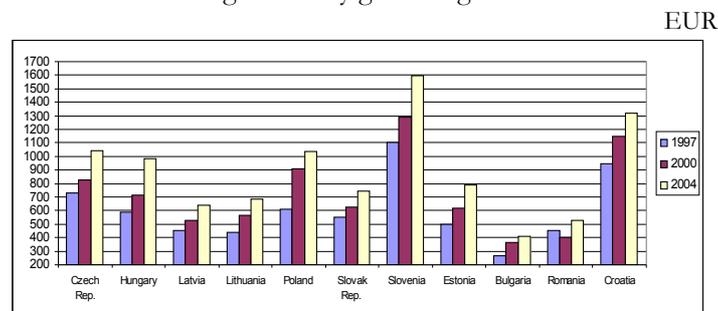
Figure 1  
GDP per capita at current PPPs (EUR)  
EU(25) = 100%



Source: Leon Podkaminer, Gabor Hunya et al. (2005) *Back from the peak, Growth in Transition Countries Returns to Standard Rate of Catching-up*, wiiw Research Reports, nr. 320, Vienna, Austria

These differentials are visible in wage rates (expressed in purchasing power parities), presented in Figure 2. Unsurprisingly, there are important wage differentials among CEE countries, with Romania being one of the lagging countries in the region.

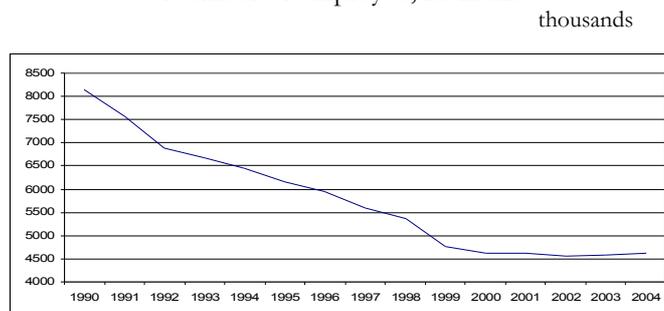
Figure 2  
Average monthly gross wages PPPs



Source: Leon Podkaminer, Gabor Hunya et al. (2005) *Back from the peak, Growth in Transition Countries Returns to Standard Rate of Catching-up*, wiiw Research Reports, nr. 320, Vienna, Austria, pp. 101

Furthermore, if we take into consideration the macro-economic variables of both the source and the target labour markets, we find that the trajectory of the Romanian economy during the regime change and economic transformation led to a decrease in the number of employees by almost 50 per cent, which created a push effect leading to an increase in the propensity to migrate towards more developed labour markets in Western Europe.

Figure 3  
Number of employed, Romania



Source: Annual Statistical Report 2003 and 2004, Romanian Statistical Office, Bucharest Romania

On the pull side, starting with the 90's, Romania engaged in the process of accession to the European Union, which created unique opportunities to migrate to Western European countries. Thus, for instance, the visa requirements to enter the Schengen countries for tourist reasons were lifted. Nevertheless, in terms of obtaining work visas, the same procedures apply as to non-EU nationals, and temporary internal barriers have been created to limit the propensity to migrate. There are also control mechanisms or obstacles to

migration, which are meant to set barriers to the flow of migrants, as well as in-built selection mechanisms.

The lifting of visa requirements, in year 2002, led to a significant decrease in the costs associated with entering the Schengen space. These changes have had an important impact on the migration patterns of Romanian citizens, too. According to official statistics (Figure 1 in Appendix), in the period between 1990 and 2003, some 348 610 citizens or 1.5% of the total population decided to officially emigrate from Romania. After this wave of émigrés, the importance of temporary labour migration has significantly increased. In 2004, the number of Romanian citizens working abroad was estimated by surveys to reach 0.7 million to 0.9 million, representing approximately 8 per cent of the total labor force (IOM, 2005).

Following the elimination of formal administrative barriers to enter the Schengen countries, the role of intermediaries has considerably decreased. Seeking employment in these labour markets has become less costly and available to larger segments of the Romanian labour force. (In line with prior research evidence from Albania, presented by Gedeshi (2002), which showed that the increasing requirements for obtaining short-term entry visas to Greece for Albanian citizens led to side-payments that could be as high as the temporary migrant's revenue for one or two months, we have found similar evidence from in-depth interviews with migrants that during the visa regime period there were elaborate systems of obtaining tourist visas with side payments varying between EUR 800 and 2000, which often included job intermediation abroad and transportation to the destination country.)

Therefore, the change in the migration regime seems to have led to a change in migration choices from emigration to temporary labour migration. This can be largely explained by the easing of migration opportunities to the main target countries. Considering the data available, we could say that the number of temporary migrants is at least double compared to that of permanent emigrants. Furthermore, the IOM (2005) study on Romania has found that migration registered a major increase starting with year 2001, and by 2005 the share of households having labour migrants seems to have settled at around 10%. The past five years in which labour migration has taken off indicates that most citizens concerned prefer working abroad for an average period of nearly two years. At national level, the main target countries are Italy, Spain, Germany, France, and the United Kingdom. The IOM study has also found that only 53% of labour migrants have legal work contracts, the remaining percentage choosing to work without documentation.

The *Urban Romania* study focuses exclusively on urban areas with sub-samples for small, medium and large towns. The study has found that 12% of households in urban areas have had at least one family member abroad (some 25% of those interviewed preferred not to

respond to this question). Regarding the profile of migrants, the study says that labor migrants are preponderantly males belonging to the age group 15 to 44 years old, and are high school or vocational school graduates. In the case of urban areas, the gender distribution of migrants is balanced, while the most prominent age group is 20 to 39 years old. Job search abroad occurs mostly through informal channels, mainly relying on family and acquaintance networks.

From the perspective of our research, the shift from emigration to developed countries towards temporary labour migration is relevant for at least three possible reasons. First, if we conceptualise migration as labour force mobility in a larger economic space, e.g. European Union, then we could describe it as one specific mechanism of resource allocation within the larger space implying various adjustment costs in all local markets involved in the adjustment process. Alternatively, the linkages that migrant workers maintain with their source local economy will largely define the nature of the distribution of costs and benefits among the markets of the larger economic space. Third, the choices in which returns to labour migration in the source local economy are made use of impact on the level in which labour migration contributes to economic development.

#### *4.2 The migration mix*

The data collected through the household survey carried out in Huedin town indicates that one in every three households has had at least one member of the family working abroad over the past five years. In what concerns the period spent working abroad, we have found that 30.2% of migrants have been abroad for over five years, 22.2% for two to five years, 20.6% for one to two years, 7.9% for less than one year but more than six months, and 14.3% for less than six months. As predicted by the literature, the longer migrants stay abroad, the less often they visit their families ( $R^2$  is .355 significant at the .01 level). Considering the legal nature of migration, only 30% of former labour migrants consider that Romanians migrate legally.

As for migrants' profile, 76% of migrants are male, and almost 70% of all migrants are married. Even if a larger share of male population is commonly identified in research findings, the share of migrants who are married is unusually high in our case. This is complemented by the observation that the age distribution of labor migrants in our case indicates that each work age group is represented similarly without bias towards one given age group (one could have expected a larger share from the younger generation). In terms of migrants' educational attainment, the results indicate that over 50% of all migrants graduated

at least ten grades of formal schooling or earned a high school diploma, and over 30% have a college or university degree.

Based on the above, we can say that a significant share of the skilled labour has decided to migrate. This is partly due to the low levels of earning possibilities and to the rate of unemployment or underemployment in the town. When asked about the reasons why their family members decided to seek employment abroad, 25.7% of the respondents answered that their family members had had no regular jobs and thus no sufficient resources to support themselves. Some 32.4% of migrants had had a job prior to migration, but their income had been insufficient to maintain a level of living considered acceptable. Almost 11% decided to migrate because they saw no chances to be able to significantly improve their life conditions by having a job in the country.

From among those migrants who were employed prior to migration, 44.4% were skilled-labourers, 15.6% worked in the service sector, 13.3% in construction, and some 8.9% worked in education. Based on the data gathered, we have found that the sector of employment prior to migration is a moderately strong predictor for the sector of employment abroad, which in the case of temporary migration is possibly a source of professional development.

Regarding the reasons of seeking work abroad, 78.2% of all respondents consider that the main reason why people seek work abroad is the low level of income they can attain having a regular job locally and the possibility of earning higher wages abroad. In contrast, only some 15.5% consider that the main problem in the local economy is the lack of available employment opportunities. This seems to indicate that migration is only at a limited way influenced by the lack of local employment opportunities, but rather by the higher pay levels that could be achieved abroad.

Nevertheless, some 54.2% of respondents consider that most likely they personally will not seek employment abroad, while 11.2% of all those interviewed state that they have definite plans to seek employment abroad in the near future, and some 26.3% consider that although they have no definite plans regarding working abroad, they do not exclude the possibility of seeking employment abroad at a later time.

To travel to their job places, migrants mainly opt for regular coach lines (39.4%) operated by local companies or for their personal car as well as ride sharing arrangements (51.5%).

Regarding financing migration costs, 60.6% of households declared to have had sufficient resources to cover the costs associated with migration, while 32.4% reported that they had had to ask for a loan to cover these costs.

The migration mix of Huedin town is characterized by long-term temporary migration, which is often irregular in nature. Migration is motivated by un- and underemployment of professional and skilled labour and is undertaken through informal network channels. In terms of travel means the most often mentioned are personal cars of migrants or migrant acquaintances, which is in-line with the strong irregular component of migration.

#### 4.3 Remittance mix

When asked to estimate the amount that the household received, the variance in responses was extremely large. There are households which reported revenues between EUR 300 and EUR 40,000. When asked about regular remittances, interviewees indicated the amounts presented in Table 1. Those who answered the question considered that 35.6% of households with migrants working abroad receive over EUR 200 on a monthly basis.

Table 1

Estimated average monthly amount remitted by those working abroad, whole sample population

	%
Between EUR 1 and EUR 100	15.5
Between EUR 101 and EUR 200	14.2
Between EUR 201 and EUR 300	11.5
Over EUR 300	24.1
Do not know	33.2
No answer	1.6
Total	100.0

We have found that 82.98% of households with family members working abroad (have) received remittances. These remittances were sent to mainly cover the daily needs and expenses of the household and in 19.3% of the cases these resources were used for various forms of investment. This finding is not unexpected as regular remittance revenues are considered by many households as being the migrants' contribution to monthly costs.

The survey results indicate that the main direct beneficiaries of remittances in the community are migrants' families (Table 2). Within the household, remittances are mostly directed to the migrant's spouse (33.3%), parents (28.6%), and child or children (19.0%).

Table 2  
Cross-tabulation of household member work abroad by remittances

		Household received/s remittances		Total
		Yes	No	
Household member worked/s abroad	None of family members works/ed	8 17.02%	140 76.92%	148 64.63%
	At least one family member worked abroad	39 82.98%	42 23.08%	81 35.37%
Total		47 100.0%	182 100.0%	229 100.0%

Asking interviewees to name their practices of using remittances, estimating the share of costs for the different criteria (Table 3), we found that slightly over 50% of remittance revenue is used to cover the costs of daily needs and expenses. The second largest cost category is that of educational expenses (16%), which – depending on the different conceptions of the literature – can be considered either consumption or long-term investment into human capital formation. Savings and investment activities constitute some 10% of all remittances received. Here, however, we need to take into consideration that the amounts necessary for realizing large-scale investments are often kept in saving accounts abroad and only brought into the country prior to starting the investment.

Table 3  
The purposes for which remittances are spent

	%
To cover over daily needs and expenses	52.0
To cover medical and health related expenses	4.0
To cover educational expenses	16.0
To purchase durable household goods	4.0
To update and improve housing conditions	2.0
To repay loans	2.0
To constitute savings	4.0
To start up new business	6.0
Other	4.0
Total	100.00

Another important element of the remittance markets is the articulation of the support institutions, e.g. the financial sector or the different policies that influence remittance decisions. Regarding the methods to remit (Table 4), although a considerable share of migrants (41.5%) prefer the services of formal market institutions, such as the services of banks and other specialised financial institutions (e.g. Western Union/Money Gram), 29.3% of migrants still bring remittances home themselves, 12.2% use different networks to transfer remittances and 14.6% use other unofficial means.

Table 4  
Means by which migrants send remittances

	%
Brought money themselves	29.3
Through acquaintances against a fee	4.9
By Western Union/ Money Gram	22.0
Through colleagues/ friends without a fee	7.3
Through banks	19.5
Other means	14.6
Total	100.0

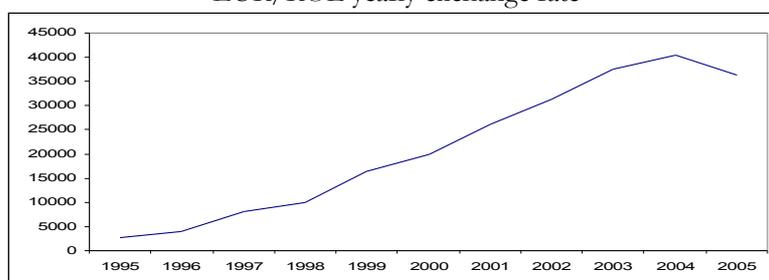
In what concerns possible barriers to remittance usage among those receiving remittances, 86.6% report that they have not encountered any type of problems and only 4.5% reported encountering any sort of inconvenience.

#### 4.4 Policy variables

##### *Macro-economic factors*

The major structural reforms in 1997, including – among others – price and exchange market liberalisation, led to a strong pressure on the depreciation of the national currency. Despite the interventions of the National Bank during 1998 to stabilise the exchange market, the amounting current account deficit led to the discontinuation of the anti-inflationist exchange rate policy. As a result, in 1999 the currency lost two thirds of its nominal value and depreciated considerably against the USD and EUR. The new floating regime produced a gradual decrease of inflation and a competitive exchange rate. In late 2004, a more flexible exchange rate was introduced, which resulted in further appreciation of the local currency. In the figure below, we present the evolution of the EUR/ROL exchange rate.

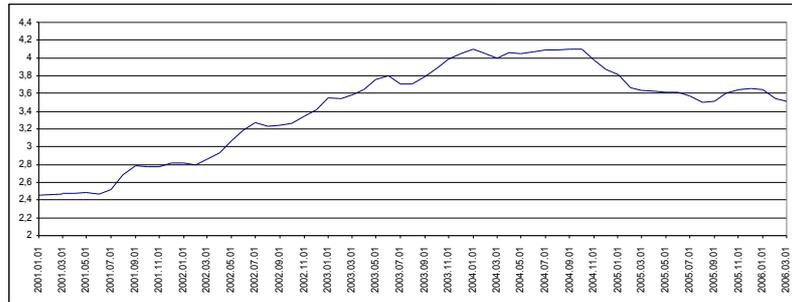
Figure 4  
EUR/ROL yearly exchange rate



Source: Romanian National Bank *Annual Report 2005*, Bucharest

When considering monthly remittance transfers, it becomes relevant to look at the exchange rate volatility. The 2001-2005 period indicates that until fall 2004, saving money in foreign currency could be considered as a mechanism to preserve the value of remittances and afterwards, the appreciation of the national currency had a negative impact on foreign currency savings.

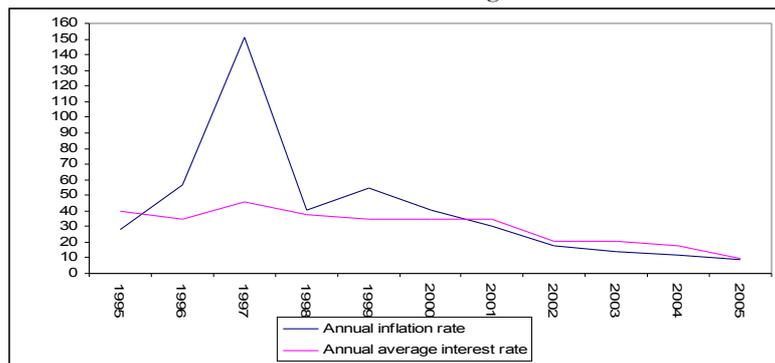
Figure 5  
EUR/RON exchange rate



Source: Romanian National Bank *Annual Report 2005*, Bucharest

Considering that migrant earnings are in EUR and most of the remitted amounts are paid in local currency, the exchange rate fluctuations obviously influence the local value of remitted amounts. If we complement the exchange rate variations with inflation data (see figure below), we can observe a widening depreciation both in the amounts and value of remittances. However, we need to mention that the rate of depreciation is decreasing with the clearing of the markets.

Figure 6  
Annual inflation rate and average interest rates



Source: Romanian National Bank *Annual Report 2005*, Bucharest

These fluctuations could be internalised by migrants, who might adjust the amounts remitted to these fluctuations, or by remittance beneficiaries.

### *Migration institutions*

One of the main findings of the IOM (2005) study is that nearly 50 per cent of all Romanian labour migrants choose irregular migration. According to the responses of migrants from Huedin, the rate of irregular migrants is even higher in this town.

As the issue of labour migration from Romania to European Union member states became one of the critical aspects of the accession negotiations, the Romanian government was required to develop better border control policies and to adopt various measures to stimulate the legalisation of labour migration. One such measure was the set up, in year 2002, of the so-called Labour Force Migration Office (LFMO) within the Ministry of Labour, Social Solidarity and Family. The main responsibilities of the LFMO include the facilitation of access to labour recruitment and job placement for Romanian citizens abroad. To achieve this objective, the office collaborates with foreign employers in line with national cooperation agreements and directly with private companies hiring Romanian labourers seeking employment abroad.

In parallel, the office compiles a database including information on Romanian citizens seeking employment abroad, which can be consulted – upon request – by foreign companies. Furthermore, the LFMO includes an Information and Documentation Centre for Migrant Workers, which undertakes the development of information campaigns related to the risks of illegal migration and human trafficking. It also maintains a consultancy service for migrant workers on topics of social security issues, etc. According to the statistics reported by the LFMO, the organisation has mediated an increasing number of work contracts abroad, namely 22,305 in 2002, 21,342 in 2003, and 55,901 in 2004. Besides the public agency dealing with recruitment and job placement for Romanian citizens abroad, there are some 780 companies undertaking similar activities.

Furthermore, in 2005, the Labour and Social Affairs Attaches were set up in the capital cities of the main target countries (Madrid, Berlin, Rome, and Budapest). These function as part of the Romanian Labour and Social Affairs Diplomatic Corps, with their main responsibilities being related to various forms of assistance required by migrant workers in these countries. At the same time, Romania has signed a series of bilateral agreements with the main target countries of Romanian migrants (e.g. Germany, Italy, Portugal, Spain, and Hungary) on issues related to social security and health insurance of legal migrants, as well as the repatriation of illegal migrants.

Access to these institutional structures, which mostly have offices in Bucharest only, is costly and therefore job search abroad primarily occurs through informal channels, mainly relying

on family and acquaintance networks. This indicates that migration often times builds on community social capital in the host country and helps economise on migration costs. The responses of those interviewed in Huedin indicate that 49.3% of job opportunities abroad were identified through family members or networks of acquaintances already working abroad. 17% of those working abroad migrated without any prior arrangements, while in the case of 14.1% the services of official job intermediation agencies were used. The main target countries are Spain, Hungary, Italy, Germany, and Great Britain. These countries are selected based on the recommendation of family members and acquaintances already working at these destinations. There is also a parallel informal system, which consists in a guide (“calauza”) facilitating the border crossing, travel and/or job placement abroad against a fee. After the lifting of visa requirements the role of these “calauza” has slightly changed, as they no longer had to deal with obtain visas to their “customers”. Instead, they assisted migrants by dealing with possible “problems” at the border and/ or loaning money to pass border controls. In recent years, however a significant increase in migrant associations can be observed, which play an important role in improving the access to information of migrants and to help them escape criminal networks. The earliest and more organised associations emerged in the main target countries, namely Italy and Spain.

#### *The transfer infrastructure*

The development of financial services through the articulation of banking sector services and the expansion of money wire network services has made international financial services more readily available to Romanian migrants. For instance, Western Union entered the Romanian market in 1996 through a contract with the Romanian Postal Services. Since then, the money wire service has been available at most major banks in Romania. However, in small towns and rural areas there are often no or only a few bank service providers. In Huedin, we have found that four banks have branches, and others have ATM's. We also need to mention that the access to financial services related to remitting might be a problem in the host country as well if migrants are located in remote locations. This is somewhat alleviated, for instance, in Germany, where money wire service providers have set up toll free phone numbers with Romanian speaking customer service. Another improvement is that effective of September 2005, the amounts sent through money wire services can be requested in foreign currencies besides the national one. The amount that can be legally transferred is up to USD 10,000 per day.

Although banks are increasingly becoming involved in providing specialised services for migrants through their international branches or partners, their limited presence in small

towns and rural areas make access costly and time consuming. For instance, the French Societe Generale has set up a service called *i-Transfert*, through which its clients can transfer money by a phone call to accounts at its sister branch in Romania, BRD-Group Societe Generale. The service has an annual fixed fee of EUR 25 and a transaction fee of EUR 10 for each transfer. The service entitles the account holder for two monthly transfers in a maximum value of EUR 600 each. One of the most complex services created specially for Romanian migrants in Italy was set up by the Italo Romena Bank. These financial services are cumulated under a special account, called *Account without Frontiers*, which for a fee of EUR 9 per semester includes 30 monthly transactions. In the case of Spain, the “la Caixa” bank offers a card for international transfers that can be used to send money through the ATM network of the bank. Also, through its Romanian partner banks, international transfers are possible for a fixed per transaction fee of EUR 15 for bank account owners and EUR 20 for those without an account. None of these banks have branches in Huedin.

The main difference between bank transfers and money wire services is that in the case of the latter the money sent can be accessed in about 10 minutes after the money wire has taken place, while in the case of bank transfers this can be as long as two or three days. In Huedin, the local post office and two commercial banks operate joint Western Union offices.

Considering the estimate of the amounts arriving to Huedin, it seems that unofficial channels are still preferred to official channels of money transfer. We have found that there is an elaborate system of unofficial transfers, where charter coach companies and/or coach drivers play the role of intermediaries. The main advantage of this system is that migrants do not have to use the services of banks, which require knowledge of the local language and some sort of official documents. Another advantage mentioned by those interviewed is the relative speed compared to bank transfers. So far, we are not aware of any systematic evaluation of the amounts transferred through unofficial means, but press declarations of transport companies suggest that these amounts may be approaching the amounts transferred officially.

#### *4.5 The developmental impact of migration and remittances*

We have found that remittances produce a positive and statistically significant (at the .01 level) income effect, which implies that households that receive remittances tend to have a monthly cash income 1.2 higher, on average, than those that do not receive remittances. Here the amounts kept in saving accounts abroad and only brought into the country prior to making an investment are not included. Furthermore, the goods sent or brought home

various appliances (household durable goods, mobile phones, vehicles) do not form part of these amounts, which have significantly increase their value.

The literature on the developmental impact of remittances suggests that remittances are linked to development by the way in which the amounts repatriated by emigrated workers are spent by direct beneficiaries. Despite the fact that the largest shares of remittances are spent on purchasing goods and services covering daily needs, 55.3% of all respondents consider that remittances have a positive impact on the local economy, and only 2.0% consider that they have a directly negative impact. However, the fact that remittances are spent on purchasing consumption goods and covering daily needs makes the impact of remittances to be short-term and exposes the local economy to the challenges of remittance “dependence”, and consequently to a high level of vulnerability to remittance cycles. In contrast, 58.0% of all respondents consider that remittances increase inequalities between people.

Table 5  
The impact of remittances on local community

	N=244
	%
Positive or mainly positive	55.3
Neither positive nor negative	15.2
Negative or mainly negative	2.0
Do not know	26.2
No answer	1.2
Total	100.0

Among the main impacts mentioned by residents is the sharp increase of real estate prices in the town. By autumn 2005, a two-bedroom apartment came to have a market value of EUR 35,000 to 40,000, similar to the prices of apartments falling into the same category in major towns in the country and Bucharest. Many see this as one of the major negative impacts of remittances, as those who do not receive any such support have no opportunity to compete in purchasing these goods.

The orientation towards real estate investments has been further accentuated by the sharp decrease of interests paid on deposits, and the quick development of the credit market. One positive impact of remittances mentioned by those interviewed is the development of the service and construction sectors. As a result, there are a series of various services available at local level. Those who do not migrate increasingly feel the increase of income differentials among local residents. Thus, the pressure to compete with the households having at least one family member working abroad may increasingly a reason for migration.

In order to ensure that policies enhance the positive impacts of remittances at community level, it is essential to integrate, as our model accounts for, three types of policy effects.

First, there is the self-regulating (invisible hand) effect of the developmental impact of migration on the macro-economic and social variables influencing the remittance mix. This, in itself can be considered as the demand side of policies so that they maximise the wished developmental effects. Second, there are the opportunities for policy intervention to influence both the migration mix and the remittance mix. In terms of decision makers, on the one hand, we distinguish between host country and country of origin policy makers. In the host country, policy-makers decide over the immigration regime and the various policies regulating the status of foreign labour migrants. In the country of origin, we distinguish between national level and local level decision makers. National level decision makers have the authority to set the macro-economic and social framework, the financial infrastructure, etc. Depending on the extent of administrative and fiscal decentralisation in a given country, local decision makers have authority over various policies that could influence the impact of remittances at the local level. Policies are important for calibrating the optimal remittance function, which is subject to both the migration mix and the remittance mix. Last but not least, we consider that the developmental impact of the given migration mix and remittance mix influences the macro-economic and social context.

## 5. Conclusions

In this paper we used a new data set on migration and remittance sending and spending behaviour gathered at the level of one settlement in Romania, namely the town of Huedin. The findings of the research are, to a large extent, similar to the findings of the *Urban Romania* national survey, but complements this with development effects of remittance revenues. Following the assessment, we have three main findings.

First, we have seen that most labourers seeking to work abroad rely on the network of family and acquaintances in securing a job, which suggests that migration in this case is largely network defined. This implies that migrants have developed mechanisms to collectively internalise the risks and costs related to migration by sharing information, working at the same employer and often travelling together by means of car-pooling.

This indicates that the role of migrant associations is potentially important to assist migrants in obtaining the relevant and up-to-date information of their interest. The reluctance to communicate with Romanian state institutions emerges from the fact that the large majority of migrants are still chose illegal forms of employment and they prefer to stay as less visible as possible. Nevertheless, initiatives such the one of *The Forum of Romanian's in Italy* or *The Romanian Spain – The Portal of Romanians in Spain*, which provide frameworks for anonymous

communication and information exchange has the potential to enhance the chances of illegal migrants to become regular migrants and to have these groups more visible. In the last years, a number of migrant associations emerged, among which we mention, for instance the Federation of Romanian Immigrant Associations. The main objective of these associations is to represent the interests of Romanian migrants both in relations with the Romanian and the host country authorities.

Second, migration produces a positive and statistically significant income effect, which is, however, lower than expected. We have also found that regular remittances are mostly spent to cover basic daily needs and to purchase services required by the family. Besides consumption, the second largest category is investments in educational services for children, and savings and productive investments only occupy the third position, but significantly lagging behind compared to consumption goods. Furthermore, even in this latter case, households with migrants tend to invest in enhancing their housing conditions by extending their existing dwelling or building new ones. At the settlement level, these patterns of remittance expenditures have contributed to the development of the service sector due to increased demand and increased income. New services have emerged locally, mainly financial ones and those related to the construction industry, which are required by migrants and their households. Thus, short term positive effects were identified by interviewees.

Third, the long-term benefits of migration are highly dependent on remittance flows, which make the local economy vulnerable to changes in migration regimes and the behaviour of migrants. Nevertheless, if appropriate policies are designed to provide incentives for migrants and their families to diversify their use of remittances for other investment purposes than purchasing real-estate could enhance the long term beneficial effects of remittances on the local economy may be enhanced. Therefore, we consider that the main issue is not necessarily to advocate for reducing the share of purchasing consumption goods, but rather to identify more productive investments than real-estate.

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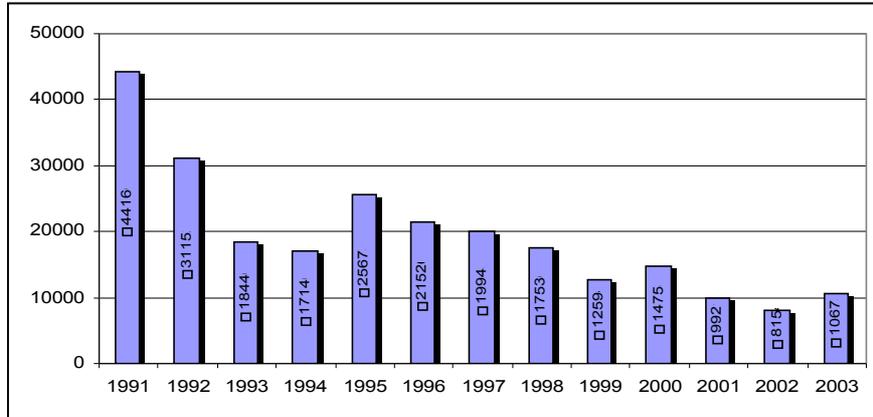
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## Appendix

Figure 1  
Number of emigrants from Romania, 1991-2003



Source: *Romanian Statistical Annual 2004*, National Statistical Office

Table 1 Emigration by country of destination, 1990-2003

Country	Total emigrants	% Total
Austria	21 130	6,06
Canada	26 788	7,68
France	14 244	4,09
Israel	6 109	1,75
Italy	21 050	6,04
Germany	147 555	42,33
U.S.A.	36 672	10,52
Hungary	36 007	10,33
Other countries	31 833	11,20
<i>Total</i>	<i>384 610</i>	<i>100,00</i>

Source: *Romanian Statistical Annual 2004*, National Statistical Office

Table 2 Repatriated by country of destination, 1990-2003

Country	Total emigrants	% Total
Austria	3 176	3,47
France	4 718	5,16
Israel	2 550	2,79
Germany	6 872	7,51
USA	4 680	5,12
Hungary	2 525	2,76
Rep. of Moldova	50 613	55,33
Other countries	16 334	17,86
<i>Total</i>	<i>91 468</i>	<i>100,00</i>

Source: *Romanian Statistical Annual 2004*, National Statistical Office

Table 3 Employment in Huedin town, year 2003

Employment	Nr. Person	%
Industry	938	34.05
Constructions	219	7.95
Retail	388	14.08
Services	182	6.61
Public sector (administration, schools, health)	661	23.99
Other	367	13.32
Total employed in the local economy	2 755	100%

**Questionnaire on remittances**

**Introduction** – The Public Policy Center is collecting data about the migration phenomenon in Romania. The goal of the research is to find out people’s opinion about different aspects of migration and the impact it has on people live. The study is strictly academic in nature and your identity will be kept confidential, as we not require you to provide us with any of your personal data. In the following I will read you questions and ask you to choose among the options offered, or to indicate your answer. Family in this research means those people living under the same roof and having a common household.

**1. Have you worked abroad in the past or currently hold a job abroad?**

- I have worked or continue to work abroad.
- I worked abroad, but have no job currently abroad.
- I did not work abroad and have no currently job abroad. **if this selected continue with Question 9.**
- Other \_\_\_\_\_.
- No answer.

**2. Reasons of seeking work abroad from Romania?**

(Please, mark with 1 the answer of first priority and with 3 the least important answer):

- The person(s) was/were unemployed and was/were penniless \_\_\_\_\_
- The person(s) was/were employed, but income was insufficient to manage living \_\_\_\_\_
- The person was dissatisfied with living conditions in Romania \_\_\_\_\_
- Political and economic insecurity \_\_\_\_\_
- There was no perspective for the improvement of the economic situation in the country \_\_\_\_\_
- To secure a better future for family staying home \_\_\_\_\_
- Other (specify) \_\_\_\_\_
- Don't know: \_\_\_\_\_

**3. The decision to seek work abroad was taken by:**

- Exclusively the person(s) from the family currently working abroad \_\_\_\_\_
- The family members, who discussed the possibility, to seek work abroad \_\_\_\_\_
- Person(s) working abroad with friends or colleagues from work \_\_\_\_\_
- With the involvement of other people, please specify \_\_\_\_\_
- Someone else, please specify \_\_\_\_\_
- Don't know: \_\_\_\_\_
- No answer: \_\_\_\_\_

**4. In which country is/ are your family member(s) currently working?**

- Pers. 1. \_\_\_\_\_
- No answer \_\_\_\_\_

**5. How often do/ does your family member(s) visit your family in Romania?**

- Less than once a year
- At least once a year
- Every six months
- Between three to six months
- At least once a month
- don't know
- No answer

**6. Which of the following best describes the main daily activities and/or responsibilities of you had while working home prior to migration?**

- Working full time \_\_\_\_\_
- Working part-time \_\_\_\_\_
- Unemployed or laid off \_\_\_\_\_
- Looking for work \_\_\_\_\_
- Housekeeping full-time \_\_\_\_\_

Raising children \_\_\_\_\_  
 Retired \_\_\_\_\_  
 Don't know \_\_\_\_\_  
 No response \_\_\_\_\_

Ask question only if migrant(s) worked or were laid off prior to migration.

**6.1. With regard to your job activity prior to migration, please tell us:**

a. *In what kind of business or industry did you work prior to migration?*

\_\_\_\_\_

Don't Know \_\_\_\_\_

No response \_\_\_\_\_

b. *What kind of work did you do? (Job Title)*

\_\_\_\_\_

Don't Know \_\_\_\_\_

No response \_\_\_\_\_

**7. What are/were your main activities and/or job responsibilities of while working abroad?**

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**8. I am going to read several statements people sometimes say about the role of remittances in the community. Could you please tell me if you strongly agree (1), agree, disagree, or disagree strongly (4), after I read each of them (9 is no answer)?**

v1. European legislation is permissive with Romanians seeking employment in the European Union.

1	2	3	4	5	9
---	---	---	---	---	---

v2. Finding a job has been becoming easier in the European Union.

1	2	3	4	5	9
---	---	---	---	---	---

v3. Most Romanian work legally in the European Union.

1	2	3	4	5	9
---	---	---	---	---	---

**9. Did any of your family members work abroad in the past or currently?**

- None of my family members ever worked abroad – *if this selected continue with Question 24.*
- At least one of my family members worked abroad for a time
- At least one of my family members have been working abroad
- Don't know.
- No answer.

**10. Reasons of seeking work abroad from Romania?**

(Please, mark with 1 the answer of first priority and with 3 the least important answer):

	Pers. 1.	Pers. 2.	Pers. 3
The person(s) was/were unemployed and was/were penniless	_____	_____	_____
The person(s) was/were employed, but income was insufficient to manage living	_____	_____	_____
The person was dissatisfied with living conditions in Romania	_____	_____	_____
Political and economic insecurity	_____	_____	_____
There was no perspective for the improvement of the ec. situation in the country	_____	_____	_____
To secure a better future for family staying home	_____	_____	_____
Other (specify)	_____	_____	_____
Don't know:	_____	_____	_____



**19. Please indicate the gender of the person(s) working abroad from your family.**

	Pers. 1.	Pers. 2.	Pers. 3.
Male	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Female	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No response	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**20. Please, indicate the marital status of the person(s) working abroad from your family.**

	Pers. 1.	Pers. 2.	Pers. 3.
Married	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Single	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Divorced	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Widow (er)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
No response	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Don't Know	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**21. What is the age of the person working abroad?**

	Pers. 1.	Pers. 2.	Pers. 3.	No response	Don'tknow
Below 18 years old	<input type="checkbox"/>				
Between 19 to 24 years old	<input type="checkbox"/>				
Between 25 to 29 years old	<input type="checkbox"/>				
Between 30 to 34 years old	<input type="checkbox"/>				
Between 35 to 39 years old	<input type="checkbox"/>				
Between 40 to 44 years old	<input type="checkbox"/>				
Over 45 years old	<input type="checkbox"/>				
Don't know	<input type="checkbox"/>				

**22. What is the highest level of school the migrant(s) from your family completed?**

	Pers. 1.	Pers. 2.	Pers. 3.	No response	Don't know
Elementary education	<input type="checkbox"/>				
Eight-year education	<input type="checkbox"/>				
Professional School	<input type="checkbox"/>				
High school completed	<input type="checkbox"/>				
Incomplete higher education	<input type="checkbox"/>				
University graduated	<input type="checkbox"/>				
Other	_____	_____	_____	_____	_____

**23. Which of the following best describes the main daily activities and/or responsibilities of your family member(s) now working abroad prior to migration?**

	Pers. 1.	Pers. 2.	Pers. 3.	No response	Don'tknow
Working full time	_____	_____	_____	_____	_____
Working part-time	_____	_____	_____	_____	_____
Unemployed or laid off	_____	_____	_____	_____	_____
Looking for work	_____	_____	_____	_____	_____
Housekeeping full-time	_____	_____	_____	_____	_____
Raising children	_____	_____	_____	_____	_____
Retired	_____	_____	_____	_____	_____

Ask question only if migrant(s) worked or were laid off prior to migration.

**With regard to the migrant's job activity prior to migration, please tell us:**

c. In what kind of business or industry did he/she work prior to migration?

Pers. 1. \_\_\_\_\_

Pers. 2. \_\_\_\_\_

Pers. 3. \_\_\_\_\_

Don't Know \_\_\_\_\_

No response \_\_\_\_\_

d. What kind of work did he/she do? (Job Title)

Pers. 1. \_\_\_\_\_  
Pers. 2. \_\_\_\_\_  
Pers. 3. \_\_\_\_\_  
Don't Know \_\_\_\_\_  
No response \_\_\_\_\_

**24. What are the main daily activities and/or job responsibilities of your family member(s) working abroad?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**25. I am going to read several statements people sometimes say about the role of remittances in the community. Could you please tell me if you strongly agree (1), agree, disagree, or disagree strongly (4), after I read each of them (9 is no answer)?**

v1. European legislation is permissive with Romanians seeking employment in the European Union.

1	2	3	4	5	9
---	---	---	---	---	---

v2. Finding a job has been becoming easier in the European Union.

1	2	3	4	5	9
---	---	---	---	---	---

v3. Most Romanian work legally in the European Union.

1	2	3	4	5	9
---	---	---	---	---	---

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#### I. FOREIGN CURRENCY AND GOODS REMITTANCES TO ROMANIA

**26. Does your family in Romania receive? (IF the NO answer was chosen for both "a" and "b" continue with question 43.**

a. Money       YES       NO       Don't know       No answer  
b. Goods       YES       NO       Don't know       No answer

Ask questions 27-34 only if answer to question 26 point "a" was YES.

**27. From whom does your family receive money from abroad?**

Myself       Husband/ wife       Parent(s)       Child(ren)  
 Other (name) \_\_\_\_\_       No answer       Don't know

**28. How much money was received from abroad during year 2005?**

Amount (in Eur, USD or Rol) \_\_\_\_\_  
No answer \_\_\_\_\_

**29. In comparison with previous years the money received from abroad was during 2005?**

More       The same quantity  
 Less       Other \_\_\_\_\_

**30. How did the money reach your family most often?**

was brought by migrants themselves       through friend(s)  
 through acquaintances against a fee       through a bank  
 by Western Union/ Money Gram       other(specify) \_\_\_\_\_  
 Don't know       No answer

**31. Which of the following methods were used most often?**

was brought by migrants themselves       through friend(s)  
 through acquaintances against a fee       through a bank  
 by Western Union/ Money Gram       other(specify) \_\_\_\_\_

- Don't know  No answer

**32. To whom was the money primarily addressed in your family?**

- Myself  Wife  Husband  
 Children  Parents  Brothers or sisters  
 Other relatives  Other \_\_\_\_\_  No answer

**33. For what purpose did your family receive the money?**

- To fulfill the daily needs of the family (mainly for food/clothing)  To repay debts  
 To repair and furnish the house/ flat  To make investments  
 To deposit it in the bank  To buy or build a house/flat  
 Other(specify) \_\_\_\_\_  No answer

**34. What are your projections for the amount of remittances in the next 2 – 3 years? Do you expect to receive:**

- More  
 The same amount  
 Less  
 Nothing  
 Don't know  No answer

Ask question 35-36, only if answer to question 26 point b. was YES.

**35. What type of goods do/ does your family member(s) bring home when visiting?**

- small gifts to family members  food and sweets  
 electronics and household goods  other \_\_\_\_\_

**36. What household goods did your family member(s) bring from abroad during the last two years?**

- TV set  VCR/DVD  Mobile phone, digital camera  
 Refrigerator, Stove  other \_\_\_\_\_

**II. REMITTANCE SPENDING BEHAVIOR**

**37. The money you receive from your family members working abroad is used to:**

- cover daily needs and expenses  cover medical and health related expenses  
 cover educational expenses  purchase durable household goods  
 update and improve housing conditions  repay loans  
 constitute savings  start up new business  
 other (enumerate) \_\_\_\_\_  
 Don't know  No answer

**38. What is the share of these costs covered from remittances?**

- \_\_\_\_\_% to cover over daily needs/ expenses \_\_\_\_\_% to cover medical and health related expenses  
\_\_\_\_\_% to cover educational expenses \_\_\_\_\_% to purchase durable household goods  
\_\_\_\_\_% to update/ improve housing conditions \_\_\_\_\_% to repay loans  
\_\_\_\_\_% to constitute savings \_\_\_\_\_% to start up new business  
\_\_\_\_\_% Other  No answer

**39. What type of durable goods did you purchase from remittances? Please, enumerate.**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**40. Some people prefer Romanian products, while others prefer products from abroad. When purchasing durable household goods, did you purchase Romanian or foreign products?**

- foreign products when available  Romanian products when available  
 don't care about product origin  don't know  
 no answer

**41. What type of investments did you make using the money received from your relatives working abroad?**

- built new house  bought life stock  opened a savings account  
 purchase bonds or stocks  constituted a private pension contract  launched a business

Other: \_\_\_\_\_  
\_\_\_\_\_

42. **Have you ever-experienced problems of any kinds because of receiving remittances from abroad?**

YES, please describe the type(s) of problems

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

NO

Don't know

No answer

---

### III. THE IMPACT OF REMITTANCES

43. **There are some people in your town who work abroad. Why do you think they chose to work abroad?**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

44. **You chose not to go and work abroad. What are the main reasons that made you reach this decision?**

I have a good job, and I was afraid of loosing it if seeking work abroad.

I have family obligations that did not allow me to leave.

I was afraid of the unknown in the foreign country.

Other: \_\_\_\_\_  
\_\_\_\_\_

Not the case.

45. **Do you plan to go work abroad in the future?**

Yes, I have precise plans to go and work abroad.

I am thinking about going to work abroad sometimes.

Most probably I will never go to work abroad.

Other: \_\_\_\_\_

46. **Some of the people who work abroad send money to their families. According to your estimation how much money do people send to their families in average every month?**

Less than 20 Euro.

Between 20 and 50 Euro.

Between 51 and 100 Euro.

Between 101 and 200 Euro.

Between 201 and 300 Euro.

Over 300 Euro.

Do not know.

47. **Why do you think people send money to their families?**

house  To fulfill the daily needs of the family (mainly for food/clothing)

To repair and furnish the

To repay debts

To conduct investments

To deposit it in the bank

To buy or build a house/flat

Other(specify) \_\_\_\_\_

No answer

48. **How important do you think remittances are for the local economy of your town?**

They are by far the main source of income in our town.

They create jobs in our town.

Not that important.

Not important at all.

Other: \_\_\_\_\_

49. **I am going to read several statements people sometimes say about the role of remittances in the community. Could you please tell me if you strongly agree (1), agree, disagree, or disagree strongly (4), after I read each of them (9 is no answer)?**

v1. Remittances are important only for those who receive them.

1	2	3	4	5	9
---	---	---	---	---	---

v2. Remittances make inequality among people increase.

1	2	3	4	5	9
---	---	---	---	---	---



**56. How many people are currently living in your family, including those abroad (if, any) and yourself?**

- Number of members \_\_\_\_\_
- Number of children under 18 \_\_\_\_\_
- Number of members aged between 18 to 65 \_\_\_\_\_
- Number of members over 65 \_\_\_\_\_

Ask question only if, there are members aged between 18 to 65 years old

**57.1. What is the occupation of your family members aged between 18 to 65 years old?**

---

---

---

**57. What is the highest level of school you completed?**

	Pers. 1.	Pers. 2.	Pers. 3.	No response	Don't know
Elementary education	<input type="checkbox"/>				
Eight-year education	<input type="checkbox"/>				
Professional School	<input type="checkbox"/>				
High school completed	<input type="checkbox"/>				
Incomplete higher education	<input type="checkbox"/>				
University graduated	<input type="checkbox"/>				
Other	_____	_____	_____	_____	_____

**58. Which ethnic group do you belong to?**

- Romanian
- Hungarian
- Roma
- Other (name) \_\_\_\_\_

**59. What is your age?**

- \_\_\_\_\_
- No answer

**60. What is your gender?**

- Female
- Male
- No answer.

**THANK YOU!**

## Appendix 2 – The Formal Model

The goal of this note is to formally specify the conceptual model put forward in the paper. For this purpose, we elaborate along the CGE macro model proposed by Decaluwe et al. (1999, 2001, 2005). Through the modified computable general equilibrium model we seek to study the impact of immigration policy change by a developed country on migration equilibrium in an archetype local source economy. This framework allows for simulating the welfare effects of immigration policy change both in the host and source economies. In this study our interest focuses only on the welfare effects in the source local economy, but the model can be easily extended to incorporate the effects in the host country as well. For now, we assume that the welfare impact in the host economy is marginal. Another important feature of the model is that it is at settlement level and not at national level.

In the standard CGE model we introduce a series of new concepts regarding the way in which migration and returns to migration are viewed compared to most of the literature. Thus, we conceptualize voluntary labor migration as one of the productive activities at the local urban economy level. Migrants are viewed as self-employed entrepreneurs who invest in migration activities to produce various commodities. In this view returns to migration, i.e. remittances, are conceptualized as specific commodities that are used to trade for consumption and production goods realized in other sectors. One possible argument to support this view is that migration is a household strategy to maximize income by investing in opportunities to access more developed labor markets. This is further supported by the fact that migrant households reported that migration had a temporary and often circular character.

The source local economy is characterized by four production factors, which are skilled labor, unskilled labor, capital and migration capital. We assume two forms of duality in the local economy. First, there are the formal and the informal economies. Second, there is the non-migrant and the migrant economy. We distinguish among five production sectors, i.e. agriculture, industry, services, migration and public services. The commodities produced in the five sectors are: agricultural, industrial, composite services, remittances.

The opportunities to “invest” in temporary labor migration activities are set by two factors. On the one hand, there are the policy variables, which – among others – define the specific entry costs and output price of migrant activities. For instance, the transaction costs of entering the labor market widely vary depending on whether or not an entry visa is required to travel to the target labor market. Migrants working abroad prior to visa lifting reported that the elimination of visa requirements reduced their migration related costs with amounts equal to their earnings for the first two months in the host economy (approx. EUR 1,200-1,500). Alternatively, the exchange rate fluctuations also influence the value of foreign earnings in the source economy.

We distinguish among three policy actors. First, there are the national decision-makers who decide about the macro-economic and political policy variables, i.e. exchange rate policy, foreign financial transfer policy, etc. Second, there are the decision-makers of the target country, who decide on immigration regulations, the status of aliens, etc. Third, we have local decision-makers, who deal with local policies, i.e. local taxation, etc.

On the other hand, there are the individual characteristics of households. We differentiate among households along the lines of economic power and labor resources. Economic power represents the capital investment ability and/or disposition of households to engage in migration. Labor resources represent the labor capital that specific households are endowed with, both in terms of the number of individuals as well as the specific skills and abilities that could be allocated to migrant activities. Thus, we distinguish among eight types of households, i.e. skilled and unskilled formal non-migrant households (employed in a formal sector at local level), skilled and unskilled informal non-migrant households (employed in the informal sector at local level), skilled and unskilled formal migrant households (regular migrant) and skilled and unskilled informal migrant households (irregular migrants).

### **The poverty concept**

To assess the impact of immigration policy change on poverty and income distribution in the source economy, we need to account for changes produced at the level of migration patterns and the associated wage and price variations. Policy change leads to economic adjustment which can be observed in the sectoral allocation of the employed and in the total employment level. The probability of a household to be below the poverty line depends on the sector of employment, the wage earned, and commodity prices.

For income distribution and poverty structures, we adopt the Beta distribution function as proposed by Decaluwe et al. (2005) to describe household group income distribution. This allows us to obtain

poverty measures for each of the eight household groups assumed and to describe intra-group income distribution. For each group, we identify minimum ( $mn$ ) and maximum ( $mx$ ) incomes, while the values of the parameters ( $p$  and  $q$ ) influence the structure of the distribution.

$$I(y;p,q) = \frac{1}{B(p,q)} \cdot \frac{(y-mn)^{p-1}(mx-y)^{q-1}}{(mx-mn)^{p+q-1}} \quad B(p,q) = \int_{mn}^{mx} \frac{(y-mn)^{p-1}(mx-y)^{q-1}}{(mx-mn)^{p+q-1}} \cdot dy \quad (1')$$

This specification allows the Beta function to be skewed either to left ( $p < q$ ) or right ( $p > q$ ), or be symmetric ( $p = q$ ). The larger the difference between  $p$  and  $q$  is, the wider the inequality within household groups. Now, we can compare the poverty levels among these groups using the measure used by Decaluwe et al. (2005) and developed by Foster et al. (1984). As the authors note, the advantage of this measure is that it allows estimating both the proportion of the poor and the characteristics of poverty (i.e. depth and severity). Thus, the poverty measure suggested (using equation 1') to determine the share of those below the poverty line in each household group is:

$$P_\alpha = \int_{mn}^z \left( \frac{z-y}{z} \right)^\alpha I(y;p,q) dy \quad (2')$$

where, besides the minimum income in each household group ( $mn$ ) and parameters ( $p$  and  $q$ ),  $\alpha$  is the poverty aversion parameter, and  $z$  represents the poverty line. Now, we assume that the poverty line for each household in all groups can be expressed as a basket of goods. Multiplying this commodity basket to their prices gives the monetary poverty line. The nominal value of the commodity basket is endogenously determined as all commodity prices are, including the one of remittances. All these lead Decaluwe et al. (2005) to derive the following Linear Expenditure System:

$$C_{h,c} = \frac{Pq_c \bar{\omega}_{h,c} + \beta_{h,c}^c \left( C_h - \sum_c \bar{\omega}_{h,c} Pq_c \right)}{Pq_c} \quad (3')$$

where each household group has a specific demand level  $C_{h,c}$  for commodity  $c$  priced  $Pq_c$ ,  $\bar{\omega}_{h,c}$  represents the minimum consumption of the given household group, disposable income is  $C_h$ , and the monetary value of minimum consumption is  $\sum_c \bar{\omega}_{h,c} Pq_c$ . These concepts allow comparing the changes in poverty levels considering immigration policy change.

Now, we can introduce the formal CGE model. In the model we build on the theoretical SAM of the local economy, which includes the activities, commodities, factors of production, and policy actors.

### **Prices**

We first present the price system equations. On the import side equation, we make the “small economy” assumption, set the world prices of imports  $\overline{Pwm_c}$  to be exogenously determined. Considering that the CGE model refers to the local economy level, both the nominal exchange rate  $\overline{e}$  and the import duty rate  $\overline{tm_c}$ , which are set by the central government, are also exogenously determined. Thus, the domestic prices of imports are the product of the world price and the import duty rate multiplied by the nominal exchange rate.

$$Pm_c = \overline{Pwm_c}(1 + \overline{tm_c})\overline{e} \quad (1)$$

On the export side, the world prices of exports  $\overline{Pwe_e}$  are also considered to be exogenous. Similarly to imports, the domestic prices of exports  $Pe_e$  are the product of world prices and export subsidies  $\overline{te_e}$  multiplied by the nominal exchange rate.

$$Pe_e = \overline{Pwe_e}(1 + \overline{te_e})\overline{e} \quad (2)$$

The prices of the composite commodities  $Pq_c$  (agricultural, industrial, composite services, and remittances) of the five activities are the CES aggregation of imports  $M_c$  and the domestic demand for domestically produced commodities  $D_c$ .

$$Pq_c = \frac{Pd_c D_c + Pm_c M_c}{Q_c} \quad (3)$$

The price of the value-added by sector is:

$$P_{Xi} = \frac{P_i Y_i - \sum_c Pq_c ICJ_{c,i}}{X_i} \quad (4)$$

The producer price index is defined as follows:

$$P_{index} = \sum_i \beta_i^x P_i \quad (5)$$

where  $(\beta_i^x)$  is the share of any given activity in total production and  $P_i$  is the unit producer price.

### **Production**

We can now turn to describe the supply side by discussing the production and value-added generation by activity at the level of the source economy. We assume an upper bound for capital stock and different production shift parameters in the different sectors of the local economy. First we define the total production by activity ( $Y_i$ ), which is sectoral output ( $X_i$ ) divided by the share of output in the total output ( $v_i$ ). The sectoral output for the non-migrant sectors is the CES aggregation function of capital ( $K_i^n$ ) and labor ( $L_i^n$ ) inputs.

$$X_i^n = B_i^n [\delta_i^n (K_i^n)^{-\rho_n} + (1 - \delta_i^n) (L_i^n)^{-\rho_n}]^{-\frac{1}{\rho_n}} \quad (6)$$

where  $B_i^n$  is the CES scale parameter of output in the migrant sector,  $\delta_i^n$  is the CET distributive share of output in the migrant sector, and  $\rho_n$  is the CES substitution parameter of output migrant sector.

From this, we can derive labor demand in the non-migrant sectors. We assume that in each sector both skilled and unskilled labor is employed. Labor is assumed to be mobile across sectors, and the wage rates in the non-migrant sectors are endogenously determined.

$$L_i^n = \left( \frac{X_i^n}{B_i^n} \right) \left[ (1 - \delta_i^n) + \delta_i^n \left[ \frac{\delta_i^n w_i^n}{(1 - \delta_i^n) r_i^n} \right]^{\sigma_n - 1} \right]^{\left( \frac{1}{\rho_n} \right)} \quad (7)$$

where  $r_i^n$  is the rate of return to capital in non-migrant sectors ( $r_i^n$ ) is:

$$r_i^n = \frac{P_{X_i^n} X_i^n - w_i^n L_i^n}{K_i^n} \quad (8)$$

and the wage rate ( $w_i^n$ ) is:

$$w_i^n = \frac{w_{LF_i^n} LF_i^n + w_{LI_i^n} LI_i^n}{L_i^n} \quad (9)$$

In contrast, wages in the migrant sector are determined exogenously. Furthermore, they entail the returns to migrant capital investment (i.e. the costs of migration), as migrants are the ones who make capital investments in order to access the better paying labor markets. Thus, the wage rate in the migrant sector is:

$$\overline{w}_i^m = \frac{\overline{w_{LF_i^m}} LF_i^m + \overline{w_{LI_i^m}} LI_i^m}{L_i^m} - \sum_i \overline{CM}_i \quad (10)$$

The costs of migration include legal costs (e.g. the costs to acquire documentation to travel to the sought country), transport costs to the worksite abroad, living costs abroad, remitting costs, and capital savings.

$$\overline{CM} = \overline{LC} + \overline{TR} + \overline{LA} + \overline{RC} + \overline{CS} \quad (11)$$

### ***Income equations***

We limit the model to the analysis of labor income, but it could be easily extended to evaluate the different returns to investment rates in the formal and informal as well as the migrant and non-migrant dimensions of the source local economy. The income at the household level ( $I_h$ ) is the sum of wages times the households share of the given labor income ( $\lambda_h$ ) from the different sectors (formal and informal) and activities, plus other incomes ( $OI_i$ ), plus government transfers ( $GT_h$ ). We decomposed wages in the migrant and non-migrant sectors. In the case of the migrant sector we subtracted the migration costs, and added the nominal exchange rate. This is:

$$I_h = w_{LF_i^n} \lambda_h^{LF_i^n} \sum_{n,i} LF_{n,i} + w_{LI_i^n} \lambda_h^{LI_i^n} \sum_{n,i} LI_{n,i} + \left[ \left( w_{LF_i^m} \lambda_h^{LF_i^m} \sum_{m,i} LF_{m,i} + w_{LI_i^m} \lambda_h^{LI_i^m} \sum_{m,i} LI_{m,i} \right) - \sum_i \overline{CM}_i \right] \cdot \bar{e} + \sum_i OI_i + GT_h \quad (12)$$

As for local government revenues ( $IG$ ), they include the household income tax rate ( $t_h$ ), indirect taxes ( $IT_h$ ), and revenues from central government transfers ( $CT$ ).

$$IG = \sum_h t_h I_h + \sum_i IT_i + \sum CT \quad (13)$$

where indirect taxes represent the product of the indirect tax rate ( $itr_i$ ), the producer price ( $P_i$ ) and total production by activity ( $X_i$ ).

$$IT_i = itr_i P_i X_i \quad (14)$$

The income of firms ( $IF$ ) is:

$$IF = \left( 1 - \sum_h \lambda_h^k \right) \left( \sum_{n,i} r_i^n K_i^n + r_i^m \sum_{m,i} K_i^m \right) \quad (15)$$

Where  $\lambda_h^k$  is the household share of capital income, ( $r_i^n, r_i^m$ ) are the rate of return on capital in the non- and the migrant sectors, and ( $K_i^n, K_i^m$ ) are the capital demand in the two sectors.

The total investment in the local economy equals the sum of all private, government and foreign savings. The equation for the household savings ( $S_h$ ) includes the marginal propensity of households to save ( $mps_h$ ) and the disposable income of households ( $DI_h$ ), that is:

$$S_h = mps_h DI_h \quad (16)$$

Government savings ( $SG$ ) are the amounts remaining from revenues ( $IG$ ) after transfer payments to households ( $GT_h$ ) and public consumption ( $PC$ ), that is:

$$SG = IG - \sum_h GT_h - PC \quad (17)$$

In the case of firms, we assume that firm savings ( $SF$ ) equal their income ( $IF$ ).

$$SF = IF \quad (18)$$

### ***Expenditure equations***

Private consumption ( $C_h$ ) expressed as total household consumption is calculated by subtracting households propensity to save ( $S_h$ ) from the total disposable income of the households ( $DI_h$ ).

$$C_h = DI_h - S_h \quad (19)$$

The consumption of any given commodity by household ( $C_{h,c}$ ) is:

$$C_{h,c} = \frac{Pq_c \bar{\omega}_{h,c} + \beta_{h,c}^c \left( C_h - \sum_c \bar{\omega}_{h,c} Pq_c \right)}{Pq_c} \quad (20)$$

where  $Pq_c$ ,  $\bar{\omega}_{h,c}$  represents the minimum consumption of the given household group, disposable income is  $C_h$ , and the monetary value of minimum consumption is  $\sum_c \bar{\omega}_{h,c} Pq_c$

The total consumption ( $CT_c$ ) of any commodity at the local economy level is:

$$CT_c = \sum_h C_{h,c} + \frac{\beta_c^g PC}{Pq_c} \quad (21)$$

The total intermediate consumption of any commodity is the sum of intermediate consumption of the given commodity by economic activity.

$$INTD_c = \sum_j ICJ_{c,j} \quad (22)$$

The consumption of a given commodity for investment purposes can be described as the share of the given commodity in the total investment ( $\beta_c^i$ ) multiplied by the total investment ( $IT$ ) and divided by the price of the commodity ( $Pq_c$ ).

$$INV_c = \frac{\beta_c^i IT}{Pq_c} \quad (23)$$

### ***Equilibrium conditions***

We set the sectoral supply equal to domestic demand for composite commodities, which include the total consumption of commodities ( $CT_i$ ), the intermediate demand for commodities ( $INTD_c$ ) and the consumption of commodities for investment ( $INV_c$ ) purposes.

$$Q_c = CT_c + INTD_c + INV_c \quad (24)$$

We define the equilibrium of factor markets by setting the total informal supply to be equal to the sum of informal labor demand for activities.

$$LI = \sum_i LD_i \quad (25)$$

and formal labor supply is the sum of formal labor demand for activities.

$$LS = \sum_i LS_i \quad (26)$$

The total investment is the sum of all savings by firms, households, government and current account balance.

$$\sum_i INV_i = SF + \sum_h S_h + SG + CAB \quad (27)$$