

# CHARLES UNIVERSITY IN PRAGUE

Faculty of Social Sciences

Institute of Economic Studies



## **Economic Aspects of Remittances and Migration: Case Study of Ukraine and the Czech Republic**

*Master Thesis*

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**Academic year: 2011/2012**

## **Declaration of Authorship**

The author hereby declares that she compiled this thesis independently, using only the listed resources and literature and that the work has not been used to obtain another degree.

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Prague, May 17, 2012

Signature \_\_\_\_\_

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I am also grateful to The Grant Agency of the Czech Republic (GAČR), project No. P404/10/0581 *Migration and development – economic, social and socio-economic impacts of migration on the Czech Republic, as migration target country and Ukraine, as migration source country (with a specific focus on the analysis of remittances)* and, specifically, to the project leader RNDr. Dušan Drbohlav, CSc. for the provided data.

## **Abstract**

This master thesis is driven by two main objectives. The first one is to provide a general overview of migration in economic theory with a specific focus on remittances and their aspects and impacts. We found that there is no clear consensus about effects of migration and remittances on source and target countries and thus further research is justified. The second aim of the thesis is to analyse migration and remittances between Ukraine and the Czech Republic using primary data from survey questionnaires collected by the Ukrainian Migration Project (UMP). According to our findings, remittances are determined mostly by demographic characteristics and levels of income on both the sending and receiving side, implying their altruistic origin. More importantly, it was not confirmed that remittances are channelled primarily into consumption. On the other hand, remittances do not influence productive spending of households either. These findings contribute to the overall discussion in the area of remittances and may suggest some policy implications.

## **Keywords**

Migration, Labour Migrant, Remittances, Productive use, Potentials of remittances

## **Abstrakt**

Tato diplomová práce si klade za cíl splnění dvou úkolů. Nejprve se snaží poskytnout přehled migračních trendů a jejich postavení v ekonomických teoriích s tím, že speciální pozornost je zaměřena na problematiku remitencí a jejich vlivů. Odborná literatura se nicméně neshoduje na vlivu migrace a remitencí na zdrojové a cílové země, proto se výzkum v této oblasti jeví jako opodstatněn. Druhým cílem práce je analýza migrace a remitenčních toků mezi Ukrajinou a Českou republikou s využitím primárních dat z Projektu ukrajinské migrace (UMP). Na základě výsledků empirické analýzy bylo zjištěno, že remitence jsou determinovány zejména demografickými charakteristikami a úrovní příjmu na straně migranta i domácností přijímajících remitence, což může být chápáno jako altruistický motiv. Dále bylo zjištěno, že remitence neproudí přímo do spotřeby domácností. Na druhou stranu ale nemají vliv ani na produktivní výdaje domácností. Poznatky práce přispívají k celkové diskuzi a hloubce poznání v oblasti remitencí a mohou sloužit i jako návrhy pro formování migrační politiky.

## **Klíčová slova**

Migrace, pracovní migrant, remitence, Produktivní využití, Potenciály remitencí

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## **List of Abbreviations**

**CEE** – Central and Eastern Europe

**CZK** – Czech Koruna

**CZSO** – Czech Statistical Office

**EU** – European Union

**FDI** – Foreign Direct Investment

**GDP** – Gross Domestic Product

**GMM** – Generalized Method of Moments

**GNI** – Gross National Income

**IMF** – International Monetary Fund

**IV** – Instrumental Variable

**LAMP** – Latin American Migration Project

**LPM** – Linear Probability model

**MLE** – Maximum Likelihood Estimator

**MMP** – Mexican Migration Project

**MTO** – Money Transfer Operator

**MVCR** – Ministry of the Interior of the Czech Republic

**NIS** – Newly Independent State

**NMS** – New Member State

**ODA** – Official Development Assistance

**OLS** – Ordinary Least Squares

**UMP** – Ukrainian Migration Project

**UN** – United Nations

**USD** – United States Dollar

**WB** – World Bank

# Master Thesis Proposal

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<b>Author:</b>	Bc. Blanka Weyskrabová
<b>Supervisor:</b>	PhDr. Wadim Strielkowski, Ph.D.
<b>Proposed Topic:</b>	Economic impact of migration on source and target country with special focus on the analysis of remittances: the case study of Ukrainian migrants in the Czech Republic.

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## Topic Characteristic

Labour migration has become one of the most widely-discussed phenomena of today's world labour markets. After deregulation of market restrictions and change in institutional framework in the Eastern Bloc we could start to observe the trend of short-term or long-term labour migration in East-West direction.

The migration is driven by various motives. In his work *The Theory of Wages*, Hicks (1932, cited by Borjas 2005) claimed that "differences in net economic advantages, chiefly differences in wages, are the main causes of migration". From the viewpoint of economic theory we distinguished between several approaches-mainly neoclassical and new economics of migration.

Labour migration as an increase in labour supply affects markets in the target country as well as in the source country by reducing the supply. However, the relationship is apparently far more complex. Migrants are often skilled workers and thus the total effect on the labour market in the source country can be negative because of "brain drain". In addition, it has been shown in the research literature that one of the most important effects of migration on the labour market of the source country is due to remittance transfer. Workers' remittances are current transfers by migrants who are considered residents in the destination country (World Bank 2011). Just after foreign direct investments, remittances play important role in the creation of a very strong stream of financial resource and could affect economic development of the source economy. The aim of this thesis is to discuss the effect of the migration on both source country (Ukraine) and target country (Czech Republic) with a special focus on analysis

of remittances and their impact. The significant effects are expected to be revealed in various economic areas.

### **Hypotheses:**

1. The amount of remitted funds is significantly influenced by migrant's human capital, demographic characteristics and the level of income.
2. Remittances are one of the best tools of economic development (just after FDI) and can find better use than the development aid.
3. Remittances are mostly used for consumption.

### **Methodology**

The theoretical part of the thesis is going to be a descriptive analysis that draws upon various sources in the research literature. For the empirical part, up-to-date primary data collected from questionnaires (with Ukrainian migrants in the Czech Republic and with their families staying in Ukraine) will be provided by Geomigrace Research Centre, possibly complemented by the data from CZSO, the Czech National Bank and the Ministry of Finance of the Czech Republic. The microeconomic analysis of data from the field survey will assess the main determinants of the size of remittances and their further use in the source country. The most appropriate econometric method will be used according to the nature of data, so far matching and differences-in-differences approach is considered.

### **Outline**

1. Introduction: Motivation and the structure of thesis.
2. Migration in Economic Theory: economic effects and aspects of migration: This chapter mainly consists of thorough literature review on the topic of migration and its economic impacts and discussion of different results.
3. General facts about remittances and its development in recent years: This part will focus on recent studies of remittances, their significance and increase over the recent years and analyse how the structure of remittances and the way of transfers has changed in the past decades.

4. Characteristics of Ukrainian migration flows to the Czech Republic
5. Case study: remittances from the Czech Republic to Ukraine: This part provides detailed description of data file and methods how the survey was conducted. Further, it will attempt to show by which factors remittances are determined, what the use of remitted funds depends on, how the income or well-being of migrant's family is affected etc.
6. Conclusion: The final chapter will summarize the findings of the previous chapters and will draw some policy implications.

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## INTRODUCTION

International migration, specifically the labour migration, became a widely-discussed phenomenon of the late 20<sup>th</sup> and early 21<sup>st</sup> century not only in economics but also in other social sciences, such as sociology, geography or demography. In the beginning, the economic research literature focused on the impact of immigration on the target country. However, the attention then shifted to the effect of migration on the source country and the development potential of migration. These topics attract an increasing number of researches who also study the new concept of migration-development nexus. One of the most perceptible consequences of labour migration is remittances. According to the Oxford English Dictionary (2012), remittance is defined as “*a sum of money sent in payment or as a gift*”. In economic sense remittances are the sums of money sent by the migrants to their families, relatives and friends who remained in the country of the migrants’ origin. Remittances represent an important channel of wealth redistribution and impact both the economy of the sending and the receiving country. For remittance-receiving countries, remittances amounted to enormous inflows of foreign money. In 2010 only, remittance flow was estimated to make more than USD 440 billion and for some countries remittances comprise a two-digit percentage share of their GDP (World Bank 2011).

This master thesis is driven by two main objectives. The first one is to provide a general overview of migration in economic theory with a specific focus on remittances and their aspects and impacts. The second one is to analyse migration and remittances between Ukraine and the Czech Republic using primary data from survey questionnaires collected by the Ukrainian Migration Project (UMP). More specifically, the aim of the empirical part is to examine features and determinants of migration and remittances sent by Ukrainian labour migrants from the Czech Republic to Ukraine and, based on the results, formulate certain policy implications.

The idea of analysing the migration flow from Ukraine to the Czech Republic was driven by the two factors. First of all, Ukrainian labour migrants constitute the most important group of immigrants for the Czech Republic. Secondly, the opportunity to use the primary and unique data gathered in the questionnaire survey within the UMP project led by the Faculty of Science of Charles University in Prague which enabled us to perform an independent analysis from a rather microeconomic viewpoint seemed

interesting. Overall, two main hypotheses are tested in the thesis using the UMP dataset:

***Hypothesis 1: Remittances are significantly determined by income, demographic characteristics and human capital of migrants.***

***Hypothesis 2: Remittances are channelled primarily into consumption in the country of migrants' origin and not into more productive spending.***

The structure of this thesis is as follows:

The first part of the thesis deals with migration and remittances in general and is divided into two chapters. The first chapter provides a brief insight into the field of international migration and economic theories of migration and surveys and discusses empirical research papers that deal with the effect of migration on both the target and source countries. A solid understanding of economic aspects of migration and its place in the economic theory leads to gaining a complex insight into the nature and the scope of remittances. The second chapter provides a basic overview of the evolvement and current situation, features and aspects of remittances and their impacts. The chapter mainly draws from the review of current research literature and relevant scientific papers and discusses the main findings.

The second thematic part of the thesis includes the case study and is divided into three chapters. It begins with Chapter 3 which describes the history, current situation and migration flow between the Czech Republic and Ukraine. Chapter 4 presents the empirical part. It starts with the description of the data file as well as the data collection methods and techniques. In this section, the econometric analysis employing Logit, Probit, Linear probability model and linear regression analysis is performed.

The thesis is concluded by discussing the main results stemming from the empirical modelling and formulating some policy implications based on the main findings.

# **1 MIGRATION: EXPERIENCE AND THEORY**

The first part of the thesis intends to provide a brief introduction into the topic of migration. It also provides a short review of the current position of migration in economic theory. It surveys and discussed empirical research papers that deal with the effect of migration on target and source countries. The reason for incorporating a chapter that is focused on migration in general is due to the close interconnection of topics of migration and remittances. The basic knowledge about the economic viewpoint on migration is necessary for good understanding of remittances as a whole.

International migration, specifically international labour migration, became a widely-discussed phenomenon of the 20<sup>th</sup> and 21<sup>st</sup> century. Among various impacts of the migration, the economic impact of migration became, by far and large, the topic that attracted perhaps the greatest attention. Economics of migration distinguishes the economic impact of migration on sending and receiving countries and researchers are trying to estimate these impacts by quantitative methods.

The creation of European Union in the 1950s and implementation its “four freedoms” of Common Market revived the new interest in migration. Especially, the accession of 12 New Member States in 2004 and 2007 and their integration into to Common Market which allowed for the free movements of labour and triggered various discussions on the effects of upcoming inflows of workers from new Member States.

The structure of the first part of the thesis is the following: it begins with the definition of migration, highlights trends in migration and some characteristics of migration as a process. Then, the economic theory that incorporates migration is outlined in brief and the final section deals with the discussion of results given by research papers written in this field.

## **1.1 DEFINITIONS OF MIGRATION**

For absolute completeness it would be appropriate to start with the definition of the key term of this thesis – migration. However, it is necessary to consider the fact that disagreement on such definition exists. For instance, some countries define *migrant*



according to the country of birth but some countries according to the nationality, which makes then difficulties for cross-country comparisons.

*Long-term migration* is a movement of people from one country to another country other than that of person's usual residence for a period of at least a year (12 months), so that the country of destination effectively becomes migrant's new country of usual residence (United Nations 1998). For short-term migration the period from 3 months to 1 year is recognized. Students, tourist etc. are excluded from the category of short-term migration.

*Foreign migrant workers* are foreigners admitted by the receiving state for the specific purpose of exercising an economic activity remunerated from within the receiving country. Their length of stay is usually restricted as is the type of employment they can hold" (United Nations 1998). We can see that foreign migrant workers are by definition legally working in the receiving state and the term does not capture illegal labour immigrants.

## **1.2 BASIC FACTS ABOUT INTERNATIONAL MIGRATION**

As it was already stated in the introduction, migration became quite monitored and examined topic, especially in the last thirty years. It is a direct consequence of its significant expansion that started particularly in the second half of the last century and continued in the beginning of the 21<sup>st</sup> century. One could argue that waves of immigration occurred since the very beginning of the human existence - which is definitely correct - but the difference is the essence of motives behind these waves – never as much as today people are willing to move abroad “just” from economic reasons and economically motivated migration – particularly labour migration - substantially exceeds migration that comes from different motives, such as political or religious reasons (Stojanov, Schroth 2011).

### **1.2.1 DATA ON MIGRATION**

One of the key issues of any monitoring is the availability of proper data, which is, in case of international migration, the problem number one. Firstly, as it could be seen in the previous section, the definition of migration and migrants is not unique across the countries. That is why one has to be cautious when using cross-national comparisons.

For instance the EU collect data on migration on the basis of nationality, in contrast with the USA, where the status of the foreign birth is what defines immigrants (Zimmerman 2005). Data concerning remittance transfers are usually extracted from countries' balances of payments and these estimations are not usually very exact as they do not capture remittances that are sent informally. In addition, many observations are missing. Aggregated data gathered e.g. by the World Bank (WB) or International Monetary Fund (IMF), where annual records of workers' remittances received by labour exporting countries are kept (Adams, Page 2005). Secondly, illegal migration occurs very often and cannot be credibly monitored. The same holds for data on remittances where illegal immigration and the use of informal channels make the monitoring of true values almost impossible.

The other option is to rely on data files conducted from surveys among individuals or households. These surveys are often part of some micro-research led by labour economists. For instance, one of the most extensive data set was gathered under Mexican Migration Project (MMP) and Latin American Migration Project (LAMP) led by Prof. Douglas Massey and Prof. Jorge Durand from the Princeton University. *"The MMP's main focus has been to gather social as well as economic information on Mexican-US migration. The data collected has been compiled in a comprehensive database"* (Mexican Migration Project 2012). This type of data enables researchers to understand not only size of migration but particularly its pattern, motivation and determinants. By this knowledge it is possible to estimate future evolvement and impacts of migration, even though often only in locally.

According to the latest data of World Bank (2011), there are 215 millions of international migrants in the world – approximately 3 % of the whole world's population. Most migrants are coming to the United States, the Russian Federation, Germany, Saudi Arabia, and Canada. Most migrants leave countries of Mexico, India, the Russian Federation, China and Ukraine. However, migration flows became weaker as the financial crisis destabilized economies (World Bank 2011).

### **1.2.2 MIGRATION POLICIES: THE CASE OF SELECTED EUROPEAN COUNTRIES**

In the context of rising mobility of people and international migration, each country needs to react by setting its policy towards migration. Governments' opinions about the

effect of the inflow on domestic markets and the economic situation of the country affect significantly the shape of policies. Some countries are “migration-friendly”, some of them tend to be more restrictive.

From the first group, countries such as Germany, Austria, the Netherlands, Switzerland, Denmark, and Sweden are worth mentioning as they even actively recruited unskilled workers from Mediterranean countries between 1955 and 1973, when about 5 million immigrants entered Western countries. For instance in Germany in the period of post-war economic growth, rising demand in construction and industry triggered the active recruitment policy in fifties and sixties, starting with Italy, Spain, Greece and Turkey (Borkert, Bosswick 2007). The active recruitment policy, however, ended with the beginning of the 1973 economic crisis (Zimmermann 2005)

The situation in Europe differs substantially across countries and now it is very specific within the group of EU Member States. The concept of free movement of labour is one of the basic principles of Article 45 of the Treaty on the Functioning of the European Union. After the broad enlargement in 2004 and 2007 was completed, fears about the huge inflow resulted into the transition period that could last up to 7 years. Ireland, UK and Sweden opened their markets with no restrictions in 2004; other EU-15<sup>1</sup> countries were opening their labour markets gradually except from Germany and Austria which announced that they would keep restrictions until the end of 7-years period (ending in 2011) (Zimmermann, Kahanec, Zaiceva 2010). This enlargement consisted of together 12 countries, with different economics standards and levels, compared to EU-15. Income gap was larger than in previous enlargement rounds – in 2007, the GNI per capita EU-8<sup>2</sup> states amounted to 53 % of EU-15 and that of Bulgaria and Romania to about 34 % (Brücker, Damelang 2007). Hence the potential to substantial migration flows was a real issue.

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<sup>1</sup> EU-15 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and United Kingdom.

<sup>2</sup> EU-8 countries: the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, the Slovak Republic and Slovenia.

The increase in the number of migrants was observed on the statistical data. The number of foreign residents from the EU-8 in the EU-15 increased from 893 000 persons in 2003 to about 1.91 million persons in 2007 (Brücker, Damelang 2007), which is around 250 thousand people per year since 2004 compared to 62 thousands per year between 2000 and 2003. Migrants from EU-8 were going particularly to the UK and Ireland and from Bulgaria and Romania to Spain and Italy.

However, any significant negative impact on destination countries – as a result of this East-West migration – has not been revealed so far, according to the stability of aggregate labour statistics after 2004 enlargement (Zimmermann, Kahanec, Zaiceva 2010).

### **1.2.3 CLASSIFICATIONS OF MIGRATION**

There are criteria how the migration can be classified, according to its characteristic or to motives that lie behind migration. Several examples are presented in this subsection.

Migration is mostly considered as a **voluntary** act that is based on the decision of the individual or group, given economic and other conditions. However, also **involuntary** migration occurs and one of the typical examples would be post-war expulsion of Germans from Czechoslovakia, Poland, Hungary and Soviet Union that amounted at more than 12 million people (Prausser, Rees 2004).

The time aspect of migration – intended duration – is an important determinant of the overall situation of migrant in the host country. Migration might be either **temporary** or **permanent**. Migrant's intention of how long to stay in the destination/transition country, whether permanently or temporarily, determines further nature of her or his stay. Migrants who intend to stay longer or say for the rest of their lives – permanently – could be more willing to integrate themselves into the local life and to socialize and adapt on local habits. If radical cultural differences exist and the group of people or families who migrate is larger, we can observe migrants clustering into communities. The intention of the temporary migration, on the other hand, does not motivate migrants to adapt and try to become a part of local society since the reason of the migration might be to earn higher incomes temporarily and return back home once they become “better-off”.

Whether migrants are **skilled** or **unskilled** is crucial for empirical studies of impacts on labour markets as it is one of the most important migrants' characteristics. It determines how migrants affect domestic workers. It is reasonable to assume that skilled and unskilled workers are complements. Increased immigration of unskilled workers, based on this assumption, would cause the decline of wages and increase of unemployment of unskilled workers and the opposite effect for skilled natives (Zimmermann 2005).

Whether the foreign worker is residing the country of destination **legally** or **illegally** is important not only for countries themselves but also for economic research. Number of migrants working illegally is often quite substantial and researches are facing a problem of lack of the data. One of the options to detect illegal migrants is the questionnaire survey on random sample of foreign workers and to estimate statistically the number of them in society. Not only there are negative economic effects of illegal immigrations, such as avoiding of taxes, insurance or lack of employment contracts, but also positive effects in economic terms can arise as such labour force could be very cheap and can enhance the economic growth.

### **1.3 MIGRATION IN ECONOMIC THEORY**

In his work "The Theory of Wages", Hicks (1932), cited by Borjas (2005: 315) claimed that "*differences in net economic advantages, chiefly differences in wages, are the main causes of migration*". There is, however, not only the financial aspect. Working and living environment, conditions, the social capital in terms of presence of family and friends, better social security and higher tolerance of native inhabitants may also considerably effect migration.

This sub-section presents basic models of economic theory dealing with migration. According to the paper by Massey (1993) or the report of European Communities (2000), the following models can be mentioned:

**Neoclassical macroeconomic model** explains migration as a result of geographical differences in labour supply and labour demand. Lower wages in some countries are usually the consequence of the high ratio between labour and capital – such countries are more endowed by labour than by capital. Then individuals, driven by the wage differential, are motivated to migrate from low wage countries to higher wage countries

and then both of them tend to reach the equilibrium where the differential equals to the cost of the movement. Massey (1993) adds that the opposite flows of labour, i.e. flows into countries with high L/K ratio can be observed. According to the neoclassical economics, this could be explained as a flow of human capital (hence skilled labour force) that is a part of capital as well. In other words, we have to differentiate between the levels of skill of labour force once we study migration flows.

**Neoclassical microeconomic model** is based on the individual choice – people are optimizing their utility by comparing costs (travelling, forgone wage, adaptation, psychological costs of leaving) and benefits (expected higher wages) of the movement. In case that such a cost-benefit analysis results with positive net return, the migration occurs (Massey 1993, European Communities 2000).

Borjas (2005) provides the example which is in accordance with neoclassical microeconomic approach towards incentive to migrate:

Migration is understood as an investment to the human capital. Migrants consider value of their potential jobs in each of the accessible labour markets. The choice is based on the highest present value (net of costs) of lifetime earnings.

We suppose two alternative labour markets **A** and **B**, where the work is valued by wages  $w_A$  and  $w_B$  respectively. A worker is employed on **A** market and is considering moving to **B** market. Suppose further that he or she is 20 years old and is going to be productive until 65 years. Present value of his earnings is the sum of discounted future wages

$$PV_A = w_{20}^A + \frac{w_{21}^A}{1+r} + \frac{w_{22}^A}{(1+r)^2} + \dots + \frac{w_{65}^A}{(1+r)^{45}}.$$

Equivalently, the present value of the same worker if he or she migrates and starts work in labour market **B** would be:

$$PV_B = w_{20}^B + \frac{w_{21}^B}{1+r} + \frac{w_{22}^B}{(1+r)^2} + \dots + \frac{w_{65}^B}{(1+r)^{45}}.$$

Net gain to migration, and hence the decision to migrate, would arise when  $PV_B - PV_A - M > 0$ , where  $M$  stands for costs of migration.<sup>3</sup>

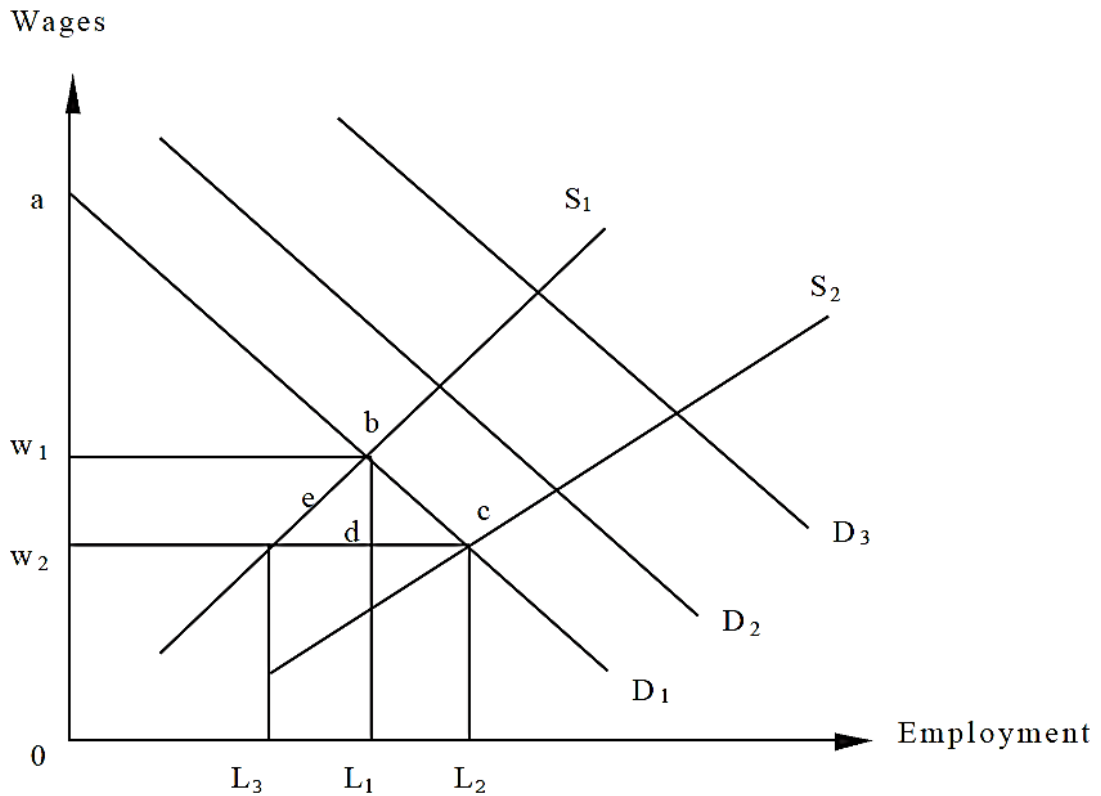
**The new economics of migration** provides more complex view of the problem of international migration: rather household than individual represents the agent who decides about migration. In addition, the agent not only maximizes income but also minimizes risk. For the household which faces particular risk on one labour market it could be reasonable to “send” one or more of its members to work abroad to the country, where the labour market is not correlated with the domestic one. Then the potential risk stemming from e.g. market failures (such as unavailable or imperfect insurance options) could be diversified. In case of the presence of such failure or natural disaster, remittances sent by the family member working abroad can compensate for fluctuations of income (Massey 1993).

Zimmermann, Bauer (1999) illustrate two simple models that show how immigration affects labour market in target country. In the first model, economy produce single good and production factors are capital and labour. Labour market is in equilibrium before migration. Immigration causes the shift in labour supply curve to the right (total labour force is higher), which leads to higher total employment and lower equilibrium wage. Employment of natives decreased as a consequence.

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<sup>3</sup> Borjas (2005) states that these costs of migration could reach extremely high values in some cases, where the transport proportion creates only marginal part of costs and the main part is represented by loss of daily and personal connections to the social and cultural networks.

Figure 1: Neoclassical model of immigration



Source: Zimmermann, Bauer (1999)

The income and distribution effects could be easily discovered from this simple framework: by the increase in labour supply, the income of native workers decreases from  $OL_1bw_1$  to  $OL_3ew_2$ . Capital owners' income experiences the increase from  $abw_1$  to  $acw_2$  and the area  $L_3L_2ce$  is the income of migrants. The result is then an increase of output and redistribution from workers to capital owners (Zimmermann, Bauer 1999).

The implication that income is redistributed from native workers to capital owners would lead us to the conclusion that native workers are worse off after the immigration. However, according to Zimmerman and Bauer, the adverse effect of the labour supply increase is overemphasised. As immigrants consume goods as well as natives, the demand for goods rises and this causes increasing demand for labour, which shift the labour demand curve further to the right. This effect increases the employment and wages of the all workers – the extent of the increase depends on the quantity of the migration. The best scenario would be the situation when the migration causes higher wages and employment of natives and migrants as well.

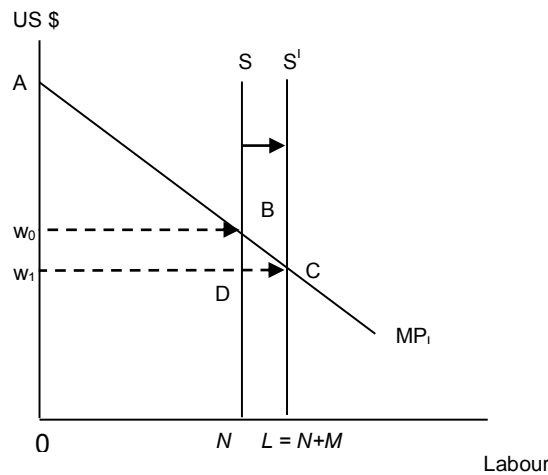


The second framework brings some imperfections and rigidities to the labour market. Firstly, the labour is divided in two groups, unskilled (less qualified) and skilled (qualified) labour force. Then the rigidities are represented by the introduction of unions that set the wages for the unskilled labour. Wages of skilled labour are set on competitive market.

Effect of immigration depends on the behaviour of union. If the union insisted on certain level of wages and did not react on the inflow of labour, the unemployment would rise. If the union adjusted its behaviour, the situation would be different. First of all it is essential to distinguish between two options – migrant workers could be either substitutes or complements to the native workers. By stating a reasonable assumption that skilled and unskilled workers are complements, we can expect that unskilled migration, as a substitution for unskilled natives, leads to lower wages and higher unemployment for unskilled and to the reverse effect for skilled. In case of skilled immigration we can expect the opposite.

With the similar reasoning, Borjas (1995) shows the effect on domestic labour market. When the shift of the labour supply curve causes some decline on wages, the resulting triangle area creates the so called migration surplus. This entire surplus generated by the migration is divided between home workers and capital owners. The positive migration surplus and hence the benefit from migration could only arise as a result of decreased wages. However, such a decline is often understood as a negative effect of immigration by policymakers or the workforce in the target country. Borjas pointed out this fact but he does not forget to add that in some sense it could be reasonable concern since the amount of wealth, which is due to the decline of wages redistributed from employees to capital owners, is relatively bigger than the size of the surplus. As Borjas suggests, “*the debate stresses the distributional issues rather than the efficiency gain*” (Borjas 1995:9).

**Figure 2: Model of immigration surplus**



*Source: Borjas (1995)*

To conclude, even according to the theoretical models, the effects of the migration and motives to migrate are ambiguous and models do not give unified. Since the topic of migration is very up-to-date and sensitive issue, economists direct their effort to examine the empirical evidence of the impact of labour inflows in the target country and the effect of outflow from source country as well.

#### **1.4 THE EFFECTS OF IMMIGRATION ON WAGES AND EMPLOYMENT**

The economic theory suggest that as labour supply increases, overall level of wages decreases (in case of no unions) and number of workers employed increases on the cost of natives. But what does empirical research say about the effect of immigration?

Quite often, the research of the impact of immigration is to study the effect on employment and wages in the target country because that is what affects individuals directly. Results across the studies are not very consistent, however, most of the studies agree on rather negligible effects, either insignificant or small in the extent. Longhi, Nijkamp, Poot (2005) examine 18 studies of the effect of migration on wages and pointed out that results vary across countries and they are related to the modelling approach. Negative and very small effect appears to be robust across studies. The wage response in Austria on the inflows from CEE was found negative, whereas German wages did not show the decrease as a result of immigration (Zimmermann, Winter-

Ebmer 1998). The result from Germany is in line with finding of Lemos, Portes (2008) who did not find adverse effect of CEE migration on UK labour market as a result of EU enlargement in 2004. US labour market was examined very intensively. Butcher and Card (1991) did not find support adverse effects of immigrants' inflows in eighties, concentrating on lower tail of wage distribution as the group of foreign workers was mainly created by less educated persons. Little negative effect was discovered as a result of mostly unskilled migration in Cyprus but only for the group of natives with similar attributes of skills. Influx of foreign workers, on the other hand, results in quite substantial increase in wages of high-skilled natives (Christofides et al. 2007).

Card (2001) in his study highlight that studies usually do not make distinctions among groups of immigrants and use national level of wages and employment for research. Local labour markets and certain occupation mirror the impact more accurately. Borjas (2003) criticises that studies also usually define groups of skill according to the education, while job experience plus education characterize skill groups in much more detail. Both authors concentrate on the examination of the effect of migration within the group they actually enter and their results discover the negative effect on wages and employment – in competing group of workers, which is basically in line with theoretical models.

Once we consider the quantification of this effect, there are always several facts we have to take into consideration. For example, immigrants may choose their destinations according to the ability of absorb the additional labour supply they are about to provide. But in this case when immigrants place themselves into certain cities, the inter-city migration of natives could offset adverse effects of immigration. As migrants may also self-select themselves into high-wage areas, the impact on wages and employment may be underestimated (Card 1990, World Bank 2006). The results from empirical literature may depend on econometric approach taken. The reason why only weak impacts are found in the literature the most often may be the use of cross-sectional attitude. Panel data models that are employed in the analysis of these effects often bring different results (World Bank 2006).

The assessment of possible effects of inflows of migrants on labour market is not a trivial task. Markets are subject to various shocks and cycles and there are many other factors that play crucial role in determining the result. One of the methods that help to

eliminate problems associated with these multiple factors and influences would be running an experiment. This is in principle mostly impossible when it comes to the labour economics of migration; however, there were events in history that allow researchers to study the effect by so called natural experiment. One of the most well-known examples of an experiment in labour economics is the research paper by David Card (1990) where the effect of so called Mariel Boatlift<sup>4</sup> and its impact on Miami labour market in 1980 is studied and described in detail. The influx of Cuban workers increased the labour supply by 7 % as half of migrants settled down in Miami. Card (1990) compares the evolvement of unemployment and wage levels with four other American cities and argue that the influx did not have significant impact. Nevertheless, he did not forget to add that Miami had more specific labour market conditions and ability to absorb new labour force comparing to control cities and given its history of immigration (Card 1990).

Common concerns that often shape the migration policy of the particular country occurred regarding immigrants coming into country and, without any contribution to the society, only “take advantage” of subventions to unemployed. Some studies therefore aimed at the probability of getting a job and, same importantly, attaining a job, arose in the research literature. Massey, Connor, Durand (2011) compared two case studies of Moroccans in Spain and Mexicans in USA and found that odds of getting a job mainly depend on age, education, language ability, and social ties and education, language skills and host country experience also explains the chance to attain a skilled job. Based on the probability of getting a job, Mexicans seem to be better integrated into American labour market than Moroccans in Spain.

Surely there are many other – positive and negative - effects of immigration discussed and examined in the literature and it is not aim of this thesis to cover all of them. From the positive effects, for instance, one can mention Sanderson (2011) who found in the panel data that immigration increases per capita income in the long-run. Adams and

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<sup>4</sup> Mariel Boatlift: the influx of approximately 125 thousand Cuban immigrants between May and September 1980 (Card 1990) triggered by Fidel Castro’s declaration, which stated that Cubans who wish to leave to the United States are free to go.

Page (2005) conclude that increase in the share of international immigrants results in decline in the share of people living in the deepest poverty.

In the last decades, also effects of migration on the source country (i.e. the country of migrants' origin) gain considerable attention. The next section briefly discusses the most important findings.

## **1.5 THE EFFECTS OF EMIGRATION ON THE SOURCE LABOUR MARKET**

One of the most perceptible effects on the source country is transmitted by the inflow of remittances, which is the topic of Chapter 2 and following. This sub-section discusses the other effects.

From the viewpoint of the source country (i.e. the country if migrants' origin) migration represents an outflow of labour force, assuming emigration is not compensated by an inflow of immigrants from other country. The effect of the decrease of labour supply could have different consequences that simply depend on current economic situation and nature of migration and composition of migrants. In the case when high unemployment affects a source country, emigration might have positive effects causing the decrease of unemployment.

If the economic conditions are poor and the country suffers from high unemployment which results in the outflow of low skilled workers, then also effects of these flows other than lower unemployment can be found. This kind of solution can lower the pressure on the government to make essential reforms in the source country and the result of migration could that political status quo is maintained De Haas (2011).

The effect also depends on the extent and the type of labour force, if it is balanced, only skilled or unskilled. Qualified labour force outflow can be referred as a brain drain. Emigration of skilled labour force acquired great attention in the last decades. Early literature in regard to this topic concluded that brain drain affects sending country negatively (Docquier, Marfouk 2006, Schiff 2006). Later on, this attitude was reformulated and potential positive effects of brain drain became emphasized. For instance, in case there is a higher return from education abroad causing migration of

skilled, the chance to migrate in the future enhance motivation to invest into education also among residents of the sending country<sup>5</sup>, which could have positive impact on the economic performance of the country. However, the results of Schiff (2006) are in contrary to this statement and he conclude, that these effects are smaller than suggested in the literature and may be even negative.

Other forms of positive influence of brain drain is return migration with acquired skills, creating of trade networks or *remittances* received by families of migrants who stay in their country of origin (Docquier, Marfouk 2006).

As it was mentioned before, remittances comprise very perceptible and important feature of migration and in the last decades they became the topic of many discussion. The whole Chapter 3 deals with the issue of remittances.

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<sup>5</sup> This effect is referred as “brain gain” (for details see e.g. Marfouk, Docquier 2006).

## 2 REMITTANCES

Apart from the effects mentioned above, one of the most noticeable effects of migration on the source country is represented by remittances. The purpose of this chapter is to introduce the factor of remittances, overview the evolvement of remittance transfers in the last decades, describe the ways how remittances are channelled to recipients and finally survey existing literature about determinants and economic effects of remittances.

For the purpose of this master thesis, remittances are defined as transfers of money (or in kind transfers) that migrants send back to the country of their origin directly to families they left behind. According to IMF 2006, remittances *“largely consist of funds and noncash items sent or given by individuals who have migrated to a new economy and become residents there, and the net compensation of border, seasonal, or other short-term workers who are temporarily employed in an economy in which they are not resident”*(International Monetary Fund 2008).

The official definition of remittances used by WB for statistical purposes is slightly different. Workers’ remittances are current transfers by migrants who are considered residents in the destination country (World Bank 2011). WB measures remittances from the balance of payments as the sum of workers’ remittances, compensation of employees, and migrants’ transfers.

Remittances are not considered by neoclassical theory as migration is caused by the decision to maximize lifetime earnings by permanent moving to the country with higher wages. On the other hand, New Economics of labour migration already counts with remittances that are the result of migration triggered by the attempt to overcome local market failures (Massey, Durand, Pren 2011). What makes them the important topic of the research in the economy of migration is the volume they actually present.

## **2.1 GLOBAL EVOLVEMENT IN REMITTANCE FLOWS AND THEIR RISING IMPORTANCE**

This subchapter is intended to describe recent evolution of global international remittances and to highlight the rising importance of these flows. Further it describes ways how remittances are channelled to recipients.

### **2.1.1 REMITTANCES – FACTS AND NUMBERS**

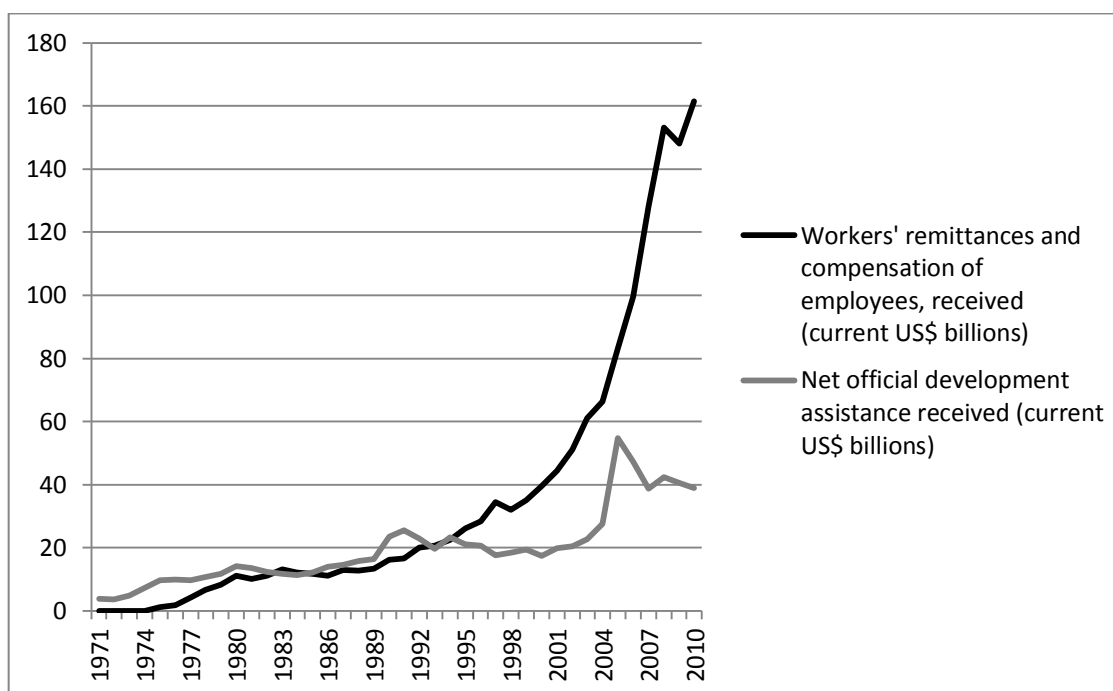
Remittances usually amount into enormous inflows of foreign money for receiving countries. Just in 2010, remittance flows are estimated to more than USD 440 billion, from which amount USD 325 billion is received by developing countries. As remittances often flow via informal channels (see further in this section), the amount could be much bigger than remittances officially registered. Top recipient countries in 2010 were India, China, Mexico, the Philippines and France. Probably more striking statistics of remittances is their share on GDP, reaching enormous values in developing countries. Top recipients in this category in 2009 were Tajikistan (35 %), Tonga (28 %), Lesotho (25 %), Moldova (31 %), and Nepal (23 %). Among the countries that are source of remittances there are mainly US, Saudi Arabia, Switzerland and Russia (World Bank 2011).

Remittances present relatively enormous amount of money comparable or sometimes even exceeding the Foreign Direct Investment (FDI) and Official Development Assistance (ODA). According to World Bank, in 2009 remittances were recorded to be three times the amount of ODA and almost same amount of FDI to developing countries.

According to De Haas (2011), remittances have overtaken the amount of ODA provided to low and middle income countries. Figure 3 that follows shows the trend of remittances and official ODA to low and middle-income countries. From USD 23.5 billion in 1990, ODA decreased to USD 17.5 billion in 2000 and reached USD 42.4 billion in 2008, while in the same time remittances to low and middle-income countries constituted USD 16.2 billion in 1990, reached USD 39.5 billion in 2000 and USD 161 billion in 2008.



**Figure 3: Remittances and official ODA, lower and middle income countries (1970 – 2009)**



*Source: World Bank (2012).*

Even in the time of financial turbulences when most of these flows tend to be volatile, remittances showed stability and seem to be less affected by economic cycles than private capital. For instance, during Asian financial crisis in 1998 – 2001 remittances even rose compared to the private capital (Ratha 2005). As a response to the last financial and economic crisis, remittances fell by 5.5 % in 2009, contrasting to 40 % decline of FDI, and they recovered quickly in 2010 (World Bank 2011). Remittances are also further expected to rise in the long-term (Ratha 2005). In the case remittances are counter-cyclical, they could serve as a policy tool to stabilize adverse effect of economic downturn. The relationship is dynamic, it changes over time and it depends on the conditions of the target country (Vargas-Silva 2011).

The following sub-chapter briefly shows how remittances are transferred to recipients.

### **2.1.2 CHANNELS OF REMITTANCES**

The term of “channel” is understood as a relationship among actors acting in a transfer of remittances – besides a sender and a recipient, it could be one or more intermediaries in both countries and also money interface that is used by intermediaries. Remittances can be sent via formal or informal channels.

International Monetary Fund (2008) provides overview of the most important channels. Among formal channels we can distinguish banks, money transfer operators (MTOs), postal network, credit unions, telecommunication companies, couriers or transport operators. In comparison to bank channel, MTOs do not impose strict rules, do not require very detailed identification and also focus more on more frequent low value transfers and cash-to-cash transfers. Money is transferred from the agent in country *A* to the agent in country *B* and cash is delivered to the recipient. As an example of MTOs, Western Union and Money Gram are the most popular ones. Postal channel can deliver its services in remote locations and can serve in regions with less developed banking sector, however, delays and limits on transactions are considered as the biggest disadvantage.

The telecommunication channel became a breakthrough in remittance transfers, owing the success to its simplicity and speed. Cash to cash transfer is possible without banking account on either side of the transaction. For instance M-PESA payment system run by Kenyan telecom provider has gained attention worldwide since it triggered increase in cell phone remittances in Kenya (Yang 2011).

Besides formal ways of directing remittances to recipients back in source countries, there are several other options of informal channels that still overweight formal channels in some areas, which implies that informal channels possess some advantages. The use of informal channels is indirectly encouraged by tighter requirements for opening an account, especially for low-value transfers. Hawala system is probably the most famous and organized system in South Asia and Middle East countries. System relies on trust and no physical money transfer occurs. Money is withdraw from sender by agent in country *A* and agent in country *B* delivers money to the recipient; the net settlement between agents is then arranged often using modern technologies. Similar system as hundi or chop work as informal channels in various countries.

Generally we can observe that remittances often flow rather in relatively low value transfers, regularly and frequently (International Monetary Fund 2008, Yang 2011). This fact can have various explanations – Yang (2011) argues that frequency can be the result of fear from losing the money or also from tendency of migrants to spend money themselves or of recipient to spend larger amount more quickly (self-controlling problem).

The following subsection deals with main motives that lie behind remittances.

## 2.2 MAIN MOTIVES TO REMIT

If researchers aim to understand remittances and their effects comprehensively, the focus on the motivations that stand behind them is necessary. Also if migration policies desire to either raise remittances or reduce these flows, the knowledge of motivations and remittances background is crucial for implementing successful policies. Since remittances flow usually among family members, motives behind them are personal and depend on human behaviour.

First of all, *pure altruism* has to be mentioned where the fact that migrants simply care about their families that are left behind drives flow of money. Economic theory copes with altruistic motives to remit with incorporating the consumption level of remittances as the argument in the utility function of the migrant (Chami et al. 2008).

However, the problem is more complex and also other motives stemming from households arrangements that do not have to appear obvious for the “first sight” are probably present as well (Lucas, Stark 1985).

According to Lucas and Stark (1985) or Rapoport and Docquier (2005), who summarize main motives and show how these motives can be incorporated in economic theory and utility maximization, the most important motives are presented here.

Migrant may intend money remitted as an exchange for particular service as taking care of the property or relatives, etc. – this can be understood as an *exchange* motive. Other motive is associated with the potential of receive *inheritance*. These both motives Lucas and Stark (1985) include in the category of *pure self-interest* motives. Following motives evolve as mutual arrangements between families and their migrants. These arrangements are informal and voluntary. Self-enforcement of these contracts is necessary and is usually protected by the relationship of mutual altruism within the family, or, if it is not the case, the disinheritance or social exclusion of the migrant can serve as a threat (Lucas, Stark 1985).

*Loan (debt) repayment motive* of remittances stems from the informal agreement when migrants repay funds that they used either for investment into education or to cover

costs for migration. This motive, from the theoretical view, can be seen as an exchange motive in the context of imperfect credit markets.

For rural families with the volatile income, especially in the least developed countries with imperfect or missing insurance and credit markets, an *insurance motive* is very typical. By the informal agreement the migrant is usually sent by the family and his role is to protect the family against risk, coming from market failures (or weather problems – crop failure). Migrant's income in the destination country should not be correlated with the income of family back home so that the risk is more diversified and financial support can be provided via remittances – mutual insurance is also possible. Massey, Durand, Pren (2011) state that, primarily, remittances as an alternative stream of earnings are sent to diversify risk to households' income.

As one can expect, remittances are not naturally driven by only single motive and the combination of them are more likely. The situation when motives are mixed can be called "*tempered altruism*" or "*enlightened selfishness*" (Lucas, Stark 1985). In empirical research, it is very difficult to discriminate between motives because of their complexity and interconnections. Lucas and Stark (1985) found all of these motives present in their cross-sectional regression analysis of data in Botswana in 1978 – 1979.

Bougha-Hagbe (2004) researched motivations of remittance senders in Morocco and found that altruism and the "attachment" to the home country are considered as the main long-run determinants and motives of remittances. The same conclusion was supported by Schiopu and Siegfried (2006) who found that altruism is the main motive for remittances as the GDP differential between source and destination country determines to the amount remitted. The investment motive that is also investigated in the study is not as significant. Remittances of Pakistani migrants are most likely driven by altruistic motives but sometimes co-insurance and investment motive play the role (Anwar, Mughal 2011).

The motives of migrants to remit funds back home can also affect the relationship of remittances to economic cycle: pure altruistic motive – to help your friends and family – can make remittance flows countercyclical as the amount of money sent is higher in the time of economic slowdown. If the motive is to invest, then the amount is lower under

the fear of the unstable economy; hence remittances could be pro-cyclical (Vargas-Silva 2011).

## **2.3 DETERMINANTS OF REMITTANCES**

This subsection focuses on brief presentation of variables that often predict and determine the existence of remittance relationship and its size. These variables are naturally interconnected with motives standing behind remittances. Depending on the motive of the action, particular determinants have an influence on the remitted amount (e.g. in case of the motive to favour in the line of inheritance, the amount of assets owned by the family is the main determinant of the size of remittances).

Carling (2008) pointed out that the migration conditions and its nature (“migration context”) is often overshadowed in the research literature. Some migrants leave their countries of origin temporarily and regularly and support their families with money; some families reunite in the destination country for decades and support their broader family or elder parents at home.

In searching for determinants of remittances researchers are usually interested in demographic characteristics of migrant and his family and financial information. For instance, Massey, Durand, Pren (2011) state that *“The propensity to remit and save is not uniform among migrants, but varies with personal, household, and trip characteristics as well as structural economic condition”* (Massey, Durand, Pren (2011:16). Carling (2008) provides good overview of main potential determinants studied in the literature. Firstly, personal characteristics of migrants can play important role in determining remittances. The income of migrant usually has positive relationship with remittances or in some cases no pattern is observed. The level of education is other possible determinant of remittances, implying possible motive of loan repayment, however, no clear pattern across the literature was found.

Further the legal status of migrant can influence remittances both ways. Undocumented migrants may remit more as they do not feel safe in the destination country and sent money with intention to return home soon. On the other hand, illegal/undocumented migrants have restricted approach to formal channels since opening a bank account require strict documentation.

From the viewpoint of recipient' side, household income seems to be one of most important determinants of remittances – negative relationship is usually predicted (altruistic motive). The fluctuations and volatility of household income (insurance motive) was found as a determinant by Lucas and Stark (1985) during Bostwana's drought.

Other variable that determine remittances is the presence of close family in the host country – for migrants who were followed by family remittances are usually smaller. Further, the quality of transmitting services, the rural vs. urban status of family or nationality and ethnicity affect remittances in various countries.

For instance, Massey, Durand and Pren (2011) aimed at the region of Latin American countries and determinants of remittances from US back to this region. They use Logit model where the dichotomous dependent variable (presence of remittances or savings) is predicted by set of independent variables, such as life cycle characteristics (age, sex, children), human capital variable (education, experience), physical capital, legal status, duration of trip, wage of migrants, etc. Dummy variables are included to indicate country fixed effects. They found that odds of remitting rise with age, number of minors in household, years of prior experience with migration, physical capital ownership, wages of migrant and odds is higher if migrant is a male, whereas presence of spouse or family in the country of destination lowers odds of remittances. Anwar, Mughal (2011) used similar approach and came to the conclusion that gender of the household head, number of household members, family income and urban/rural setting are strong predictors of remittances, whereas education and wealth of the family are not among significant predictors.

Some studies attempt to discover if remittances respond to macroeconomic characteristics of both home and host country – if they are determined by e.g. GDP, inflation rate, interest rate or exchange rate.

Vargas-Silva and Peng (2005) tested how remittances from USA react to macroeconomic variables and conclude that remittances are more affected by conditions in host country than in the recipients' country. Especially, remittances respond to positive shock of money supply (M2) that can be further connected to higher income and lower interest rate.

Schiopu and Siegfried (2006) focus on macroeconomics determinant of remittances and their study assert that relative poverty of receiving country, measures as the GDP differential, influences positively the amount of remittances, implying possible altruistic motive. Further, the share of unskilled workers among migrants reduces the amount of remittances – unskilled migrants have lower capacity to remit. The insignificance of interest rates differential indicates no severe investment motive behind remittances.

## **2.4 EFFECTS OF REMITTANCES: LITERATURE REVIEW OF POSITIVE AND NEGATIVE POTENTIAL**

Just the simple fact that remittances create such a substantial financial inflow (which in some countries reaches two-digit share on its annual GDP) justifies the research on the effect of remittances. In this subsection, possible effects of remitted funds and empirical findings from the literature are discussed.

Overall macroeconomic effect of remittances is very complex and the economic theory is trying to incorporate remittances into economic models. Rapoport and Docquier (2005) provided an overview of theoretical approaches. Traditional short run macroeconomic models with an assumption of sticky prices and wages prevailed in 1980s, where general equilibrium and relative prices and welfare are affected by remittances. In Keynesian approach, remittances are understood as a demand shock and their effect on national income is disproportionate according to the size of multiplicative effect. The Mundel-Flemming model is an alternative, and in this setting (open economy with fixed prices and one composite good), effect on demand caused by remittances depends on the exchange rate regime and degree of capital mobility. In modern macroeconomics that considers prices and wages to be endogenous, the crucial factor that influences the effect of remittances is expectations and flexibility of wages and prices (Rapoport, Docquier 2005).

Chami et al. (2008) emphasized that the character of remittances – whether they are exogenous or endogenous – is crucial when determining their impact. In case remittances are exogenous, then it is possible to examine how increase in remittances influence endogenous macroeconomic variables of our interest. In case remittances are endogenous, a different approach must be taken. For instance, finding a proper instrument, that would influence dependant variable only through remittances, can

correct for endogeneity of remittances – in the literature, researchers often used GDP or GDP growth of the country of migrant’s resident, transaction costs or distance between country of migrant’s residence and country of his origin (Chami et al. 2008).

As remittances are directly channelled to families and then they decide how or where to spend money or whether to save them, it is very difficult to estimate effects on the country’s economy. The fact that effect of remittances is associated with personal preferences, nature of the relationship between family and migrant and with that connected motivations, it seems to be impossible to agree on some standard approach. This may be the reason for researches to focus more on the effect of remittances on households in microeconomic setting or to study the effect in more specific areas, e.g. poverty.

#### **2.4.1 POSITIVE POTENTIALS OF REMITTANCES**

Across the literature, these potential **positive effects** of remittances are mentioned: As remittances create the stream of money mainly into developing countries, they likely reduce poverty. Further, these additional resources, unlike FDI or ODA, contribute to poverty reduction more directly as they flow to the neediest groups of households (Acosta, Fajnzylber, Lopez 2007). Remittances may also decrease inequality and smooth consumption as they can serve as a secure financial source in unfavourable times. In case recipients are already above the subsistence level, remittances as an additional income can enhance economic growth when they are used in productive sector, and thus promote development. The investment allocation of funds received in the form of remittances can materialize as an opening of new business or on investments in housing construction or human capital investment – in education and health. Even so called non-productive use of remittances can be beneficial. De Haas (2011) present the attitude of neoclassical and “developmentalist” economists: if used for consumption, remittances raise the standard of living for the poorest. If used for investment in housing, remittances can indirectly serve as the provision of temporary employment for locals. In the case they are not used in productive sectors and used for consumption and household maintenance, they still can have a positive effect as they trigger classical multiplicative effect and enhance aggregate demand. Massey, Durand, Parrado (1996) also suggest that remittances have positive effect and additional value into economy simply due to their multiplicative effects.



This argument was not persuasive enough and there are still prevailing opinions that since most of the remittances are channelled into consumption, they do not have positive effects on growth or development. This argument also serves as basis for the critique of remittances as a tool for enhancing growth or alleviation of poverty. Some studies, however, found contrary evidence: For instance, on the sample of data from Guatemala, Adams Jr. (2006) found out that majority of remittances is not used for consumption. In addition, households that receive remittances spend (at the margin) 58.1 % more on education in comparison with households that do not.

Interesting statement that even people non-related to migrants can profit from international migration and remittances, given remittances achieve certain threshold, results from welfare analysis and theoretical model by Djajic (1984). From non-economic effect, Levitt (2011) reminds that remittances can be view more from their social aspects and thus, also ideas and behaviour they acquired in target countries and took back home determined other indirect effects of remittances.

Some of these positive potentials of remittances are supported in economic research. The study in 12 Latin American and Caribbean countries stated that the impact of remittances on **poverty** reduction on national level is only modest, but important effects on pool of poor households were found (Acosta, Fajnzylber, Lopez 2007). According to Adams and Page (2005), the hypothesis that remittances reduce poverty in 71 developing countries was confirmed. In their study, authors use Ordinary Least Squares (OLS) estimation and then compare results with Instrumental Variable (IV) estimate that is used as a response to concern about endogenous relationship between poverty and migration. As an instrument they use combination of three variables that are strongly connected to migration but not to poverty – distance, education and government stability. Results are similar for both methods; IV method gives even stronger responses of poverty on the changes in variables. Khan (2008) took a different attitude. The author used microeconomic approach based on data from local survey carried out in Bangladesh and found a support for remittances as a poverty alleviating tool since they can reduce poverty by 18 % due to their impact on per capita income. He used the method of matching – remittance receiving households were paired (matched) with other households that share similar characteristics but do not receive remittances.

Then author evaluates the “average treatment effect” of remittances on probability of being on poverty, where remittances are meant by the term treatment.

Vargas-Silva (2011) finds mixed evidence on the impact of remittances on poverty reduction. Remittances in Asia do not have impact on poverty ration but reduce the depth of poverty. Yang and Martinez (2006) took an advantage of unique natural experiment caused by Asian financial crisis and studied the poverty-reduction effect of remittances on Philippines where remittances increased rapidly as a consequence of exchange-rate appreciation of migrants’ currencies. They found a support that remittances reduce poverty and found also spill over effect on non-migrants households. Findings of Adams Jr. (2006) confirm that remittances reduce the level, depth, and severity of poverty in Guatemala, however, the way how poverty is measured has an influence on results. Rapoport and Docquier (2003) supported by their research that remittances contribute to decrease the level of wealth inequality.

Leon-Ledesma, Pirarcha (2001) found positive effects of remittances on productivity and employment when used for entrepreneurial investments. Small and positive impact of remittances on growth in Asia was found by Vargas-Silva (2011). Mundaca (2009) suggests long-term positive effect on economic growth in Caribbean region. Through providing alternative investment, finance and liquidity, remittances boost growth (Giuliano, Ruiz-Arranz 2006). The study conducted by Siddique et al. (2010) finds a support that remittances promote growth in Bangladesh, however, no effect was found for India and Sri-Lanka showed two-way causal relationship between remittances and growth. The results of Ruiz et al. (2009) suggest positive effect of remittances on growth using parametric approach; the relationship appears to be neither non-linear nor quadratic, as quoted by many research papers.

Remittances also contribute to the increasing level of investment according to Leon-Ledesma, Piracha (2001), and increasing investment into human and physical capital on imperfect insurance and financial markets (Acosta, Fajnzylber, Lopez 2007). Massey, Durand, Pren (2011) assert that under certain circumstances, e.g. when conditions on market are favourable or when family is not dependent on remittances entirely, productive investment is likely.

The relationship between remittances and financial development became the centre of the attention in the field of international migration and it was studied extensively in the last decade. There are several studies that support the hypothesis that remittances promote financial development in the recipient country. Aggarval et al. (2006) suggest that remittances contribute to the financial development by increasing in the number of deposits/credits in banks.

The opposite perspective, however, is also the question. How does the development or other economic conditions in a recipient country affect the influence that remittances can have? In the following two studies, authors used almost same methodologies of estimation and similar model, the only aspect where they differ is the sample of countries they included in the panel – Giuliano and Ruiz Arranz examine 100 developing countries where also Latin American countries are included – their results can therefore be understood as more general. In spite of similar approaches, the results of their studies are not entirely corresponding. Giuliano and Ruiz Arranz (2006) estimated the effect of remittances on growth with special focus on how local financial development influences the growth potential of remittances. Authors used data for 100 developing countries in years 1975 – 2002; data for remittances are extracted from balance of payments. They firstly used OLS method. To deal with the possible problem of endogeneity they decided to use system General Methods of Moments (GMM). Results from both methods (even consistent for all 4 indicators of financial depth) gave similar answers – remittances do induce economic growth but particularly in financially *less* developed countries. Study performed by Mundaca (2009) used similar approaches on panel of Latin American countries 1970 – 2002. The dependent variable is GDP growth and explanatory variables are its lag, investment per capita, remittances as a share of GDP, financial development and other variables, mainly demographic. The degree of financial development is measured by the domestic private credit provided by the banking sector as a share of GDP. Author used First-Difference GMM to deal with possible endogeneity. The main result from her empirical test is that remittances have more significant effect on growth in case the country is *better* financially developed.

Above mentioned results represented positive view on remittances and their effects. However, the consensus cannot be found across the literature and many studies, which indicate nil or negative effect of remittances, have emerged.

#### 2.4.2 NEGATIVE POTENTIALS OF REMITTANCES

From possible **negative effects**, moral hazard, stemming from remittances used as an alternative income for recipient that leads to lower employment ratio and participation on labour market is worth mentioning. Moral hazard could also cause risky investments and risky behaviour that would not normally occur. Further, remittances could deepen differences and inequality. They raise the dependency on these flows, and in case they are used for consumption; they further increase the dependency of the country by rising demand and rising tendency to import. Remittances may also reduce labour market participation (Barajas et al. 2009), fuel inflation, and affect exports by appreciating real exchange rate (Catrinescu et al 2006). In case they spur economic growth and alleviate poverty, by these terms they can reduce incentives of policy makers to implement structural reforms (De Haas 2011, Catrinescu et al. 2006).

Again some of these concerns of negative consequences of remittance transfers were confirmed by results in economic research. As for the issue of moral hazard, Gubert (1998) shows that in Western Mali region, remittances reduce the effort of recipients and technical inefficiency was found. Chami et al. (2003) also found strong support for moral hazard problem and suggest that remittances have negative effect on economic growth.

In their work, Barajas et al. (2009) concluded that remittances have either no impact on economic growth or sometimes even negative, hence they do not contribute to economic growth and development. They further provide comprehensive critique of previous studies and used other instruments for control of endogeneity problem.

Adams (1989) shows that remittances have negative impact on income distribution within rural families in Egypt. Stark, Taylor and Yitzhaki (1986) found that there is no consistent relationship between remittances and income inequality and the effect depends on the conditions in the source village and migration history. Regions with few migrants suffer from increased inequality caused by remittances. These findings are similar to Jones (1998).

Catrinescu et al. (2006) also find weak effect on long term growth (though positive); authors also conclude that effects on development can be strengthened in countries with sound institutions. The importance of sound conditions in receiving countries is also

supported by De Haas (2011), who asserts in his work that in less developed countries with poor conditions, remittances are not able to exploit their potential and in some cases can have negative impacts and reinforce inequalities in the economy.

One can find very different and inconclusive results in research, that also depends on statistical techniques and data samples or whether authors use micro and macro approach. Generally good results are presented in micro household surveys but these cannot be simply extended on national level (De Haas 2011). Developing countries that receive substantial amounts of money in form of remittances do not perform macroeconomic miracles – remittances cannot for sure compensate countries' economic policies or reforms. Barajas et al. (2009) suggest a change of the view on remittances from the driving source of investment and development rather to more real view of remittances as insurance in bad times and poverty alleviating effect.

As it was said in this sub-chapter, effects of remittances on the economy likely depend on the motives of remittances and mainly how remittances are used. Therefore, examining determinants, motives and ways of use of remittances have clear justification. The knowledge of microeconomic background of behaviour of remitting migrants and recipients is important in case certain country desire to maximize positive impacts of remittances on the whole economy, for example by setting the appropriate policies.

Next 3 chapters are performing case study that reveals important features of migration from Ukraine to the Czech Republic and remittances flowing in the opposite direction. The reason of the choice of this cases are, firstly, the indisputable significance of Ukrainian labour migrants in the Czech economy as they comprise the largest immigrant group (Slovaks excluded) and, secondly, the opportunity to analyse data stemming from questionnaire survey. Chapter 3 opens the case study by general characterization of migration and remittance flows between the two countries.

### 3 CHARACTERISTICS OF MIGRATION FLOWS FROM UKRAINE TO THE CZECH REPUBLIC

In the last two decades, migration to the CEE countries (Central and East European countries) gained a special significance. Typically, there is a pattern of East-West migration, on the one hand from New Member States (NMS) of the EU to Western Europe, on the other hand from Newly Independent Countries<sup>6</sup> (NIS) to NMS. Leon-Ledesma, Piracha (2001) characterized the migration from CEE by the expression *migration often temporary and short term*. Many migrants are moving to work abroad just as seasonal workers that do not intend to live in the target country – their main motivation (a pull factor) to get a job abroad is the wage gap. Authors describe two characteristics that this kind of migration possesses: consumption of remittances or saved earnings is not the main component of recipients or return migrants and skills acquired by migrants during their stay can be quickly used in their source economy after they return.

The Czech Republic is, due to its advantageous geographical location in the heart of Europe, very important country for European migrants – either as a final destination or a transitive point. From all post-Communist countries in the Central and Eastern Europe, the Czech Republic receives the largest part of foreign labour force, with Ukrainian workers as a most important group (Strielkowski, Glazar 2012). In the year 2009 Ukrainians comprised 21 % of all immigrants and in 2006 their share was even larger – over 30 thousands of immigrants from Ukraine constituted 46 % of overall immigration (CZSO 2011). Generally immigrants from non-EU countries comprise 68 % of all foreigners in the Czech Republic, from which 43 % are originally from Ukraine (according to CZSO (2011) it is 124 281 persons).

This chapter aims to provide brief characteristics of Ukrainian migration trends, focusing on the last decades. However, before the analysis of Ukrainian migration

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<sup>6</sup> NIS is used for 15 post-Soviet republics, namely: Armenia; Azerbaijan; Belarus; Estonia; Georgia; Kazakhstan; Kyrgyzstan; Latvia; Lithuania; Moldova; Russia; Tajikistan; Turkmenistan; Ukraine; Uzbekistan.

trends in the last two decades, it is reasonable to focus on its economic development since 1991 when the country became independent.

### **3.1 ECONOMIC SITUATION IN UKRAINE – PUSH FACTORS OF MIGRATION**

The reason of the importance of economic conditions is their direct influence on migration flows. The more the economic situation is unfavourable and recession severe, the more people intend to leave the country in order to be better off abroad. One can use the above mentioned term of *push factors*.

The process of transformation after the collapse of Soviet Union cannot be probably declared as finished. The country is still fighting with high unemployment, slow economic development and high inflation. Overall development of the country is hampered particularly by political environment and situation of dependency on Russian energy sources and struggles for power. The discontent with the situation in the country reached to the point that people started so called Orange revolution as a response on 2004 parliament election. However, pro-Western policy of new government was not successful and new elections brought pro-Russian wing back to power (Strielkowski, Glazar 2012).

After the fall of Communist regime, the whole bloc of NIS and countries from the former so-called Soviet bloc<sup>7</sup> experienced tough period of transformation towards market economies. There were two extreme attitudes of the process; one of them preferred shock therapy that basically triggered all important features of market economy overnight and after initial shock, economy was supposed to recover soon. The second attitude inclined to gradual, slower reforms steps that needed to be implemented with a great care and detailed analysis of impacts in advance. Either way, most of the countries chose one of the attitudes and started to reform their suffering economies immediately but the situation in Ukraine was different. No clear consensus took place – first attempts in 1992 lacked consistency (Kowalski, Polowczyk 2012), the reform was postponed for 3 years and this delay aggravated cost of reforms. The expert assistance

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<sup>7</sup> Soviet Bloc refers to Poland, Czechoslovakia, Hungary, Bulgaria, Romania and Eastern Germany

of IMF in the field of deregulation and financial stabilization in the years 1994 – 2000 was no doubt helpful but the consequences of the delay, such as high real interest rate for many years, was simply inevitable (Åslund 2009).

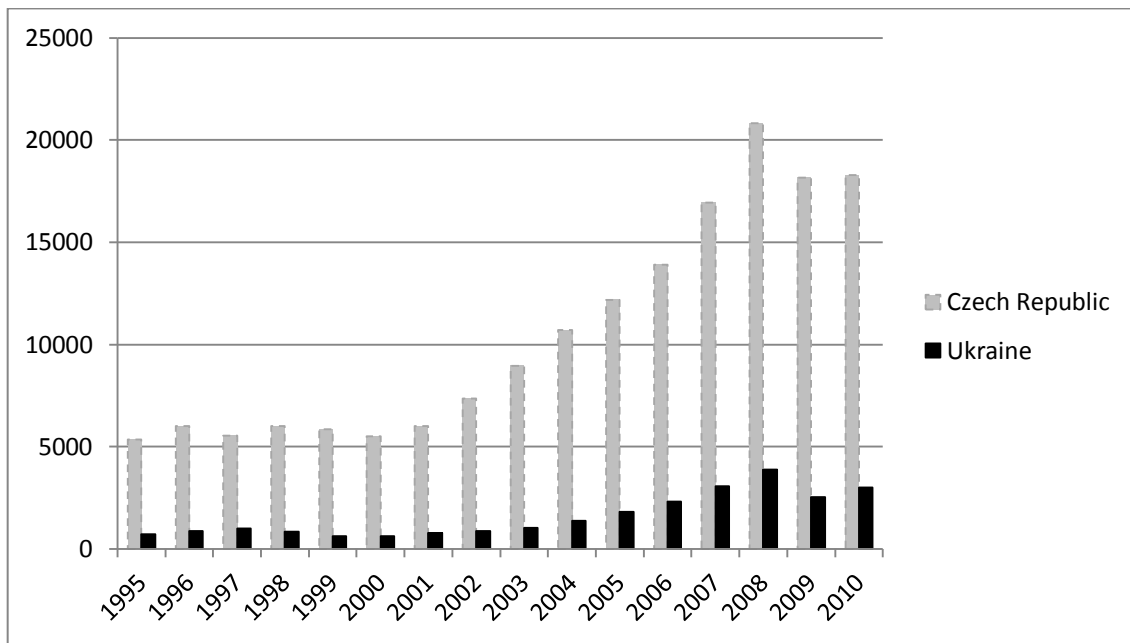
In the second half of the 1990s, factories decreased production, payments of wages were postponed and unemployment reached around 40% if one included unrecorded numbers stemming from hidden unemployment (official statistics stated around 12 %). All these factors and low wages for those who were lucky enough to have a job created a set of push factors that support the trend of outmigration (Lupták 2008).

For the whole decade the GDP growth was negative and economy started to recover in the beginning of the new century. That did not automatically mean that the recovery completely helped the soundness of economy. The GDP of the country in 2006 resulted in 63 % and in 2007 in 68 % of 1989's level. The world economic crisis caused further shock for the economy when in 2009 GDP shrank by 15 % (Kowalski, Polowczyk 2012).

The evolvement of GDP per capita is depicted in the following figure. The situation in Ukraine is clearly becoming better in the beginning of 21<sup>st</sup> century. For the comparison, the situation in the Czech Republic is provided to the picture. The striking difference between values of GDP per capita is one of the evidence of better standards of living in the Czech Republic and thus these values can be understood as an important motivation for Ukrainian migrant workers in the time of their choice of destination country.



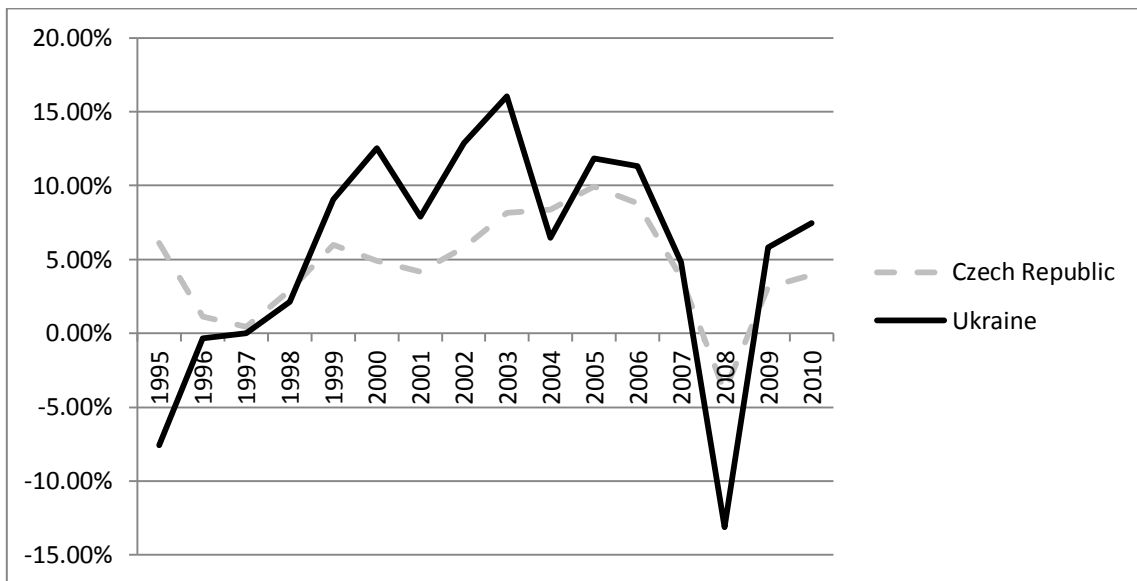
Figure 4: GDP per capita, current prices, USD



Source: International Monetary Fund (2011)

The second figure shows the evolution of GDP growth in both countries. In 1996 for the first time, GDP started to grow (growth exceeded zero level). Until 2006 the economy of Ukraine experienced fast growth reaching two digit numbers. The maximum was achieved in 2003, when the growth was over 15 %. The world financial crisis hit the economy greatly and caused almost 15 % declined of GDP. Again for the purpose of comparison, the evolution of Czech economic performance is depicted in the Figure 5 as well.

Figure 5: GDP growth



Source: International Monetary Fund (2011)

### 3.2 OVERVIEW OF MIGRATION TRENDS IN UKRAINE

Ukraine as a part of the Soviet Union underwent labour migration only within certain strict limits and the freedom of movement was bounded by the Soviet Union borders and thus was oriented mainly to the Eastern countries. After the collapse of the Soviet Union, the isolation of the country ended and Ukraine experienced massive repatriation flows of ethnic Ukrainians from former Soviet republics. Further in the 1990s, however, the process of transformation cooperation and the overall orientation to Western Europe formed the new relationship and triggered migration movement from Ukraine to the west (Malynovska 2008, Düvell, undated). There was also change in the type of migration – people did not migrate from ethnic and political reasons, but mainly from economical (Jelinková et al. 2011). Ukraine became very important supply of labour for Member states of the EU since more than half of migrants enter EU's labour markets (Siar 2008, Malynovska 2008, Strielkowski, Glazar 2011) and to keep pace with other countries, Ukraine had to adopt modern migration legislation, create migration and take part on cooperation in the sphere of migration (Malynovska 2008).

Ukrainian migration is typically circular (i.e. with intention to return back regularly or for good), 80% of emigrants long to come back to Ukraine eventually, they maintain

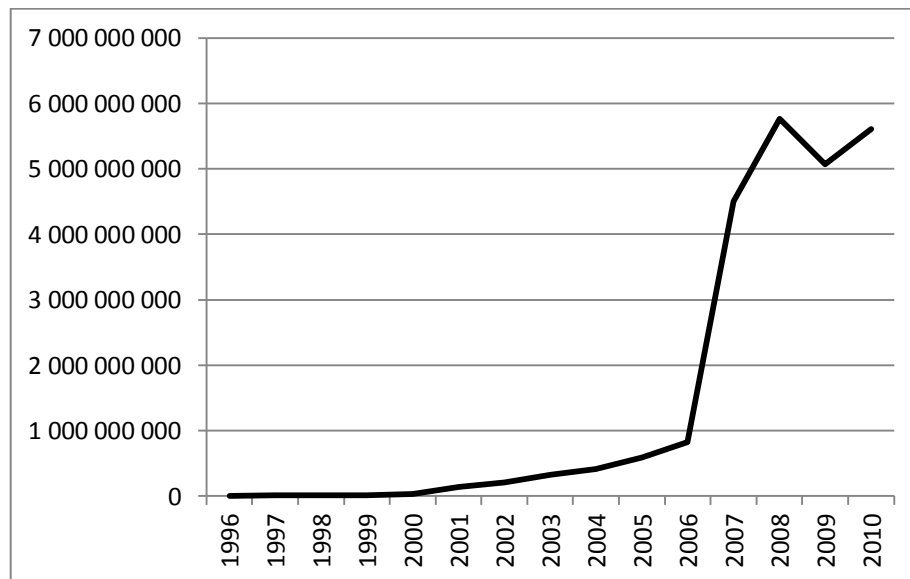
relationships with families, stay in direct contact, quite often are able to come home and they also realize investments in Ukraine (Markov et al. 2009).

Currently more than 10 % of Ukrainian population (1/5 of working age population) work abroad, typically on temporary basis (Düvell, undated). According to Siar (2008) 15.7 % of households have at least one or more members with experience of working abroad. Most often Ukrainians are engaged in secondary labour market and usually they do not constitute competitive counterparts to local workers (Markov et al. 2009). They are usually working in building and construction sector, in housekeeping and agricultural industry (Vollmer et al. 2010).

Despite the main importance of Ukraine as the source country of migrants for the Czech labour market, the Czech Republic, although no doubt an important target country for Ukrainian migrants, is not the most favourite. The Russian federation is the most linked country to Ukraine as a consequence of common history and still the majority of migrants leave Ukraine to settle down in Russia. Further, Ukrainians prefer to migrate to the Poland, USA, Israel, Kazakhstan, Israel, Germany, Moldova, Belarus, Spain or Canada (World Bank 2011).

Another important aspect of labour migration for all developing countries is represented by remittances. Despite the fact that as a share of GDP, Ukraine is not among countries with highest levels - Ukraine received around 4 % of its GDP in 2010 (World Bank 2012) – overall amount of remittances received is increasing substantially, as it is evident from the following figure:

**Figure 6: Remittances received, Ukraine, current USD**



*Source: World Bank (2012)*

From the pattern of the flow one can see that financial crisis affected the amount of remittances received but the effect was not that severe, compared to the level of foreign direct investment, that shrink twice in the year of 2009 (World Bank 2012).

It is necessary to understand that as remittances are surely sent via informal channels in a large extent (as it was mentioned above), the official amount of remittances is probably underestimated. For instance Markov et al (2009) in his research found out that as a share of Ukrainian GNP, international remittances (received by Ukraine) comprise 20 %.

Above mentioned facts deal with the general information about migration trends in Ukraine, whereas the following chapter aims to focus on migration flows from Ukraine to the Czech Republic.

### **3.3 UKRAINIAN LABOUR MIGRATION TO THE CZECH REPUBLIC**

According to the estimates of Ukrainian embassy, there are 200 – 250 thousands of Ukrainians living and working in the Czech Republic. Many of them come from the

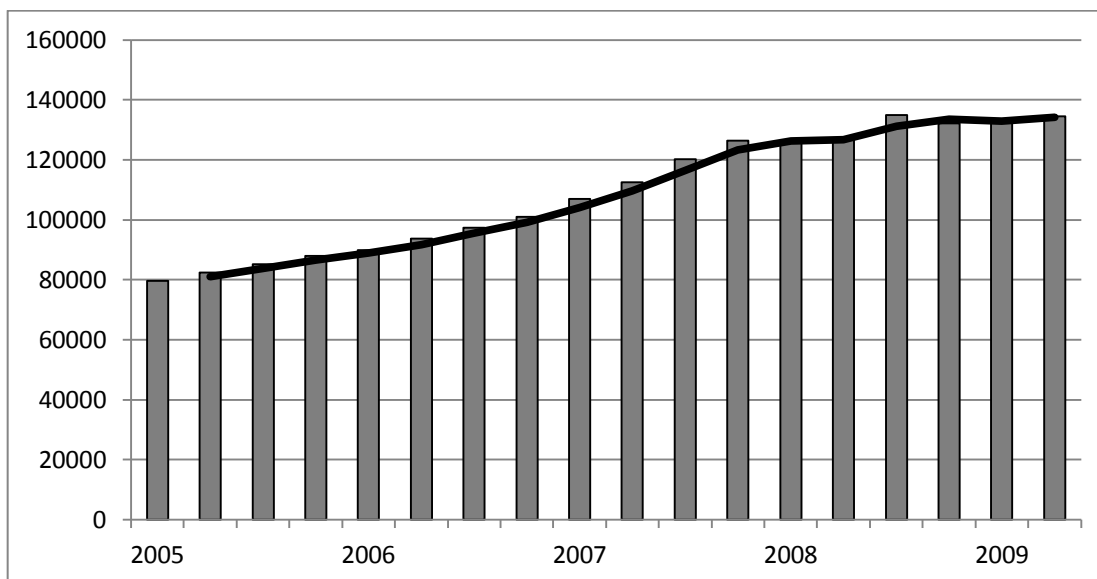
region of Zakarpat'ye, to be specific, as much as 50 % of migrants from Zakarpat'ye region come to work to the Czech Republic (Malynovska 2008).

During the time of economic transition, Ukraine had to adjust its migration policies so that the country would be able to become the part of new independent region. *“The Ukrainian government abolished all exit restrictions in January 1993, and, in February 1994, the "Law on the Order of Exit from Ukraine and Entrance to Ukraine for the Citizens of Ukraine" was adopted. It guaranteed Ukrainian citizens the right to freely depart and return to its territory. Additional guarantees of free movement are provided by the 2003 "Law on Freedom of Movement and Free Choice of Residence in Ukraine.”* (Malynovska 2006).

The situation for labour migrants became more difficult since the visa requirements were launched since 2000. Perhaps as a consequence of that, significant number of migrants stays illegal or unregistered (Siar 2008).

In 2009, the Czech Republic granted 92 138 visas for Ukrainian citizens. Further in 2009, the stock of Ukrainians, either on long term stay or permanent stay basis, reached the number of 131 977, which is the biggest group in the country. Based on the information of Ministry of Labour and Social Affairs, there are 57 468 Ukrainians active on the labour market and further 26 223 migrants from Ukraine work as entrepreneurs (MVCR 2010). The increasing trend of Ukrainian migrants in the Czech Republic in time is visible from the following picture. By comparing the number of immigrants in the beginning of 2005 and the second quarter of 2009, one can find that the stock of migrants increased by 68.9 %.

Figure 7: Stock of Ukrainian migrants in the Czech Republic



Source: World Bank (2010)

Quite often, migrants coming to the Czech Republic intend to stay for a longer period of time. More often than in the case of other countries, migrants coming to the Czech Republic are young (less than 28 years), less educated, and in line with the experience from other countries, mostly migrants work in construction sector (as much as 88.2 %) and in industry. 45.9 % Ukrainian women prefer to work in restaurants and 31.5 % in light industry (Malynovska 2008).

There is one typical feature of the migration from Ukraine to the Czech Republic – the middlemen (or “client”) system (Jelínková et al. 2011). Clients or middlemen are paid by migrants for assistance and services of various kinds. *“Their activities included job seeking, negotiations with authorities, interpreting, provision of accommodation and solving emergency situations related to migration”* (Čermáková, Nekorjak 2009:3). Middlemen are usually of Ukrainian origin. Often, based on agreement they conclude with a migrant, they are promised to get certain part of migrants’ regular salaries. According to Čermáková, Nekorjak (2009), about the half of all migrants have an experience with middlemen.

### **3.3.1 UKRAINIAN REMITTANCES**

In this subsection the amount and determinants of remittances sent by Ukrainian migrants from the Czech Republic to their country of origin is analysed.

Higher wages in the Czech Republic (compared to Ukrainian wages that remained very low) and better working conditions (Lupták 2008, Siar 2008) enabled those who migrated to pay for accommodation, education and also send financial support to their families, that gained higher purchasing power thanks to these remittance flows (Fedyuk 2006, Malynovska 2004). Siar (2008) also noted that remittance receiving households are better off, and they tend to set up small businesses from received funds.

Contrary to the above findings, Lupták (2008) highlighted unfavourable situation for small businessmen in terms of insufficient support from the side of the state. He states that after they return, labour migrants prefer to invest their savings into housing and education rather than into unsecure business. Åslund (2009) agreed with this statement by pointing at poor business and investment environment and difficulties that arise when it comes to involvement of state sector (such as closing business, registering property, trading across borders etc.). The same is suggested by Malynovska (2006) as she said that mostly remittances and savings are used for consumption, education and housing since there are not sufficient incentives for enterprises in Ukraine.

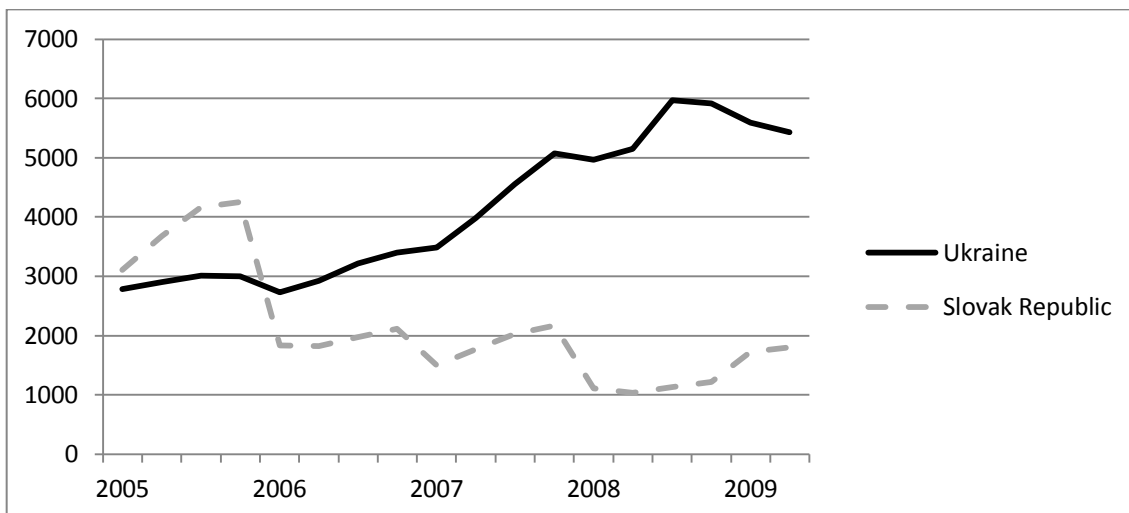
Leontiyeva, Tollarová (2011) analysed data from the questionnaire surveys undertaken by the Institute of Sociology, Czech Academy of Sciences and Czech Statistical Office. The study focused on several immigrant groups – Moldavian, Russian, Ukrainian, Vietnamese and former Yugoslav migrant. According to their results, 81 % of Ukrainian migrants have unskilled or low-skilled jobs. Ukrainians also tend not to bring their spouse and children into country and, consequently, have the higher share of remitting individuals than other nations in the sample (61 % of them send remittances, compared to 40 % of former Yugoslavs). Older migrants are more likely to send remittances than younger migrants. Generally, according to their analysis, leaving children behind is probably the strongest predictor of both probability to send remittances and their volume. They found out that typically married, low skilled and unskilled workers remit, with the average length of residence of 4 – 5 years. For transactions of remittances they prefer to use informal channels.

Their research further confirmed that remittances are stable even during years of economic downturn. Regarding the use of remittances, 58 % of money is used for basic needs and food, 30 % goes on medicines and education, 17 % real estate investment, and as for other investment and business only 5 % of money received is used by families of recipients. This figure is in line with above mention statement of Lupták (2008), Åslund (2009) and Malynovska (2006).

Most often remittances are transferred back to Ukraine by unofficial channels, particularly with the help of friends or relatives or bus drivers (couriers). According to the study of World Bank (2010), 40 % of migrants use help of their friend or relative, 32 % prefer bus couriers and 25 % rely on MTO. The reason of their choice of methods is mainly transfer speed and low costs. 98 % of remittances are sent in US dollars (USD) and average sent amount is 200 USD. Among the other immigrants groups, Ukrainians are the ones remitting the lowest percentage of their income – 7 – 9 % (World Bank 2010).

Within the remittance market in the Czech Republic, remittances to Ukraine comprised 42 % of total remittances and the amount of these flows is increasing in time, as one can see from the following graph, where remittances flowing to Slovenia are added for the comparison.

**Figure 8: Annual remittances in nominal terms, million CZK**



*Source: Sedláček (2010)*



Clearly, Ukrainian labour migration is the essential phenomenon of the last two decades and that holds twice for the Czech Republic, since the migrants from Ukraine is far most important group of foreign labour force in the country. There is no doubt that further research in the area would bring significant benefits to the overall understanding of the migration process and determinants of migration and that brings us to the following chapter, that aims to the case study of Ukrainian migration, based on the survey conducted between 2010 and 2012 the UMP research team from the Charles University in Prague.

## **4 DETERMINANTS OF UKRAINIAN REMITTANCES IN THE CZECH REPUBLIC AND THEIR USE**

Using an original set of primary data from UMP questionnaire survey, the aim of this section is to analyse main determinants of remittances flowing from Ukrainian migrants working in the Czech Republic to recipients of remittances, i.e. migrants' families in Western Ukraine. Furthermore, the analysis is focused on examining the ways how remittances are used; especially the hypothesis that remittances are channelled primarily into consumption is verified.

### **4.1 METHODOLOGY OF DATA COLLECTION**

For the purpose of following analysis, we were provided by unique data set from the UMP questionnaire survey conducted by the team of researchers from the Charles University in Prague in Western Ukraine, in particular Zakarpats'ye region, characteristic for its large share of emigrants in the local population and also the fact, that in recent history, it came under authority of Austrian-Hungarian monarchy, Czechoslovakia, Hungary and the Soviet Union.

The survey is a part of the project *“Migration and development – economic, social and socio-economic impacts of migration on the Czech Republic, as migration target country and Ukraine, as migration source country (with a specific focus on the analysis of remittances)”*. The project lasts 3 years beginning in January 2010, is led by Associate Professor, RNDr. Dušan Drbohlav, CSc., from the Faculty of Science of the Charles University in Prague, and it has very complex nature as it is focused on various socio-economic aspects of migration and its impacts. The research is divided into several tasks and many statistical methods are employed to collect data, such as semi structured in-depth interviews, diary records on daily incomes and spending of Ukrainian migrants in the Czech Republic and survey questionnaire both in Ukraine and in the Czech Republic.

Following methodology of Massey's MMP and LAMP, UMP questionnaires contained questions dealing with various economic and demographic characteristics, e.g.: household size, information on age, sex, education, occupation of each household member, total monthly net income of every household, percentage of income that is

spent on food, the amount of remittances (both financial and in kind), that are received by the household from its members or non-members, frequency of receiving remittances. In addition, the questionnaire contained questions on the economic and social status of the migrant: her/his occupation, salary, marital status, attachment to family (expressed the frequency of contacting each other), knowledge of foreign languages.

The survey consisted of several parts but it has to be mentioned that not all questions were used explicitly in econometric models presented further in the thesis. Some of them, however, are describe more deeply in the Section 4.4 where descriptive data analysis is conducted.

As it is usual among data samples that are based on questionnaire survey, there are several limitations in data, such as sample selection, size, geographical distribution, etc. On the other hand, primary and unique data resulting from the survey have an advantage against balance sheet data on remittances collected on the macro level, since questionnaires detect also remittances that flow in the country by informal channels. Furthermore, it is possible to examine motivations and personal issues connected with each migrant-family relationship.

In total, 200 questionnaires in households having currently at least one member as a migrant in the Czech Republic<sup>8</sup> and 50 questionnaires in households that currently do not have any family member residing abroad were held. In addition, other results from questionnaire survey held in May 2011 were pooled with the main sample form fall 2011. These additional questionnaires had only few observations and were poorly filled compared to the sample from fall 2011, therefore data from them could be utilized only in simplified models.

Households in the sample were chosen by random sampling in particular cities in Zakarpat'ye region. Despite above mentioned limitations, the data sample is robust enough to show the basic existing patterns and dependencies in migration from the

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<sup>8</sup> And the vast majority of these households do receive remittances from their family members in the Czech Republic

Western Ukraine to the Czech Republic and in remittances flowing in the opposite direction.

## **4.2 HYPOTHESES AND METHODOLOGY FOR EMPIRICAL TESTING**

In this section hypotheses and the methodology of testing are defined. There are two main hypotheses that are to be tested in the thesis.

### **4.2.1 HYPOTHESES**

*Hypothesis 1: Remittances are significantly determined by income, demographic characteristics and human capital of migrants.*

The *Hypothesis 1* was chosen following the research done by Massey, Durand, Pren (2011) and the aim of the analysis is to test whether Ukrainian migration, in particular the remittance behaviour, is determined by similar factors as Latin American migration in the USA examined by Massey, Durand, Pren (2011), and based on the results of testing, to formulate these determinants explicitly.

*Hypothesis 2: Remittances are channelled primarily into consumption in the country of migrants' origin and not into more productive spending.*

The literature on remittances analysing the potential growth effects highlight that remittances are often mostly used for consumption of households, which might decrease the positive effect on growth<sup>9</sup>. Positive effects are conditioned by more productive spending such as investment in businesses and in human capital (schooling) and in some literature and for the sake of this thesis, channelling money into construction of houses is considered to be productive spending too.

### **4.2.2 METHODOLOGY OF TESTING**

Determinants of remittances (*Hypothesis 1*) are to be tested in two ways. Firstly, determinants are tested on the individual level. Here, binary response models, in particular Logit, Probit and Linear probability model (LPM) are applied, where the binary dependent variable is equal to 1 if the person migrates and remits and 0

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<sup>9</sup> In more details, the problem is discussed in the Chapter 2.4.

otherwise. Secondly, determinants of the *amount* of remittances is examined, thus only subsample of families *with* migrants in the Czech Republic are included in the model. For this analysis, linear regression and Ordinary Least Squares (OLS) method is used.

In order to test *Hypothesis 2*, binary response models, in particular Logit, Probit and LPM model are applied. In models that test the *Hypothesis 2*, the dichotomous dependent variable is equal to 1 if the household is using its income *primarily* for consumption of food and clothes in the first model, and in the second model the dichotomous dependent variable is equal to 1 if the household is using its income on productive spending.

Closer definition of variables employed in models is provided in the following chapter and in Appendix C. See also Appendix A for details on econometric issues and structure of models used for testing hypotheses.

It has to be mentioned that in analysis where binary responds methods are applied, results for Probit and LPM models are displayed for the purpose of comparison. The same signs of estimates and the level of significance support robustness of Logit estimates. However, statistical interpretation is only provided for Logit models since it is more straightforward than interpretation of results from Probit models. Besides, Logit estimates do not possess main drawbacks of LPM – linearity and unbounded dependent variable.

*Signs* of the coefficients are of the main interest in the analysis – if the coefficient is statistically significant, the negative sign shows that the increase in the explanatory variable lowers odds of the dependent variable to occur, the positive sign signals that the increase in the explanatory variable lowers odds and probability of occurrence.

From the size of coefficient, it is possible to easily find how much particular explanatory variables influence odds of the dependent variable  $Y=1$ . Estimate of coefficient is log of odds ratio in Logit model. Taking inverse function of log (exponential function), odds ratio is revealed and it is not hard to interpret it, especially for binary explanatory variables.

Data are analysed in statistical software Stata 11 and some analysis is done in Microsoft Excel.

### 4.3 DATA CORRECTIONS

Before the analysis of the data could be executed, there was a need for corrections in the data file. Firstly, information on remittances and income of migrants and families was entered in different currencies – US Dollars, Euros, Czech Korunas and Ukrainian Hrivnas. As the survey was conducted in October 2011, for the transformation into unique currency the monthly average exchange rate for this month was chosen. The reason for not using CZK instead of USD is that USD allows for further possibilities of international comparison since it is an internationally recognized currency<sup>10</sup>. Furthermore, some families reported remittances not on yearly basis, as the questionnaire was constructed, but on monthly basis. If this was the case, the amount was simply multiplied by 12. Monthly income of migrants was often reported as hourly wage by migrant workers. Even though researchers did not asked for hours worked per month, there was no choice but multiply the hourly wage by 160 which is the usual full time count of working hours in the Czech Republic. This way the variable of monthly wage was created.

The further shortcoming does not stem from inappropriate answers of migrants or their families but from the questionnaire itself. In case there are more people abroad in one family, one cannot say who particularly (if just one of those working abroad or more or in which proportions) send remittances. Therefore it was automatically assumed that first person in the productive age mentioned as foreign worker is the migrant who send remittances.

There are 2 observations which might be considered as outliers. One of them most likely arose as an error in the data, because the remittances amounted at 137 thousand dollars in 2 years and at the same time, migrant reported himself to be in the 4<sup>th</sup> income category (max USD 2 150 monthly). One of the explanations of both outlying observations might be that remittances are reported actually in CZK, which would place observations in the average values collected.

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<sup>10</sup> For observation from spring 2011, all entries were filled in USD - there was no need for conversion.

However, since following estimations that include these observations do not significantly differ from estimations that excluded them, it was decided to keep all observations in models.

Before the analysis, it should be also noted how we deal with ordinal categorical variables that stem from the construction of the questionnaire. For education that has values 1, 2 and 3, the 1 – primary school finished – is the reference category and 2 new dummies were created that compare results for secondary vs. primary education and tertiary vs. primary education.

For income categorical variables, both for migrants and for household income, since there are too many categories, variables were involved in models as such, in correspondence with Woolridge (2002). This approach is trade-off between easier interpretation and parsimony of model and we argue that results are still “interpretable”.

#### **4.4 SUMMARY STATISTICS AND PRELIMINARY ANALYSIS**

The aim of this section is provide the first insight into the character of several key variables used further in the analysis by showing basic summary statistics.

Firstly it is convenient to characterize the variables that are used for analysis. They are summarized in the following table:

**Table 1: Variable description**

<b>Name of variable</b>	<b>Description</b>
<b>Variables describing remittances</b>	
<i>Remittances 2010, 2011, sum</i>	Amount of remittances received by a household from “their” migrant in 2010, 2011 and the sum of both years, respectively
<i>Remittances sent via MTO or bank</i>	Share of migrants that use financial intermediary
<i>Remittances sent in cash</i>	Share of migrants that sent money in cash (most often informally)
<b>Demographic characteristics (for both migrants and household members)</b>	
<i>Age</i>	Years of age
<i>Male</i>	Dummy variable, 1 = male, 0 = female
<i>Education</i>	Categorical, 1 = primary level, 2 = secondary level, 3 = tertiary
<i>Secondary school</i>	Dummy variable, 1 = secondary school completed, 0 = otherwise
<i>University degree</i>	Dummy variable, 1 = university completed, 0 = otherwise
<i>Marital status</i>	Categorical, 1 = married, 2 = single, 3 = divorced, 4 = widowed, 5 = lives with partner in same household
<i>Married</i>	Dummy variable, 1 = married, 0 = otherwise
<i>Employment status</i>	Categorical, see Figure 10 for details
<i>Economic activity</i>	Categorical, see Figure 9 for details
<b>Migrant's characteristics</b>	
<i>Migrant's income</i>	Categorical, 1 = Less than 9 000 CZK, 2 = 10 000 – 19 000 CZK, 3 = 20 000 – 29 000 CZK, 4 = 30 000 – 39 000 CZK, 5 = More than 40 000 CZK
<i>Ability to speak Czech</i>	Dummy variable, 1 = yes, 0 = no
<b>Household's characteristics</b>	
<i>Class in society</i>	Categorical, 1 = lower, 2 = lower-middle, 3 = middle, 4 = upper-middle, 5 = upper
<i>Share of income spent on food</i>	% of income that a household spend on food
<i>Household income</i>	Categorical, 1 = Less than 599 UAH, 2 = 600 – 1499 UAH, 3 = 1500 – 2599 UAH, 4 = 2600 – 4099 UAH, 5 = 4100 – 6599 UAH, 6 = More than 6600 UAH
<i>Dependants</i>	Number of members that are not productive
<i>Household size</i>	Number of members in a household

*Source: Ukrainian Migration Project (2011)*

Firstly, migrants’ characteristics are examined. Summary statistics of migrants are displayed in the following Table 2. Almost four fifths (79.9 %) of migrants in the sample are male. The age of migrants varies from 19 to 64. Average age is 42.2 years. The vast majority (84.4 %) from the group of migrants is married. With regard to the level of education, the largest share was the group of migrants with university degree – 55.2 %, and the second largest group was constituted by those migrants who completed secondary school – 41 %. Overall, 58.5 % of migrants are able to speak “somewhat” Czech.



**Table 2: Summary statistics of migrants**

<b>Statistic</b>	<b>Measure</b>	<b>Value</b>
<b>Lifecycle characteristics</b>		
Males	%	79.9
Females	%	20.1
Married	%	84.4
Age	Mean	42.2
<b>Human capital</b>		
University degree	%	55.2
Secondary school	%	41.0
Ability to speak Czech	%	58.5
<b>Trip Characteristic</b>		
Income group 3	%	51.9
Job in construction sector	%	43.2
Job in manufacturing sector	%	11.4

*Source: own estimations*

If analysing men and women separately, one finds that women are on average 38.7 years old, 62.8 % of them have university degree and 32.6 % completed secondary education. Almost 70 % from women are married. Men are on average older but the share of men with university degree is lower 52.6 %, and the share of those finished education on secondary level is 42.1 %. 87.1 % of male migrants are married. The ability to speak Czech is almost the same for both women and men.

**Table 3: Comparison of statistics Male vs. Female**

<b>Statistic</b>	<b>Male</b>	<b>Female</b>
Age	43.1	38.7
Married	87.1 %	69.8 %
Secondary school	42.1 %	32.6 %
University degree	52.6 %	62.8 %
Ability to speak Czech	48.0 %	48.8 %

*Source: own estimations*

Regarding the economic activity that Ukrainian immigrants are engaged in, Figure 9 depicts the situation. Particular economic activities were divided into primary, secondary and tertiary economic sectors (details in the Table 4). In order to highlight how the construction sector is important for Ukrainian labour migrants, it is taken away from secondary sector as separated category.

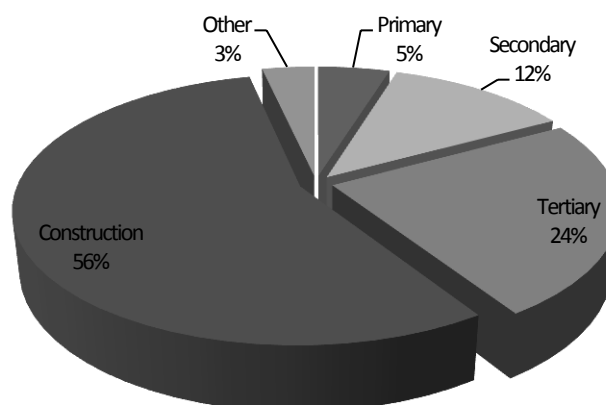
**Table 4: Economic activity of Ukrainian immigrants**

Description of Economic Activity Variable and Division on sectors	
<b>Primary Sector</b>	<b>Tertiary sector</b>
1 = Agriculture, hunting	8 = Trade, repairing of household appliances, cars
2 = Forestry, fishing	9 = Transport and storage
3 = Mining	10 = Accommodation and gastronomy
	11 = Information and communication
<b>Secondary Sector</b>	12 = Finances and insurance
4 = Manufacturing	13 = Real estate
5 = Electricity, gas and heat production	14 = Science, research and technology
6 = Water supplying, sewages and waste management	15 = Administration
	16 = Public governance, defense, social security
7 = Construction (normally included in Secondary sector)	17 = Education
	18 = Healthcare and welfare
	19 = Culture, recreation, entertainment

*Source: own estimation*

Not less than 56 % of Ukrainian immigrants from the sample work in construction sector. Together with other economic activities from secondary economic sector it makes 68 %. Almost one quarter is working in tertiary sector. In this sector, most immigrants work in category 8 – Trade, repairing of household appliances, cars, and 10 – Accommodation and gastronomy.

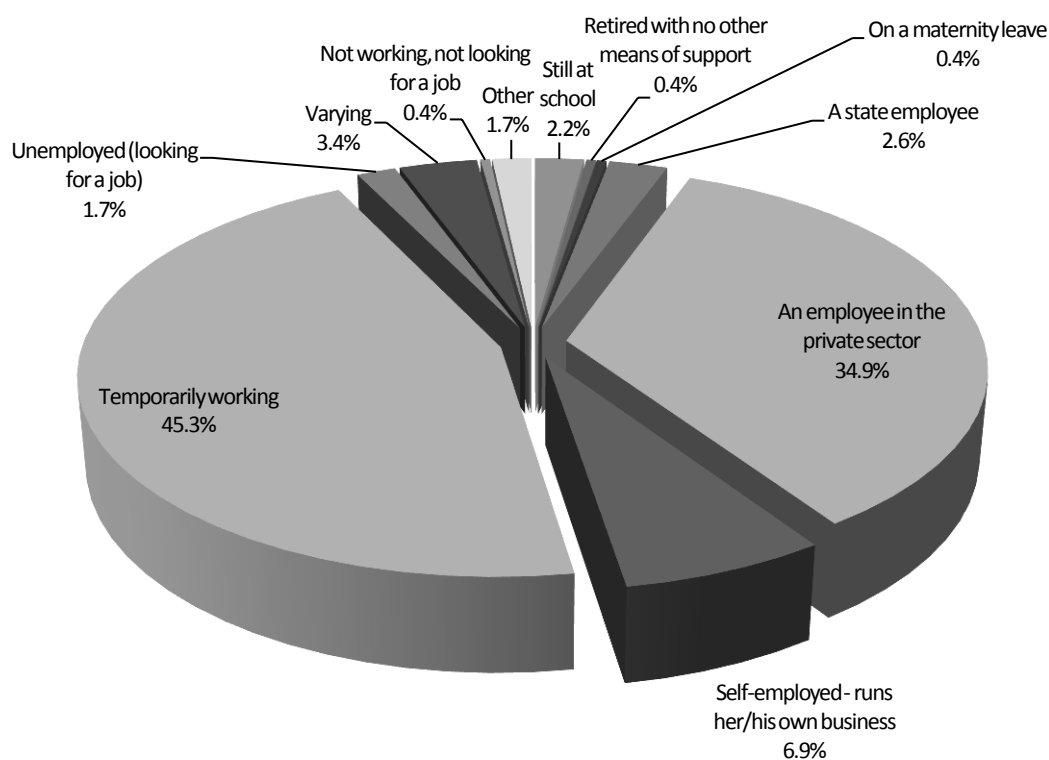
**Figure 9: Economic activity**



*Source: own estimation*

Regarding employment status of immigrants, the following pie chart (see Figure 10) reveals that almost the half of migrants is working temporarily. The second largest group of labour migrants is employed in the private sector – approximately one third.

**Figure 10: Employment status**



*Source: own estimations*

The following Table 5 shows comparison of 4 characteristics for households receiving remittances (Rem = 1) and households that do not receive remittances (Rem = 0). Households that currently have a member working in the Czech Republic and sending remittances have on average lower number of members and lower number of dependants.<sup>11</sup> Furthermore, households receiving remittances spend slightly lower share of their income on food.

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<sup>11</sup> In the thesis, all household members that do not work are considered to be dependant (most often children, students and retired members belong to the group).

Income of the households is a categorical variable that has 6 categories. Out of 6 income groups, 63.3 % of households receiving remittances belongs to the category 3 and 4 (middle categories), whereas only 26.6 % from non-recipient belong to these two categories.

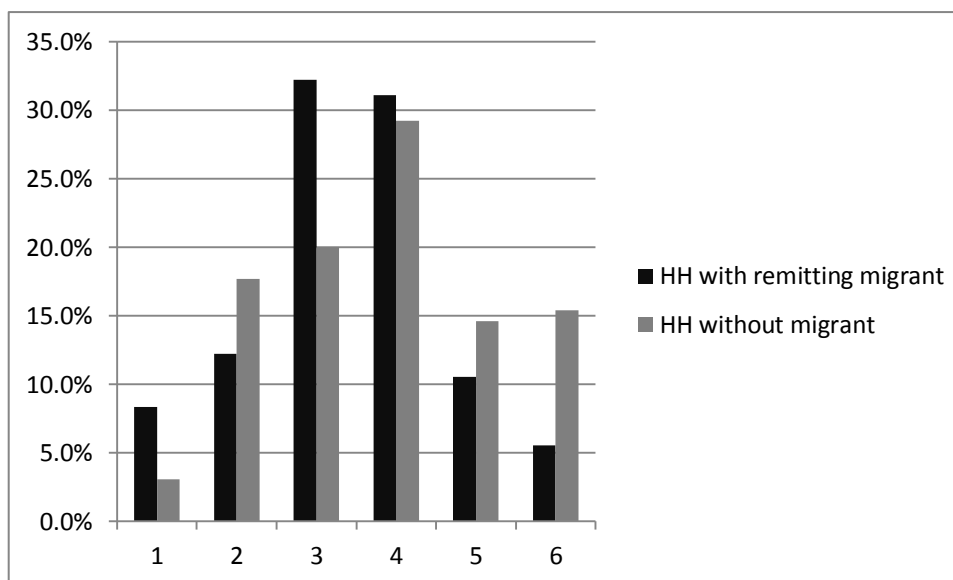
**Table 5: Comparison of households with and without remittances**

Statistic	Measure	Value	Value
		<i>Rem = 1</i>	<i>Rem = 0</i>
Household size	Mean	2.92	4.3
Dependants	Mean	1.90	2.6
Share of income spent on food	Mean	39.4 %	41.4 %
Income group 3 and 4	%	63.3	26.6

*Source: own estimation*

The distribution of income among households is better pictured in following histogram, where frequencies are used to show that the family belongs to the certain group. Interesting fact is that families that do not receive remittances are much more evenly distributed than families that do receive remittances.

**Figure 11: Distribution of income**



*Source: own estimation*

Table 6 summarizes the amount of remittances sent by remitting migrants to Ukraine in 2010 and 2011. In 2010, remittances ranged from USD 100 to USD 68 500 and the

amount remitted on average was approximately USD 7 512.88. In 2011, the figure of average decreased by 2.5 %, becoming USD 7 325.92.

**Table 6: Remittances statistics derived from 2011 UMP survey data**

<b>Statistic (US dollars)</b>	
<b>Remittances</b>	
Average remitted amount in 2010	7 512.88
Median of remittances in 2010	5 000
Range in 2010	100 - 68 500
Average remitted amount in 2011	7 325.92
Range in 2011	50 - 68 500
Median of remittances in 2011	4 110
<b>Way of transfer</b>	
Remittances sent via MTO/bank	31.7%
Used Western Union (from the category MTO/bank)	71.5%
Remittances sent in cash	76.3%

*Source: own estimations.*

Median of remittances in 2010 and 2011 was USD 5000, USD 4110 and, respectively, implying that high values of several observations increased the mean of remittances above the level of median.

Only 31.7 % of remitting migrants used either MTO or bank to transfer remittances to Ukraine. Out of this category the vast majority transfer money via Western Union. More than three quarters preferred to send money in cash, most often informally using help of friends or relatives.

Once again, if analysing men and women separately, one can see that men send more remittances than women in both years and that in 2011, amount remitted for male migrants fell by 3.7 % whereas for female migrants remittances sent increased by 10.3 %.

**Table 7: Comparison of means for male and female**

<b>Statistic</b>	<b>Male</b>	<b>Female</b>
Average remitted amount in 2010 (USD)	8 021.8	5 275.6
Average remitted amount in 2011 (USD)	7 728.1	5 819.5

*Source: own estimations.*

## 4.5 DETERMINANTS OF REMITTANCES

By similar methodology used by Massey, Durand, Pren (2011), binary response models Logit, Probit and LPM are employed to predict a dichotomous variable – whether the person *migrates* and *remits* or not. Using in total two approaches of analysing determinants of remittances – binary response models and linear regression, this section firstly tests for the validity of *Hypothesis 1* and by these means main factors of remittances and their magnitude are to be formulated.

### 4.5.1 FACTORS INFLUENCING ODDS OF MIGRATION AND REMITTANCE BEHAVIOUR

As it was already said, Logit model is of the main interest and Probit and LPM are displayed just for comparison. The Logit model takes following form:

$$P(Y = 1|x) = \frac{e^{\beta_0 + \beta_1 x_1 + \dots + \beta_k x_k}}{1 + e^{\beta_0 + \beta_1 x_1 + \dots + \beta_k x_k}},$$

where  $\beta$  are coefficients to be estimated. The right hand side of the equation is in a form of logistic cumulative distribution function. Probit model employs normal cumulative distribution function.

The dependent variable Y in probability model is dichotomous – the individual either remits some positive financial amount or not. Thus  $y = 1$  holds for Ukrainians who migrate and remits. Estimates of coefficients of explanatory variables  $\beta$  show how much the odds of remitting is increased if the explanatory variable increase. Thanks to the control group of observations among families with no migrants there is a possibility to estimate effects of particular characteristics on the probability of migration and sending remittances on the *individual* level. One group consists of those who remit and then in the control group there are all members of all households in the productive age of 18 – 65, students and retired excluded, who are not currently remitting migrants. By the introduction of binary variable that is equal to 1 if there is „*Another member in the household who already remits*”, the fact, that there is already somebody else from the particular household remitting money from the Czech Republic, is captured.

As it was said before, the dependent variable is equal to 1 if the situation “positive amount of remittances sent” occurs. The choice of explanatory variables is inspired by the study of Massey, Durand, Pren (2011).

In Logit model that is interpreted in the thesis, mostly the sign of estimated coefficients are important but the magnitude reveals some information as well. Positive sign signals that, *ceteris paribus*, the odds of remittance occurrence are rising with increase in the explanatory variable. If one is interested in the magnitude, taking the value of  $exp$  of the estimate results in *odds ratio*, since coefficient actually are *log odds ratios*.

Results are summarized in the Table 8 bellow. For comparison, results for Probit model and LPM are displayed as well.

Age raises odds of remitting but the effect diminishes, as we can see from the negative sign of square of Age. Being male rising odds of remittances – men are more likely to migrate and remit money, since being man rising odds of migration and sending remittances. The number of household members (the variable “household size”) lowers odds of migration with remittances – *ceteris paribus* additional household member lowers odds by almost 68 % ( $exp(-1.1354) = 0.32$ ). Not surprisingly, the presence of one another member abroad sending any remittances decrease odds of migration with remittances by around 66 % ( $exp(-1.0839) = 0.34$ ). Odds of migration and remittances also decrease the higher is the overall income of family (remittances excluded). In particular, moving from one category into the higher one decrease the odds by 23 % ( $exp(-0.2678) = 0.77$ ).

**Table 8: Results of Logit, Probit and Linear Probability model, dependant variable – probability of remittance occurrence.**

	Logit			Probit			Linear Probability Model		
	$\beta$		SE( $\beta$ )	$\beta$		SE( $\beta$ )	$\beta$		SE( $\beta$ )
<b>dependent variable - probability person remitts</b>									
<b>Independent variables</b>									
<b>Life cycle characteristics</b>									
Age	0.2900	***	0.0863	0.1512	***	0.0476	0.0279	***	0.0083
Age squared	-0.0034	***	0.0010	-0.0018	***	0.0005	-0.0003	***	0.0001
Male	1.6724	***	0.2459	0.9420	***	0.1377	0.2339	***	0.0295
Married	0.3618		0.4110	0.1888		0.2243	0.0354		0.0471
<b>Human capital</b>									
Secondary education	0.7331		0.6153	0.4759		0.3467	0.0562		0.0677
University degree	0.3237		0.6095	0.2225		0.3437	-0.0162		0.0650
<b>Household characteristics</b>									
Another member already rem.	-1.0839	***	0.2837	-0.5941	***	0.1577	-0.1416	***	0.0348
Number of dependants	0.2466		0.1611	0.1187		0.0881	0.0110		0.0176
Class	-0.1922		0.1698	-0.0906		0.0930	-0.0170		0.0198
% of income spent on food	-0.0004		0.0075	0.0004		0.0042	0.0002		0.0010
Household size	-1.1354	***	0.1741	-0.6096	***	0.0921	-0.1133	***	0.0165
Family income	-0.2678	***	0.0986	-0.1554	***	0.0575	-0.0532	***	0.0126
<b>Constant</b>	-3.4326	*	1.8660	-1.8608	*	1.0305	0.2283		0.1882
Number of observations	671.0000			671.0000					
Wald chi2	119.8200			130.4300					
McFadden R-squared	0.3241			0.3175					
p-value (wald chi)	0.0000			0.0000					
R-squared							0.2954		
p-value (F-test)							0.0000		

Note: \* Significant on the 10 % level; \*\* Significant on the 5 % level; \*\*\* Significant on the 1 % level.

Source: own estimation

Neither the fact that individual is married is not significant, nor the education has an influence on odds, since estimates of coefficients are not statistically significant. Household's class of society, number of dependants and share of income that is spent on food are not significant either.

P-value of Wald statistics is close to 0, which indicates that the null hypothesis of joint insignificance (all estimations of coefficients are equal to 0) can be rejected. The goodness of fit can be interpreted from pseudo R2 (McFadden R2) and for this model, the value is approximately 32.4 %.

Test for heteroskedasticity (Breusch-Pagan test) was executed for LPM and with high level of p-value and low level of the statistic, the null of homoscedastic data cannot be



rejected. That means that one can rely on homoscedasticity of disturbances and there is no need to employ robust standard errors that would correct heteroskedasticity.

#### 4.5.2 FACTORS INFLUENCING REMITTED AMOUNT

The analysis further proceeds to linear regression model. This time the model is not trying to find factors that influence odds of remittance occurrence, as it was the case with probability models, whereas by the linear regression, determinants of the *amount* of remittances could be found. The dependent variable  $Y$  is represented by the logarithm of amount remitted for both years together. The purpose of the model is to detect which variables have statistically significant influence on the dependent variables.

Following Massey et al. (2011), the model includes variables on lifecycle characteristics of migrants, their human capital, trip characteristics (only income group of migrants is available) and household characteristics. Particular variables are shown in the Table 9. The model takes following form:

$$Y_i = \beta_0 + \beta_1 x_{i,1} + \dots + \beta_k x_{i,k} + u_i$$

Where  $\beta$  are coefficients to be estimated and  $x$  represent independent variables and  $u$  disturbances. Table 9 summarizes main results. From the results reported in the table it is obvious that, besides the intercept, variables of Age, Age Squared, Married, are statistically significant at 5 % significance level and Migrant's income is significant at 1 % level. The estimated coefficient for Age is -0.13 and at the same time, the estimate for Age squared is positive and close to 0, still statistically significant. This implies that with rising age of migrant, amount remitted is decreasing, but the relationship is nonlinear and the effect is weakening with increasing age. Compared to the reference group of being single, married persons remit 59 % more than single ones.

**Table 9: OLS estimation of amount remitted from the Czech Republic by Ukrainian migrants**

	Log of Amount remitted ( <i>in total</i> )			
	$\beta$		SE ( $\beta$ )	<i>p-value (t-test)</i>
<b>Independent variables</b>				
<b>Life cycle characteristics</b>				
Age	-0.1332	**	0.0616	0.033
Age squared	0.0015	**	0.0007	0.046
Male	0.1612		0.2343	0.493
Married	0.5913	**	0.2566	0.023
<b>Human capital</b>				
Secondary education	-0.3870		0.8998	0.668
University degree	-0.1314		0.8954	0.884
<b>Trip Characteristic</b>				
Income	0.3513	***	0.0000	0.083
<b>Household characteristics</b>				
Number of dependent members	0.1064		0.0840	0.208
Family income	0.0130		0.0672	0.848
House ownership	0.0083		0.3901	0.983
Land ownership	0.1967		0.1865	0.294
Bank account in UA	-0.0566		0.2076	0.785
Constant	10.1918	***	1.5555	0.000
Number of observations	132.0000			
R Squared	0.2330			
Adjusted R Squared	0.1557			
p-value (F-test)	0.0010			
p-value (Breusch-Pagan test)	0.8827			

**Note: \* Significant on the 10 % level; \*\* Significant on the 5 % level; \*\*\* Significant on the 1 % level.**

*Source: own estimation*

For the variable of Migrant's income, the estimated coefficient is 0.35, which means, that by the shift from lower salary group to the higher one, remittances increase by 35 %. The other variables in the model do not influence amount remitted significantly.

The other information that is crucial for evaluating of the model is R squared, that explains how much the explanatory variables are able to explain the variation of the dependent variable. The value is 23 % - in the field of social sciences the model is quite good on average. Adjusted R-squared is lower indicating too many variables in the

model. The goodness of fit could be probably improved by adding other variables into the model.

One of the key assumptions for OLS method to be efficient is to have homoscedastic disturbances. Based on the results of Breusch-Pagan test for heteroscedasticity the null hypothesis of homoscedastic disturbances cannot be rejected – the assumption of constant variance of disturbances is valid. Thence, there is no reason to run regression with robust standard errors.

In addition, models with the same explanatory variables were run for dependent variables of log of remittances 2010 and 2011 separately and estimations and statistics came to nearly same values. Simplified linear regression model that employs only variables that do statistically contribute to the fit of the model is presented in Appendix B. Resulting estimates are showing similar values.

So far the main determinants of remittances were being examined. It was found out that main determinants of likelihood of migration with remittances is age, sex, size of household and its income, whereas education does not affect the remittance decision. Regarding the amount of remittances, also marital status is important and the strongest predictor is the income of the migrant. The income of the household in Ukraine is, quite surprisingly, not important determinant of *amount* remitted by the migrant.

*Hypothesis 1* was confirmed to a large extent by the analysis. The only exception was that education (human capital) did influence neither odds of remittances nor its amount.

In the following chapter, the focus is turned on the way how remittances are spent by the household.

#### **4.6 ARE REMITTANCES CHANNELLED PRIMARILY INTO CONSUMPTION?**

This section deals with testing Hypothesis 2 (*Remittances are channelled primarily into consumption in the country of migrants' origin and not into more productive spending*).

It has to be noted that now, the analysis is conducted on the *household* level since we are analysing the way of spending households income by all members altogether, and thus, number of observations is equal to the number of households in the sample. The methodology for this section is described in the Section 4.2.2 and in more details in the Appendix A.

The main aim of this section is to examine how presence of remittances as such influences odds of spending households' income on consumption. The dependant variable is binary and equals to 1 if the household prefers to use its income primarily into consumption of food and clothes. For more details on how variables demonstrating how the income was used, see Appendix C.

If the variable is statistically significant and does have negative value, conclusion can be made that the presence of remittances, *ceteris paribus*, lowers the odds of spending income primarily on consumption of food and clothes. Following table summarize main outcomes of the model. Standard errors are robust to correct for heteroskedasticity of residuals signalled by low p-value of Breusch-Pagan test.

**Table 10: Results of Logit, Probit and LPM**

	Logit		Probit		Linear Probability Model	
	$\beta$	<i>RSE</i> ( $\beta$ )	$\beta$	<i>RSE</i> ( $\beta$ )	$\beta$	<i>RSE</i> ( $\beta$ )
<i>dependent variable -income used primarily for consumption of food and clothes</i>						
<b>Independent variables</b>						
<b>Household characteristics</b>						
Receive remittances	-1.5125 ***	0.3642	-0.8552 ***	0.1915	-0.2287 ***	0.0486
Number of dependants	-0.0566	0.1763	-0.0384	0.0998	-0.0080	0.0250
Household size	0.1630	0.1743	0.1062	0.0962	0.0230	0.0238
Class in society	-0.1779	0.2399	-0.1229	0.1330	-0.0260	0.0373
Family income	0.1068	0.1304	0.0403	0.0712	0.0170	0.0195
Constant	1.9370 **	0.9488	1.2320 **	0.5380	0.8491 ***	0.1470
Number of observations	321		321		321	
Wald Chi2	31.50		35.62			
McFadden R-squared	0.0968		0.0968			
Chi2 test	0.0000		0.0000			
R-squared					0.0959	
p-value (F-test)					0.0000	

Note: \* Significant on the 10% level; \*\* Significant on the 5% level; \*\*\* Significant on the 1% level.

Source: own estimation

The coefficient of main interest is “*Receive remittances*” – it signals that the family is a recipient of remittances, if it equals 1, 0 otherwise. Other factors that can determine the way how the income is used are controlled – mainly household size, number of dependant members, class in society and the group of family income. None of these controlled variables are significant. Only significant variable in the model is the binary variable “*Receive remittances*” and its estimated coefficient is negative.

The magnitude of the influence can be found by taking  $\exp(-1.512539) = 0.22$ , hence being recipient of remittances lowers the odds of spending income primarily into consumption by 78 %.

Chi2 statistics of Wald test is high enough to reject the null of joint insignificance of the model. The PseudoR-squared suggests that Remittances do not explain variability of dependant variable to the large extent and it would be probably convenient to add other variables into model, however, the basic impact of remittances is captured.

The similar analysis with the same explanatory variables was performed for other 3 binary dependant variable: use of income for (re)construction of a house, use of income

to pay for school and to invest in business. Again Logit, Probit and LPM were executed and results did not differ from each other for all three models. The following table summarize results of coefficient estimates only for the variable of the main interest – “Receive remittances” – the presence of remittances in household (is equal to 1 if household does receive any positive number of remittances in the last 2 years), results are displayed only for Logit model.

It was found that regarding (re)construction of house, remittances increase odds of spending money in this area significantly and the overall significance of model is valid since we can reject the null hypothesis of joint insignificance of all explanatory variables.

**Table 11: Results of Logit, Probit and LPM**

Results for Logit model				
Dependent variable	$\beta$		Robust SE ( $\beta$ )	p-Value chi2
Income used for (re)construction of a house	0.8790	***	0.2617	0.0092
Income used to pay for school	0.7222	***	0.2818	0.1114
Income used to invest in business	0.4946		0.4657	0.0001

*Source: own estimations*

Regarding spending income for schooling, remittances significantly raise odds of this kind of productive spending but the overall significance of the model can be questioned since p-value of test for the joint insignificance slightly crossed 10 % level of significance and hence, we cannot reject that coefficients are jointly insignificant.

The model where use of income to invest in business is the binary dependent variable can be considered as a valid model but the fact that a household does receive remittances does not explain the dependent variable significantly. Rather, class and income group positively influence odds of productive spending in business significantly.

Based on this result, the first part of *Hypothesis 2* stating that remittances are channelled into consumption can be rejected. Regarding the second part of *Hypothesis 2*, it was found that remittance-receiving households channel income in housing but as for the

most productive investments – in human capital and in business – remittances do not have an effect.

In the following section, results from the analysis are discussed.

#### **4.7 DISCUSSION OF RESULTS**

The analysis of determinants of migration with remittances and the amount remitted showed that odds of migration with remittances increases with age and, at the same time, the remitted amount decreases with the age for those who already decided to migrate and remit money back home. Young individuals in productive age may not feel secure to migrate abroad and as they have lower status in the family than more mature household members, they may not be considered to be main providers of income for the household as a whole. Other explanation could be that younger individuals still believe that by staying in Ukraine they are able to improve their position and remuneration on domestic labour market. As for the negative relationship of age of migrants and amount of remittances, it might be implied that older migrants might not be able to work more hours or overtime because of their health and productivity (migrants usually take physically demanding jobs) and thus they do not have so much extra income to send.

Furthermore, men are more likely to migrate and remit money than women but for those who migrated and send remittances, the gender is not a significant determinant of remitted amount.

Being married, compared to being single, is not a significant predictor of migration and remittances but married migrants send considerably more money than single ones. Marital status thus does not explain motivation to migrate and remit money but it has some explanatory power regarding to amount of remittances. This implies that as most migrants come to the Czech Republic without spouse and other family members, having spouse (and possibly children and larger close family) motivate labour migrants to send more money home, which can be interpreted as an altruistic motive described earlier in this thesis.

The migrant's income was proved to be the strongest predictor of remitted amount which was anticipated in the research hypothesis. Migrants who earn more also send more to their families, which might also imply altruistic effect.

The higher the income of Ukrainian household is, the lower are the odds of “having a remitting member in the Czech Republic”. However, interestingly enough, the amount of remittances are not influenced by the income of receiving household. The negative relationship of households’ income and odds of migration with remittances can be understood as a result of altruistic motive of the person who chooses whether to migrate or not, or, in accordance with the viewpoint of the New Economics of migration, as a strategy of household to send a member abroad to ensure additional income for the family in need. Thus insurance motive might play its role as well.

From the second part of the analysis it is apparent that families that receive remittances are less likely to spend substantial part of their income on the consumption of food and clothes than households that do not receive any remittances. This is one of the key finding as the literature more or less agreed that remittances have positive potentials once they are not spent into consumption. Furthermore, families that receive remittances are more likely to spend their income on construction of new house, which can be considered as productive spending. However, it was not confirmed that receiving households are more likely to invest into own business or human capital.

These results are confirmed by the similar research on remittances conducted in the other parts of the world (for instance in Mexico and Latin America within the framework of MMP and LMP) (for instance, see Massey, Durand, Pren 2011).

Nevertheless, it has to be emphasized that relevance of the interpretation of results are naturally limited by the sample of observations and thus may be relevant mostly to the region of Zakarpat’ye.



## CONCLUSIONS AND POLICY IMPLICATIONS

The thesis had two particular aims. Firstly, a general overview of financial flows stemming from international migration, i.e. remittances, was provided. Besides the overview, this part was intended to discuss the effects of remittances based on the findings in the research literature.

The second aim was to analyse the migration corridor of Ukraine – the Czech Republic. This task was fulfilled by reviewing the existing literature, using available data from CZSO or WB and primary data from the questionnaire survey. More specifically, by testing the two hypotheses, the analytical part examines the features and determinants of migration and remittances sent by Ukrainian labour migrants from the Czech Republic to Ukraine. Based on the results, we tried to interpret the most important findings and to formulate certain policy implications.

Regarding the first aim of the thesis, it was found that there is no clear consensus on the effect of either migration, or remittances, across the literature. The positive fact is that researchers focus on the topic of remittances and especially their development potentials quite intensively. Opinions based on empirical research are divided into more branches according to the support that was found in favour or against the remittance potential in the area of development and growth. Also, opinions of compromise arose claiming that remittances undoubtedly influence the well-being and poverty in some areas but it is not reasonable to consider them either reliable or as the most important development drive.

In regards to the second aim of the thesis (analysing certain aspects of the migration corridor of Ukraine – the Czech Republic), it was found that the main determinants of the decision whether to migrate, in order to provide own families with additional income, are demographic characteristics and income of the receiving household. The level of education does not affect the decision. Further it was found that the remitted amount depends, not surprisingly, mainly on the labour migrant's income in the Czech Republic. No statistical significance was found in the relationship between the remitted amount and the income level of the receiving household. By these findings *Hypothesis 1* was confirmed to a large extent.

Most importantly, we did not find any support for channelling remittances primarily into non-productive consumption in the data, which rejects the first part of *Hypothesis 2*. On the other hand, no other productive spending besides the spending on house construction was confirmed either. These findings correspond with the results in several research papers and can contribute to a deeper insight into the topic and even lead to some policy implications. Nevertheless, it has to be emphasized that relevance of the interpretation of results and policy implications derived from results are naturally limited by the sample of observations and thus may be relevant mostly to the region of Zakarpat'ye.

Good understanding of determinants and motives that are interconnected with them should be helpful for policymakers on both sides of the migration corridor (i.e. the Czech Republic and Ukraine) to formulate proper policies that aim at influencing the migration and remittances flow. As the relationship between odds of migration with remittances is rising with lower household's income, remittances can be viewed as a strategy to alleviate poverty among households. By contributing to the quantities and qualities of the network between the Czech Republic and Ukraine and providing more information about the possibilities on the labour market, policymakers could substantially enhance the positive effects of these strategies.

The fact that the households which receive the remittances do not channel the income primarily into consumption and are even more likely to spend the income in (re)construction is another argument to support this strategy, as long as we believe in positive effects of remittances once they do not lead just to the increased consumption. Ukrainian policymakers can support young workers from areas of high unemployment or of high excess of labour supply to temporarily move abroad, send remittances and then come back with the acquired knowledge. At least in the region of Zakarpat'ye, the support for this implication was found in the data from the questionnaires.

Further it was not confirmed that remittances increase odds of spending income on business and investment or schooling. An improvement of environment of establishing new business (focus on transparency, simplicity and provision of good information to public) and/or lowering the tax burden of remittance recipient would probably positively influence the odds of spending remittances more productively. Again, it is

assumed that productive spending would have positive effects on the economy of certain regions of Ukraine; in this analysis, Zakarpat'ye region.

From the preliminary analysis of the data, it seems that informal channels of sending remittances (usually cash send via friends or family members or in person) are most frequent. Lower fees or higher accessibility of formal services would probably result in higher share of migrants using formal way of sending finance to Ukraine.

Regarding the policy implications for both Ukrainian and Czech authorities, it might be concluded that positive economic and political development in Ukraine would highly probably lead to the diminishing number of outward migrants from Ukraine to the Czech Republic. When it comes to the Czech migration policies, the results of this thesis suggest that there is hardly anything that can be done locally, in the Czech Republic, to influence the inward Ukrainian migrations, since migration and remittances are mostly determined by demographic characteristics. However, one implication can be made: instead of the making the inward migration to the Czech Republic (or other CEECs) more difficult (e.g. by introducing new visa and employment regulations for migrants from the East), the policymakers should think about easing the regulations, enabling thus the potential migrants to enter the country, engage in paid employment and remit back home. Their remittances will increase the standard of living in the East which, in turn, will lead to the decrease in incoming Eastern migrations to the CEECs. Our findings clearly show that the inward migrations to the Czech Republic (or to other CEE countries) might be reversed by enhancing the well-being of migration-originating households and that remittances represent the best means for doing so. Of course, this must go hand in hand with deep transformation measures/changes that will, step-by-step, improve the socio-economic conditions of Ukraine as such.

Despite the limitations caused by the small sample observed, the outcomes of this thesis might enrich the knowledge and public awareness on migration and remittances. They might also contribute to this issue from the perspective of basic and applied research (policy implications for the construction of migration and development policies in the Czech Republic and in other CEE countries where the situation might be similar, or for designing comprehensive statistics of remittances). Further research that would capture more extensive area in Ukraine and thus more representative sample would be justified and likely beneficial.

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## Appendices

### APPENDIX A: Econometric issues connected with binary response models

As Woolridge (2002) explains in his book, binary response models (Logit and Probit models in the thesis), can be formally expressed by the following equation:

$$P(x=1|x) = G(\beta_0 + \beta_1 x_1 + \beta_k x_k) = G(\beta_0 + x\beta), \text{ where} \\ 0 < G(z) < 1 \text{ and } z \text{ is real number}$$

As opposed to LPM that uses linear regression on the Binary dependent function, this form ensures that estimated response probabilities belong to the interval (0;1). Further drawback of LPM – constant linear relationship between dependent and independent variables – is overcome by the form of the function  $G(z)$ . In Logit model,  $G$  is the cumulative distribution function for a standard logistic random variable. In the Probit model,  $G$  is the standard normal cumulative distribution function. Because of nonlinearity, models are usually estimated using maximum likelihood estimation (MLE). The MLE of  $\beta$  ( $\hat{\beta}_{MLE}$ ) maximizes log-likelihood. MLE method is not analytical as e.g. OLS but it uses iterations to estimate coefficients.

Interpretation of these model is not straightforward. Mostly, signs of estimates bring the most important information as positive sign signal positive impact on odds and thus also probability (Woolridge 2002)

One can consider generalized linear model of logistic regression taking following form:

$$\log\left(\frac{P(y=1)}{1-P(y=1)}\right) = \beta_0 + \beta_1 X + v$$

where the left hand side of the equation is in the form of Logit function (inverse of logistic function) and estimates of  $\beta$  are explaining linear impact of change in explanatory variable  $X$  on so called log-odds ratio. Taking *exp* estimated coefficients we can evaluate the change in odds ratio and this interpretation is bit more comprehensible (Liao 1994).

Odds ratio expresses probability of success over the probability of failure.

$$OR = \frac{p}{1-p}$$

For more information on methodology of Logistic regression, see Woolridge (2002), Baltagi (2008), Liao (1994).

### **APPENDIX B: Linear regression – simplified model**

The second model was constructed from the previous one by dropping – one by one - statistically insignificant variables (with respective p-values of t-statistics higher than 0.1 – 10% significance level). Since this model runs regression on the log of remittances only with selected variables, it was possible to utilize also data from May 2011 that were not included in previous model (because of missing values). That is the reason why the number of observation is slightly higher. Results are summarized in the following table. Estimates of coefficients do not differ substantially from the previous model neither in sign neither in magnitude. After dropping the last variable that was statistically insignificant from the previous model, the variable “Number of dependent members” gain in its significance, even though just on 10% of significance. With additional dependant member, the amount remitted raises by 12%, *ceteris paribus*.

**Table 12: OLS estimation of amount remitted from the Czech republic by Ukrainian migrants, without insignificant variables**

<b>Log of Amount remitted (in total)</b>				
	<b><math>\beta</math></b>		<b>SE(<math>\beta</math>)</b>	<b><i>p</i>-value (<i>t</i>-test)</b>
<b>Independent variables</b>				
<b>Life cycle characteristics</b>				
Age	-0.1252	**	0.0569	0.029
Age squared	0.0014	**	0.0007	0.034
Married	0.5508	**	0.2295	0.018
<b>Trip Characteristic</b>				
Income	0.3479	***	0.000	
<b>Household characteristics</b>				
Number of dependent members	0.1261	*	.0681605	0.067
Constant	9.975961	***	1.104093	0.000
Number of observations	146.0000			
R Squared	0.1864			
Adjusted R Squared	0.1573			
<i>p</i> -value (F-test)	0.0000			
<i>p</i> -value (Breusch-Pagan test)	0.1976			

**Note: \* Significant on the 10% level; \*\* Significant on the 5% level; \*\*\* Significant on the 1% level.**

*Source: own estimations*

## **APPENDIX C: The way of construction of dichotomous variables in Section 4.6**

It has to be noted, that the questionnaire defines 14 areas of potential use of remittances and households' income and the household representative is asked to choose five areas in which they typically spend their income and then assign numbers 1 to 5 to these, according to the significance. That is, if "1" is assigned for the variable "consumption of food", it means that the household uses the largest part of its income for consumption of food.

The dependent variable (Use Income primarily for consumption of food and clothes) in the first model from Section 4.6 was constructed following way: It has have value 1 in case a household assigns number 1 *or* 2 to the areas Consumption of Food and Consumption of food or Clothes in the questionnaire, respectively.

$Y = 1$  if *Cosumption of Food & Consumption of Clothes*  $\in (1;2)$ , 0 otherwise

In other words, if the household assigned 1 or 2 (the substantial level of importance) to category of Food Consumption, Clothes Consumption or both, the dependent variable is equal to 1.

Binary variables used in the other models from this section are constructed similarly. The difference is that these variables are equal to 1 in case a household assigns any number from 1 to 5 to the respective category in the questionnaire, meaning that any share of income spent on the category is considered, not just the most significant.