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Faculty of Social Sciences
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MASTER'S THESIS

Ukrainian labour migration and remittances in the European Union

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Abstract

The remittances or money transfers sent by migrants to the country of origin are considered to be one of the welfare channels with potential to influence macroeconomics indicators. The aim of this thesis is to analyse migration and remittance behaviour of Ukrainian migrants in the context of the EU. Study is based on the questionnaire survey inspired by the similar projects in the Latin America and Mexico. Contribution of the thesis lies in the detailed analysis of the topic that separates different forms of remittances. The econometric model consists of statistical summary of the data and three hypotheses tests focusing on the probability and amount remitted; consumption behaviour and probability of getting skilled position. According to findings, probability and amount remitted is determined by demographic factors and direction of effects differs in the case of regularly and one-time payments. Altruism and business financing are primary motives to remit. Remittances appear to be transferred by informal channels into the productive forms of consumption. A procurement of skilled position is positively influenced by human capital factors but also reflects labour market situation in the destination country.

JEL Classification	C31,C35,C51,C52, C83, E21, E27, F24, F22, J15, J24, J61, Y10
Keywords	International migration, Remittances, Remittance behaviour, Labour migration, Ukraine, Ukrainian migration, EU

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Abstrakt

Remitence, nebo-li peněžní toky posílané migranty do země jejich původu jsou považovány za jeden z kanálů blahobytu se schopností ovlivnit makroekonomické ukazatele. Cílem diplomové práce je analýza migračního a remitentního chování ukrajinských migrantů v kontextu EU. Práce je založena na dotazníkovém průzkumu inspirovaném podobnými projekty v Latinské Americe a Mexiku. Vlastní přínos spočívá v detailní analýze tématu, která pracuje s oddělenými typy remitencí. Ekonometrický model je tvořen statistickým přehledem dat and testováním tří hypotéz, které se zaměřují na pravděpodobnost a velikost remitencí; spotřební chování a pravděpodobností získání kvalifikované pozice. Dle výsledků modelu je pravděpodobnost a velikost remitencí determinována demografickými faktory, avšak směr efektů se liší v závislosti na pravidelných či jednorázových platbách. Hlavní motivací pro posílání remitencí je altruismus a financování podnikatelské činnosti. Remitence jsou převáděny převážně neformálními kanály do produktivní spotřeby. Z hlediska migračního chování je sice pravděpodobnost získání kvalifikované pozice pozitivně ovlivněna faktory lidského kapitálu, ale také odráží situaci na trhu práce v cílové zemi migrace.

Klasifikace	C31,C35,C51,C52, C83, E21, E27, F24, F22, J15, J24, J61, Y10
Klíčová slova	Mezinárodní migrace, Remittance, Remittenční chování, Pracovní migrace, Ukrajina, Ukrajinská migrace, EU

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Contents

List of Tables **3**

List of Figures **4**

Acronyms **5**

Master Thesis Proposal **6**

1 Introduction **9**

2 Literature review **12**

2.1 Effects of migration 12

2.2 Remittances 16

3 Typology of migration **22**

4 Migration policy development in EU **24**

5 Characteristics and development of the Ukrainian migration **27**

5.1 Economic development 27

5.2 The Ukrainian migration development 29

5.2.1 Demographic trends 29

5.2.2 Socio-economic factors 30

5.3 Remittances in the context of Ukraine 32

6 Methodology of the survey and the description of the questionnaire **33**

6.1 Ethnosurvey 33

6.2 Survey design and description of survey questionnaire 34

6.3 Data correction procedures 36

7 Data description and summary statistics 38

7.1 Lifecycle characteristics and human capital factors 38

7.2 Remittances 42

7.3 Financial and material background and health aspects 46

7.4 Material background 47

7.5 Health status 48

8 Empirical model 52

8.1 Research hypothesis 52

8.2 Empirical model definition 54

8.3 Models construction and results summary 58

8.3.1 Factors influencing remittance behaviour 59

8.3.2 Productive consumption hypothesis testing 69

8.3.3 Factors influencing probability of obtaining skilled employment 71

9 Conclusion 75

Bibliography 78

Appendix A 85

Appendix B 87

List of Tables

Table 1: Summary statistics of demographic and human capital charasteristics 38
Table 2: Gender statistics 39
Table 3: Division of economic activities of migrants 40
Table 4: Destination countries – national and regional comparison 43
Table 5: Summary statistics – trip charasteristics 45
Table 6: Material background 48
Table 7: Health summary 50
Table 8: Variable description and summary 57
Table 9: Probability of person remit regularly 62
Table 10: Probability of bringing money back to Ukraine 64
Table 11: OLS regression for amount of remittances 68
Table 12: Probability of productive spending model 70
Table 13: Probability of getting skilled position 72

List of Figures

Figure 1: GDP growth (in %)..... 28
Figure 2: Migrants' remittance inflows (in current USD million)..... 32
Figure 3: Sectors participation in the source and destination country..... 41
Figure 4: Economic activities in home and destination country..... 42
Figure 5: Proportion of income sent as remittances..... 46
Figure 6: Percentage of wages paid in cash form..... 47
Figure 7: Heath status before and after migration from Ukraine..... 51

Acronyms

AIC	Akaike Information Criteria
BIC	Bayesian Information Criteria
EU	European Union
EUR	Euro currency
FDI	Foreign Direct Investments
GDP	Gross Domestic Product
IMF	International Monetary Fund
LAMP	Latin America Migration Project
LPM	Linear Probability Model
MLE	Maximum Likelihood Estimation
MMP	Mexican Migration Project
NIS	Newly Independent States
ODA	Official Development Aid
OLS	Ordinary Least Squares
UAH	Ukrainian Hryvnia
UK	United Kingdom
UMP	Ukrainian Migration project
US	Unites States
USD	United States Dollar
USSR	The Union of Soviet Socialist Republics
VIF	Variance Inflation Factor

Master Thesis Proposal

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Proposed Topic:

Ukrainian labour migration and remittances in the European Union

Motivation:

Currently, there are 215 million migrants on the world which makes international migration and especially labour migration one of the key topics of the 21st century. European Union, as well as other economically developed regions of the world had to adjust its laws and strategies in order to reflect this issue. The major stream of the EU migration is represented (among others) by the East-West stream consisting especially of migrants from the post-Soviet countries through CEE region. Among those states, Ukraine occupies a very special position ranking the top ten positions of both emigration and immigration countries. Special characteristics of interconnection migration channels with EU countries made Ukraine a perspective subject of various studies and analyses.

The aim of this Master thesis is to deepen the analysis of the problem of Ukrainian migration and remittances in connection to the migration in the EU countries and identify its main determinants and features. Research is based on the questionnaire survey realized in 2012 in Zakarpatsk region. Design of the survey strives to analyse migrant's personal and professional characteristics and their role in migration behaviour and form of remittances. Depth of research enables to highlight relation of personal and professional factors of migrants to remittance behaviour (its type, size and channels used) and associated spending behaviour (especially presence of productive or non-productive consumption).

This research will strive to enrich current literature and find new factors within the problem. Through better understanding of common factors of the international and regional migration we will, in the long term horizon, help to complete world international model of migration which contributes to legislation and political changes and adjustments in this area.

Hypotheses:

1. Hypothesis #1: Remittance behaviour is significantly influenced by personal factors (family status ect.)
2. Hypothesis #2: Remittances channelled to the country of origin are invested into productive forms of consumption.
3. Hypothesis #3: There is positive effect of education and associated factors (knowledge of foreign language ect.) on the probability of getting skilled position.

Methodology:

Compared to the previous studies on the economics of EU migration, this thesis will stem from the original data collection reflecting the structure of similar projects realized in North and Latin

America by the team of researchers from the Princeton University (MMP and LAMP). The data collection comprises ethno-survey questionnaire technique. The main research is conducted using the methodology and the state-of-the art provided by the researches from the Princeton University. Econometric model will focus upon reflecting the techniques used in previous projects (Massey, Connor, Durand (2011) in order to obtain the most compatible result for further comparison and study.

Actual data structure comprises 200 questioners collected in 2012 in Zakarpatsk region in Ukraine. Cross section data collection comprises family status (also family members characteristics are included), number of children, age, education, household equipment, health factors, position, income, migration history, remittance amount, spending behaviour ect. Econometric analysis consists of linear regression, OLS, Logit and Probit models. Presence of remittances along with structure of consumption (presence of productive spending) is analysed by linear probability model. Subsequently, OLS model will focus on significant factors influencing size of remittances.
Aim is to determine main factors influencing presence and size of remittances with emphasis of economical and personal characteristics of migrants. Second part of research will focus on factors influencing hour wage and probability of getting skilled position. In this part of study we will use OLS model and linear probability model, respectively, with necessary econometric adjustments.

Expected Contribution:

The research will enrich current stream of literature specialized on the international migration, especially the migration literature from USA. Unlike previous studies, this research it will be based on the unique set of data collection which would help to identify new factors and characteristic within Ukraine and EU. Research focuses on multilateral interconnections in orders to capture objective structure of migrants, their remittances, qualification and type of work in country of destination. Results would be, in the long term horizon, used in the construction of the world-level model of migration.

Outline:

1. Introductory part
   - 1.1. Introduction – motivation and structuring of the thesis
   - 1.2. Literature review – summary of previous relevant researches and their findings
   - 1.3. Migration theory
   - 1.4. Characteristics of Ukrainian migration in the context of EU
2. Empirical research
   - 2.1. Survey design
   - 2.2. Data description
   - 2.3. Methodology
   - 2.4. Results – discussion of the major findings of the research
3. Conclusion

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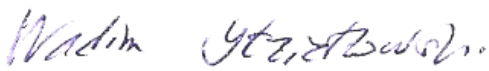

Author **Supervisor**

1 Introduction

International migration has become one of the most discussed and analysed topic of the 20th century. Military conflicts, political orientation and general economic climate has shaped nature of migration and brought with new waves and streams of migration increasing interest in this topic. Mass inflows and outflows of migrants have shaped labour markets and performance of policies. Therefore, researchers started studying potential determinants of migration and impacts of the migration on the source and destination countries that would also contribute developing regulatory measures and international legal framework of this phenomenon.

Since 1950s, situation in the Europe has been significantly influenced by introduction of "4 freedoms" and development of the European Integration process that has brought freedom of movement of people and workers and series of employment opportunities not only to the Member States but also to non-EU member countries. Within Europe, the East-West stream of migration belongs to the second largest stream of the world after Latin America (sometimes Mexico)-US stream[1]. Numbers of European countries play important role in this concept as transition and destination countries for both intra-EU and international migration flows. Ukraine has very unique position in this system. It is the country simultaneously sending and receiving migrants but also the transition country on the migration way to the EU. Also, proximity to the EU borders has made Ukraine attractive country for study of socio-economic impacts of migration.

An interest in migration aspects has been noted among researches who strived to determine majority of economic factors and implications for all participants. Key factor of empirical study has become data, their analysis and phenomenon observed. Remittances are one of the consequences accompanying migration that can be easily interpreted as quantitative measure. Remittance as money transfers are one of the most important channels of the wealth distribution influencing countries on the both sides. The socio-economic effects and determinants can be analysed from macro and

[1] MPC – Ukraine, European University Institute

microeconomic perspective. The result of such analysis often depends on the reliability of data source and explanatory power. The advantage of macroeconomic data originating from the international institutions as IMF, Eurostat or World Bank is their availability. On the other side, those highly aggregated datasets derive remittance from balance of payments which captures only a formal form of remittances. The majority of remittances sent to the source country are transferred via formal and informal channels. In the view of high number of illegal or undocumented migrants, official statistics usually underestimate volume of both migration and remittances (fact that has been acknowledged also by IMF[2]). An alternative approach that allows capturing all channels of transfer is microeconomic research conducted on the individual basis. Massey et al. applied and modified this type of research on the study of migration behaviour in Mexico and Latin America (LAMP and MMP projects) and provided methodology with aspirations to capture global migration flows. Strielkowski at al. (2012) applied this methodology on the European migration, specifically the Ukrainian migration in the Czech Republic.

The aim of this thesis is to apply methodology of the LAMP and UMP[3] on the case of the Ukrainian migration. In contrast to previous studies we would like to provide more detailed insights into the specifications of remittance behaviour and test assumptions in the multiple destination country models. A range of testing is defined by three hypothesis capturing determinants of probability to send money transfers, their volume, spending behaviour and probability of having skilled position.

In the first part of this thesis we introduce an overview of literature that has been focusing on the topic of migration and remittances. An interpretation of results of the main studies would provide background for the further research and answer the question whether results of studies have resolved problems of the topic.

Along with summary of development of legal and regulatory framework in the Europe, the second part provides a brief theoretical background and defines the most common types of migration.

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[2] https://www.imf.org/external/np/sta/bop/pdf/rem.pdf

[3] LAMP (Latin America Migration project) and MMP (Mexican Migration Project)

Next chapter presents the most important facts of economic development in Ukraine and connects them to the migration factors. Also, we present specifics of the Ukrainian migration during the last 20 years.

The second half of the thesis is dedicated to the empirical study analysing remittance behaviour of Ukrainian migrant in the context of the EU and other destination countries. Initially we present methodology of the questionnaire and data selection and then we proceed to the statistical summary of the dataset and the econometric model introduction. The model description is divided into the sections corresponding with hypothesis structure.

In the final section we discuss results of stated models and interpret them in the wider economic context. Further we provide policy implication resulting from the outcomes of the models and hypothesis tests. The dimensions of the model and possible drawbacks with suggestions for the further research based either on the data or methodology will provide motivation for extension of the thesis and potential utilization.

2 Literature review

The fall of the Berlin Wall along with later enlargements of EU in 2004 and 2007 has been accompanied by intensification of migration flows within Europe. This fact initiates renaissance in the area of economic and social impacts of migration on further development of not only EU economies. Theoretical (Kancs, 2011 or Krugman, 1991) approaches highlighted especially impacts on origin and destination country markets (labour market and welfare effect) along with determination of migrant's behaviour characteristics and remitting behaviour.

2.1 Effects of migration

In recent decades the scope of interest in migration topic has changed in many ways both in methodology, topic and results. Unlike the researches in the 1970s there has been experienced expansion of area of interest and shift from rural-urban migration to global migration flows models with stress laid on mutual connection to development (Clemens et at., 2014). The reason reflects international development which has brought phenomenon of globalization along with political and demographical changes together shaping state of migration.

Current demographic projections confirm continual threat of aging. By 2020 the increase 17%[4] is estimated in retired class compared to productive population. Existence of population gap highlights sustainability of current European public pension and social systems with increasing fiscal burden imposed on younger generation. International migration is to be seen as a possibility to alleviate increasing tax burden for future generation. Kirdar and Murat (2008) investigated impact of immigration on German social system and discovered that immigrants are net contributors to the system regardless of country of origin or structure. Hung-Ju Chen, I-Hsiang Fang (2013) went further with construction of dynamic model investigating long term impact on economic development. Results showed evidences of positive effects of migration on reduction of tax burden in social security area. Calibration on

[4] OECD; International Migration Outlook 2014

US data also confirmed long run positive impact on GDP per worker compared to closed economy. Nevertheless there have been continuous concerns about possible dependency of immigrants on the social system (Razin and Sadka 2000)[5] and negative effect on domestic labour market.

Multilateral nature migration influence on economy has not been restricted to social systems consequences. Economic theory strives to peruse majority of possible aspects within which welfare effects, economic growth and expected impacts on labour market stand out. However, results of accomplished theoretical and empirical studies diverge both in magnitude and direction of resulting impact. Number of dimensions of international migration investigates Kerr (2011) in which authors provide deep investigation of major immigration aspects including distinct effect on host and origin country, self-selection, assimilation of migrants and labour markets. Empirical analysis of not only mentioned aspects have been studied in number of empirical researches that differ in methodology and sample structure. Due to heterogenity it is extremely difficult to identify "true" direction within each area. To the most complex feats belong meta-analysis by Longhi et al. (2008) who compared 45 studies focusing on wages, unemployment and labour force participation. Research synthesis comprising two preceding analysis[6] showed negligible effect on labour market accompanied with estimations including insignificant coefficients. Acknowledging broadness of conclusion and possible macro-level implications, authors remark that there are limits in the case of specific market conditions, especially in availability of detailed longitudinal data. Nevertheless robust findings showed strongly negative effect of recent migrants on wages of their predecessors which confirmed high substitution elasticity between them. Another stream of research strives to attain a deeper insight into factors affecting destination country labour market. Firstly, there is the question of complementarity of foreign-born workers towards domestic labour supply. Another dimension of problem includes division of effect between high skilled and low skilled workers eventually white and

[5] A Razin, Sadka (2000); Unskilled migration: A burden or a boon for the welfare state?; The Scandinavian Journal of Economics

[6] Longhi et al. (2005a) and (2005b)

blue collar workers[7]. Orrenius and Zavodny (2006) investigated impact of immigration on the level of wages among high and low skilled workers in the U.S. Their results showed a negative impact of foreign born workers' inflow on level of wages within the same category. Nevertheless, there was no statistically significant impact on the wage of skilled labour. Also, the impact on the wage increases with the length of the stay (considering no or very little impact of newcomers) which implies fast assimilation of immigrants and closer substitution to domestic labour force. Similar approach was adopted by Borjas (2003) with assumption of perfect substitutes of workers within the same experience or education category. Results confirmed adverse effect on the wage. Evidences from the U.S. labour market tend to be confronted with those from the EU market. Ortega and Verdugo (2014) endeavoured to explain disparity by comparison to the French labour market. Positive correlation found in the French case was explained by labour market specifications (and structural changes within the studied period) along with different substitutability among immigrants and domestic labour force. However, even within EU we found diverse effects. Study of immigration into West Germany (D'Amuri et Al, 2010) showed small adverse effect on wages. Validity of the results tended to be conforming to the time period. Transition period in Central and Eastern Europe has proven to play an important role in this development. Zimmermann and Winter-Ebmer (1998) confirmed its importance in study which showed no evidence of adverse effect in Germany compared to Austria experiencing adverse effect both in wages and unemployment. UK is to be seen as another common choice as destination country. According to Baas and Brückner (2012), this holds true even for emigrants from Austria and Germany. EU enlargement in 2004 yielded rather positive impact on UK labour market rather than on Germany which is in line with conclusions of Lemos and Portes (2008) who found no evidence of adverse effect in UK labour market. Despite of possible heterogeneity of markers, comparative studies strive to discover similarities which might set basis for further broader researches. Massey et al. (2011) challenged this task by presenting one of the first quantitative studies between Moroccans in Spain and Mexicans in the USA. Their analysis focused on

[7] The term "blue collar worker" refers to unskilled or skilled manually working employers usually specialized in industry. Accordingly, "white collar workers" tend to be assigned to management of company, administrative or office work which does not include purely manual work.

probability of getting skilled employment, level of wage and occupational attainment based on assessment of level of education, age, language skills ect. Different countries shared resemblance in the impact of length of stay in the host country but Mexicans indicated higher level of employment. Other findings were not distinctive and disparities intervened.

Compared to the relatively large stream of literature focusing on the wage impact in destination country, the studies related to the source countries researches are rather scarce. Mishra (2007) studied emigration outflow from Mexico and found out small aggregate welfare loss accompanied by positive effect on real wages and tendency to increase wage inequality. The problem of brain drain shares impact on the source country economy. Negative impact of outflow of human capital and educated people has been studied for its perceived negative impact (Ben-David 2008). Last decades have also brought an alternative, a reverse trend striving to reconsider these results. Beine et al (2003) provided empirical study considering 50 developing countries to study hypothesis of "positive effect of brain drain". Hypothesis was (under specific conditions[8]) supported which was in line with the conclusions made by the World Bank (2003).

Opposed to other studies addressing objective impact on the labour market represented by quantitative measures as effects on wages and unemployment, there is alternative stream shifting interest to the personal area of "happiness". Akay et al. (2014) examined happiness of natives in destination country on panel data from Germany and discovered positive impact of migration on life satisfaction using human development index as an alternative measure to commonly used GDP.

Multilateral nature of possible international migration impacts made this field of study to consider not only personal characteristics of migrants but also the macro-level implication. Links between them composes sets of non-trivial tasks including full understanding of labour market implications. Therefore, listed examples of literature should serve as an overview of major fields of interest which set basis for

[8] Conditions for positive impact required presence of low migration rates and low level of highly educated human capital. In the second study (World Bank (2003) results were more robust with exception of five Latin American countries.

more complex studies which might interconnect heterogeneous results into the firm unit.

2.2 Remittances

Along with geographic dimension of migration, remittances represent second (monetary) dimension of international migration. Remittances can be characterised as financial flows to the country of origin. Nevertheless, definition itself includes more than pure money transfers or employee compensations. To the most common form of remittances belongs personal cash transfer of other form of donation[9] realized by either formal or informal channels.

As a part of Foreign Direct Investment (FDI), remittances represent a quantitative phenomenon accompanying migration and contributing in non-negligible way to economic growth of source (usually developing) countries. Therefore, they belong, together with economic growth, real wages and unemployment, to the problems of interest accompanying international migration flows. International organization for migration provides one of the many definitions of remittances as:

"…monetary transfers that a migrant makes to the country of origin."

or alternatively:

*Sum of **current transfers**; compensation of employees as wages and salaries or **income** and **capital transfers**.*[10]

Further extensions of rather short statement might consider them as a financial flow to relatives in the domestic country or eventually as a form of donation or investment. In 2014 global remittance flows reach 435 billion USD, 3.4% increase compared to the previous year with projections to grow in 2015 above level of 450 billion USD. Since 2013 remittance flow almost three time exceeded level of Official Development Aid (ODA) which has made them a major financial channel for

[9]The IOM definition of remittances. Available at: http://www.iom.int/jahia/webdav/

[10] Dilip (2003); Workers' Remittances: An Important and Stable Source of External Development Finance and IMF Balance of Payments Yearbook

developing countries. Stojanov and Strielkowski (2013) studied effectiveness of remittance transfers and ODA in developing countries. Comparative analysis and empirical model studying of net effect on GDP per capita growth supported positive impact of remittances as stronger and more stable form of support. Moreover, remittances showed higher absorption ability which is not decreased by administrative costs (in the case of ODA).

Also, this form of stable financial flow for source countries contributes to current account and brings foreign currency which might stabilize balance of payments[11]. As the result, increasing impact and magnitude of remittances have made them one of the factors of interest which might influence development within migrants' country of origin.

Remittance transfers flow into the country via two channels: formal and informal. Official channel included in the international statistical datasets hides underestimated and very difficult to capture informal stream which could significantly change final value. Ambiguous dimension mirrors also into micro and macro level approach, resembling problem of data reliability. Macro researches or large panel data analysis usually concentrates on formal channels and their influence on economic growth in terms of remittance spending eventually investing (Rapoport and Docquier, 2005).

Goschin (2014) estimates effect of remittances on economic growth of source country in the CEE region using panel data. The author differentiates spending of remittances on the investments as a productive type of spending having direct impact on the macroeconomic variables and consumption spending which is usually categorized as non-productive channel with limited or no impact on economic growth (Strielkowski et al. 2012). Goshin (2014) contradicts approach with introducing consumption as another productive spending factor which has "indirect multiplication" effect on the economic growth. The results indicate positive impact in both aggregate and country specific terms which implies that remittances have potential to offset deficiencies of labour outflow. Lim and Simons (2014)

[11] World Bank (2006); Migration and Remittances: Recent Developments and Outlook; Migration and Developments Brief 23; Available at: http://siteresources.worldbank.org/

investigated dual nature of spending within Caribbean region and confirmed consumption spending as a dominant choice. Nevertheless, there has been found no evidence of growth enhancing impact. Alternative conclusion was found within the Latin America on the Mexican dataset (Hanson and Woodgruff, 2003) where low income groups tend to spend remittance into education which is considered to be form of long term investment. Growth enhancing nature of remittances was found in Eastern Europe (León-Ledesma and Matloob, 2001) but also in Ghana (Cuecuecha and Adams jr, 2013). Inequality is to be seen as field of interest compared to aggregation which might be unsatisfactory on contemplating influence of rural/urban areas along with social network facilities within destination country. Therefore, here one can differentiate effect back to destination and source country impacts. The earliest studies (Stark et al. 1986) take into account Gini coefficient and lack remittance income (Rapoport and Docquier, 2005). Mckenzie and Rapoport (2006) analysed the problem in rural areas in Mexico adopting approach including migration networks. They found a positive evidence of migration impact on inequality (remittances included), strictly "U-shaped relationship between emigration and inequality"[12]. Other evidence of growth enhancing and poverty reduction impact of remittances is provided by other authors (Imai, 2014 and Rao and Hassan, 2011). Nevertheless, they also refer to adverse effects of volatility of financial channels, especially FDI[13]. In the case of direct and indirect effects magnitude aggregate results are inconclusive and diverge both in direction and size.

In contrast to macro level approach, there are micro level studies determining migrants' characteristics and their influence on the level of remittances and general distinction between migration and remittances. Among empirical studies a pattern emerged within which Lucas and Stark (1985) described in their theory of remittance motives which until 1980s did not stand in interest of researches. Interconnection between migrant and relative (family) pre-determines one of the key motives to send financial transfers – pure altruism or in another words, interest in own family and intention to provide financial help. Awareness of this relation, as well as other factors

[12] Mckenzie and Rapoport (2006)

[13] Remittances are, according to statistics, considered important part of FDI for developing countries (World Bank, 2006)

which might interfere was searched. Lucas and Stark (1985) add other motives – “pure self-interest”, “tempered altruism” and “enlightened self-interest”. Further division encompass intentions to inherit, form of insurance, loan repayment or exchange motive. Massey et al. (2011) extended existing pool with considering remittances and opportunity to diversify risk and provide an alternative financial channel for family. Support of altruistic motive can be found in Agarwal and Horowitz (2002) exploring also difference between remitted amount of single and multiple migrants. Personal characteristics, studied by Briére et al (2002) in Dominican Sierra, revolve around insurance and investment motives. Destination country, gender and household compositions resulted to main factors affecting remitted amount. Similarly, Niimi and Özden (2006) found adverse effect of educational level (relative to other family members) on the amount send to the home country. People from less wealthier background tend to remit more than their better educated relatives. Opposed to modest studies covering only smaller country specific samples stay LAMP and MMP projects and Study by Massey et al. (2011) covering more than 28,000 households from eight Latin America countries assessing determinants of remittance flows from the USA. Binary dependent variable model applied on the panel data investigated impact of age, education, gender, household composition, wage, legal status, trip characteristics etc., controlling effects specific for the country. The results exposed that probability to remitted amount increases with age, number of minor children, experience (prior emigration), ownership of house or land, and the level of wages. Opposite effect was found among women, in the case of the legal status and education level. These results are supported by other evidences in the following paragraphs, especially regarding legal status and education.

Altruistic motives and intention to help family member might generate relationship of remittance flows to economic cycle - to be countercyclical. In the situation of economic contraction or crisis altruism might motivate migrants to send higher amount of remittances in order to provide financial help. Relationship towards business and economic cycles (nature of remittances and FDI) aims to enlighten Vargas-Silva (2008). Despite lower robustness of the results, remittances (in altruistic meaning) have pointed out to partly smooth cyclical fluctuation within economy, especially in the case of economic downturn. On the other side, in regard of

remittance as the form of foreign direct investment, the nature of the pro cyclical behaviour as an investment opportunity in the source country might change. Referring back to Lucas and Stark (1985) we identify both altruistic and insurance motive within example.

Length of the stay and legal status in destination country influences significantly transfer flows into the source country. Immigrant who work illegally or do not possess perspective of residence status might feel more insecure both financially and personally and might see remittances as a form of insurance. Dustmann and Mestres (2008) analysed distinction between temporary and permanent migration and decision to change plans for length of the stay. Longitudinal study showed there that change towards permanent migration has negative impact on the amount of remittances. Oser (1996) confirms findings in behavioural study of both types of migration but adds that despite decrease in magnitude of remittance flows immigrants continuously send money back to source country which speaks in favour of altruistic motives.

Together with micro approach in remittance behaviour assessment of macro factors emerge as another stream influencing financial flows into source country. Bettin et al (2012) evaluated impact of financial development of the country on remitted amount. IMF (2005) published report confirming positive relationship between level of remittances and economic situation in the destination country. Reversely et al. (2007) explored significant impact of remittances on real exchange rate appreciation. However, linking between two economic levels appears to be very elusive even in the case of remittances.

Multilateral dimension of remittances can be found in motives of immigrants to remit. Transfer of money is carried out between family members and relative (irrespective of the formality or informality of transfer) who makes them extremely prone to uniqueness of human behaviour and its rationality and irrationality. Final welfare effect of the remittances is not uniform and differs within literature stream depending on the series of factors.

In the view of uncertainty about possible remittances determinants and effects there remains space for further investigation of the problem. Therefore, the aim of this thesis is to discover all determinants shaping the amount of remittances that

generates theoretical and empirical background for efficient policy development and application which might intensify growth enhancing impact on developing countries.

3 Typology of migration

In addition to empirical researches striving to observe, test or estimate aspects of migration, there is a theoretical stream that includes historical and conceptual development of migration as concept of interest. The purpose of this section is to offer an overview of definitions and forms of migration that is used in the empirical literature.

Theoretical literature acknowledges several approaches of migration division (King, 2012) or (Petersen, 1958). To the most synoptic versions belongs the analysis of Hanig (2007) which provides logical arrangement based on the following three criteria.

a) Geographical criterion

a. International migration

Migration flows between two states or countries require crossing national (international) borders. Country-to-country migration can be divided into simple (where migrant moves from country A to B), circular (where migrant repeatedly returns to the source country) or multistage (where migrant gradually moves from one destination country to another). Afterwards, we distinguish destination (host) and source (country of origin) countries. There are acknowledged international migration flows which contain West African flow to Europe and North America, Latin American flow into USA, East-West flow in Europe etc.[14]

b. Intra-national migration

Migration within single country takes place between regions of one state (country). The most common type is rural-urban migration or migration from low to high employment areas.

[14] Detailed division and more examples are available on International Organization for Migration web at: https://www.iom.int/

b) Cause criterion

a. Voluntary migration

Decision concerning leaving the come country is deliberate and voluntary. To examples belongs: Labour migration, students, families moving together etc.

b. Involuntary migration

Type of migration that connected usually with military or political conflict that indirectly forces citizen to leave country of origin, in order to increase their safety or avoid conflict.

c) Time criterion

a. Permanent migration

b. Temporary migration

c. Circular migration

The aim of this Master thesis is to focus on international migration within European region which is voluntary – immigrants voluntary leave (either temporarily or permanently) country of origin in order to increase their subjective utility. The major role in this process is plays self-selection through which immigrant is enhancing the probability of being employed with higher salary according to country and region selection (Mckenzie and Rapoport, 2007)[15].

[15] Study examines role of migration networks in self-selection in Mexican migration to USA.

4 Migration policy development in EU

Within the least 50 years of the European Economic Integration migration process has undergone set of changes and developments that have shaped him into the current form. It is continuous process that has to respond to the new trends and challenges that are Member States facing not only within EU, but also towards third countries[16]. In this section we present the most general rules applied on the EU level in the area of migration.

The first regulations concerning free movement of workers are dated to 1950s where two major rules were adopted: EEC Treaty in 1957 and regulation No. 15 in 1961. Their adoption initiated more than 50 years of migration legislation expansion that was accompanied by gradual accession of new EU members. Since 1999 The Amsterdam Treaty has acquired for the EU competence to issue binding rules towards all third countries. Though, this process required unanimity of voting of the Council. Change has come in 2009 with the Treaty of Lisbon that defined qualified majority voting as a sufficient procedure. Simplification of voting procedure has started the process of decisions delegation from the Member States to the supranational entity. However, the process has been never completed by adoption of unified EU immigration approach. Since this, migration legislation is adopted gradually without existence of single act covering all migration aspects. Despite absence of single act, three main elements[17] of migration law can be observed:

The oldest of elements consists of set of rules on the free movement of EU citizens with their families and free movement of workers within the EU borders. The rules have been applied only on the citizens of the Member States.

The second element defines approach towards third (non-EU) countries and consists of the association agreements with candidate states, partnership and visa agreements.

[16] For purposes of this thesis we understand third countries as non-EU member countries.

[17] Groenendijk, 2014

The third category includes exhaustive set of directives adopted after 2000 regulating migration and asylum policy towards third countries.

To the most discussed parts of the above mentioned elements belongs Article 79 of TFEU which defines principle:

"The Union shall develop a common immigration policy aimed at ensuring, at all stages, the efficient management of migration flows, **fair treatment of third-country nationals** residing legally in Member States, and the prevention of, and enhanced measures to combat, illegal immigration and trafficking in human beings."[18]

The controversial statement concerned mainly equal treatment of third countries which was historically problem among the Member States. The initiative stated by this Article was interrupted by German request to add another paragraph about right of the Member State to regulate volume of migration inflow into the country with respect to labour migration. Limitation of this sentence does not cover refugees and migrants with resident status.

Practical impact of the Article 79 focuses on the right of Member States to remedy possible labour market distortions generated by migration inflow. Though, despite economic potential of the approach, question remains whether this tool will effectively resolve the situation without increase of informal form of employment and shadow economy.

In 2002 new approach in migration policy was adopted: Global Approach to Migration and Mobility (GAMM). This comprehensive framework established four pillars or thematic priorities that would generate future direction of migration regulation[19]:

1) organising and facilitating legal migration and mobility;
2) preventing and reducing trafficking in human beings;
3) promoting international protection
4) maximizing development impact of migration and mobility.

[18] Treaty on the Functioning of the European Union - Article 79. Available at: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:12012E/TXT

[19] Project description available at: http://eapmigrationpanel.org/page40395.html

Global scope of framework demanded division into geographical regions that should enhance cooperation with third countries. Ukraine has become participant in the Prague Process covering Eastern stream of migration and Budapest process enhancing dialogue among countries on the “Silk-route”.

Along with above mentioned directives there are other examples of programs focusing on the various aspects of migration that are a part of the third or second element of migration law. To the most common types belong bilateral visa agreements and international program participation. Examples stated above provide only the most significant or topical examples that can be applicable on the East-West migration stream.

5 Characteristics and development of the Ukrainian migration

In order to objectively describe migration flows of the Ukraine, it is crucial to introduce facts of economic development that contributed to the current state of the economy and that would help to enlighten background for migration behaviour ("push factor").

5.1 Economic development

From the point of view of economy since 1990s Ukraine has undergone long journey of economic transformation which is not generally acknowledged as finished process. The current economic state of the country is facing economic problems, unstable political environment and high energetic dependency on the Russia. Recent military conflict has interrupted attempts to solve long term problems and again hampered Ukraine endeavours to become candidate state for the EU membership.

Ukraine belonged to the most economically significant countries of the former USSR. Production exported to Eastern countries consisted not only from the agriculture production but also from diversified heavy industry. Agriculture production effectively covered almost 25% of USSR demand[20]. After the fall of the USSR, Newly Independent States (NIS) emerged from the former member states of the Soviet bloc. Since 1990, transformation of economies from the central planning to the "market oriented" model has begun. Each of the new economies faced dilemma with two possibilities of transformation approach[21]. First attitude comprised of the "shock therapy" where reform were implemented at one followed by adjustment period. The second approach was formed by gradual adoption and implementation of reforms (gradualism) which required (in contrast to the first approach) longer period of time (Westernhagen, 2002). In 1992 Ukrainian government prepared framework for privatization scheme and liberalization of prices. Nevertheless, implementation of

[20] Ambraham (2013)

[21] Strielkowski et al. (2012)

reforms was hampered by resistance and disputes within the party which resulted in the steep economic decline and drop of GDP growth for the next 3 years (Figure 1). The economic downturn and political situation caused, that two years after joining the IMF Ukraine began to cooperate with IMF on the solution in the form of assistance. Four major programs consisting from the set of reforms were accompanied by financial support. Cooperation was realized between years 1994 and 2002[22] and resulted in the economy recovery and uninterrupted GDP growth.

In 2004, dissatisfaction with subsequent political and economic development resulted in the Orange Revolution that again changed intra- and international political orientation of the Ukraine. Nevertheless, thanks to strong consumption power, outburst of financial and economic crisis was delayed to 2009 but it was not sufficiently strong to prevent it.

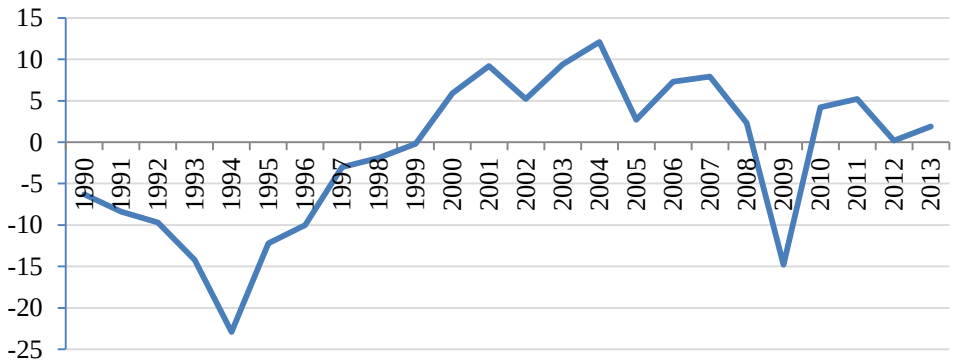

Figure 1: GDP growth (in %)[23]

General economic situation got worse also after the Russia gas supplies reduction due to unpaid debt in the same year. International reaction of the EU and other institutions generated pressure for government to implement necessary reforms. Since 2012 Ukraine has experienced another economic downturn caused by insufficient endeavour to implement IMF reforms[24].

Situation in 2012 describes Ukraine as economy with unfinished process of transformation that is facing economic and political problems. Macroeconomic indicators show very high level of unemployment (almost 8%)[25] that slowed down

[22] https://www.imf.org/external/np/sec/pr/1996/pr9624.htm

[23] World Bank Data Statistics. Available at: http://data.worldbank.org/

[24] Abraham (2013)

[25] UN statistics

after economic crisis, but still remains high. Unfavourable economic environment did not generate enough opportunities for skilled and highly educated labour force and business environment continuous to suffer from the high corruption level and political instability. Together with regional specific problem within Ukraine the basis for the push factor of brain drain and migration outflow was created. Subsequent development of Ukraine until 2015 also has not provided sufficient background for the situation improvement.

5.2 The Ukrainian migration development

Not only the economic but also migration aspects have undergone development during the last 20 years that has changed their shape depending on the socio-economic, political and demographical conditions of Ukraine. After the fall of Soviet bloc Ukraine has become key transition country for migration flows between East and West Europe. If we include Russia into the stream, this region create second largest migration corridor in the world[26].

Ukraine has very specific position as a migration country with significant both inward and outward migration. Description of both streams would provide exhaustive analysis which would require additional data collection. Therefore, the scope of this section is focusing on the outward migration development and its features.

5.2.1 Demographic trends

Comparable to the other European countries, Ukraine has been facing rapid decline of population. This effect has been caused by three factors: increase of death rate, decrease of fertility rate and substantial increase of international migration from the country (Borsch-Supan, 2003). Between years 1990 and 2012 population count decreased by 6.2 million[27]. Along with overall aging of population there is problem with changing demographic structure within regions. There are regions that suffer

[26] The largest corridor represent US-Mexico corridor. MPC – Ukraine, European University Institute

[27] State Statistics Service of Ukraine documents publishing. Available at: http://ukrstat.org/en/operativ/operativ2007/ds/nas_rik/nas_e/nas_rik_e.html

from rapid population decline (especially in the Eastern Ukraine) because of intra and international migration).

5.2.2 Socio-economic factors

Since labour market formation in 1990, specific features have developed that are influenced by economic performance of the whole economy. During the period of economic transformation in the 1990s majority of population suffered from difficulties arising from the economy transformation, downturn and general insecurity about future orientation of the economy (especially in the first half of the decade). Nevertheless, overall net migration of this period was positive because of high repatriation flows between former newly emerged post-Soviet countries. Mezentsev and Pidgrushnyi (2014) describe initial stage of migration as "ethnic migration" in the sense that ethnic groups of Czechs, Poles, Slovaks, and Germans etc. permanently migrate abroad. In the case of purely labour migration, transition stage of legislation on the migration area predetermines dominancy of illegal border crossing.

In 1994 the legislation act was adopted that enabled departure and entry to the state for Ukrainian citizens. This new possibility to travel abroad caused that act implementation was followed by intensification of ethnic migration flows and mass migration outflow. Beginning of the millennium was characterized by stabilizing tendencies where gradual implementation of reform under assistance of IMF resulted in inflation stabilization and GDP growth rate increase. The undertaken reforms did not have only positive effects. They were accompanied by restrictive fiscal policy and transformation of economy from the secondary to the tertiary sector (Erőss and Karácsonyi, 2014). As a result, intra national migration between rural and urban areas increased. Also rural regions experience decline in population during this period. However, despite decreasing unemployment rate from 8.6% to 6.4%[28] problems prevailed. Highly corrupted environment and gradual takeover of strategic industries by oligarch groups hampered business environment for medium and small entrepreneurs that would increase new jobs creation. In 2004 "On Freedom of Movement and Residence" act was adopted that again simplified administrative procedure for travelling abroad. Though, visa agreements between majorities of the EU countries complicated

[28] State Statistics Service of Ukraine documents publishing. Available at: http://ukrstat.org/en/operativ/operativ2007/ds/nas_rik/nas_e/nas_rik_e.html

migration process for certain destination countries. Despite existence of visa duty, above mentioned factor resulted in the increase of migration outflow (Mezentsev and Pidgrushnyi, 2014).

Period prior financial crisis (until 2007) also experienced change in migration structure. As contrasted with illegal border crossings in the initial stages of transition, migration legislation adoption increased proportion of people leaving country legally. Problem that preserves was illegal or undocumented form of employment in the destination country caused partially by administrative barriers (existence of visa requirements). The economic crisis hit Ukrainian economy with delay in 2009 and resulted in the sharp drop of GDP growth. Restrictive measures followed as wage reduction and exchange rate devaluation. Also, increase of unemployment rate to 8.8% again raises migration flows. In 2012, EU Visa liberalization action plan was adopted that simplified administration for labour migrants choosing the EU as their destination region.

Together with economic factors we observe changing pattern in the migration behaviour. Initial transition stages were characterized by "ethnic migration" with permanent duration. Than pattern changed and legal framework adoption increased legal forms of migration. This increased circular and short term and circular labour migration forms. Finally, last decade have brought new term "youth or students' migration". Dissatisfaction of Ukrainian students with effectives of the domestic education system increased demand for education that will be internationally recognized. Also high unemployment rates in Ukraine did not provided sufficient security about future employment attainment. Problems resulted in the increase of migration among students that usually travel to the Visegrad countries where they are able to attain desired academic degree and quality of education[29]. Considering migration theory concept, general socio-economic situation in Ukraine and its development described in the previous section and mentioned facts can be together merged as "push"[30] factors that has established environment for migration development.

[29] Mezentsev and Pidgrushnyi (2014)

[30] Mezentsev and Pidgrushnyi in their study in 2013 provided detailed list of all "push and pull" factors influencing the Ukrainian migration.

5.3 Remittances in the context of Ukraine

The remittance flows belong to the accompanying aspect of migration with highest welfare potential. In connection to the Ukrainian migration, specific country characteristics allow to observe development and test both inward and outward migration.

Therefore, in close connection to the labour migration development of remittance flows are studied. Figure 2 presents compassion of remittances development for Ukraine and selected NIS.

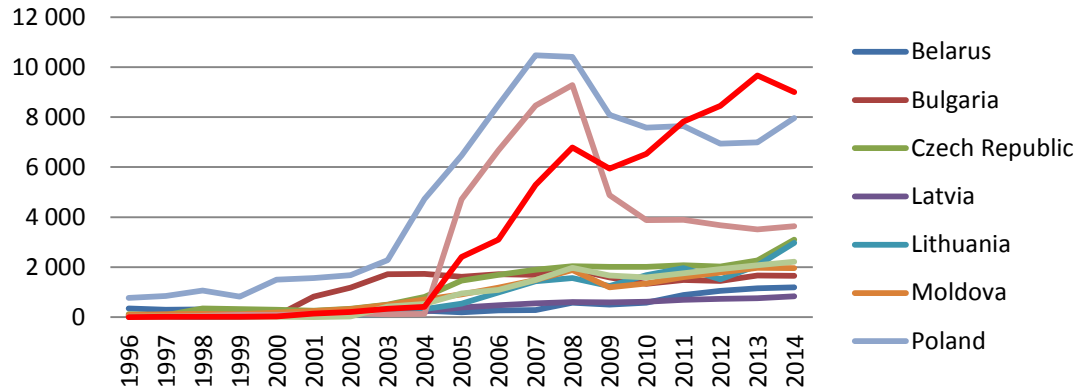

Figure 2: Migrants' remittance inflows (in current USD million)[31]

Figure clearly shows that there was no sign of remittance flows until 2004 when the Act "On Freedom of Movement and Residence" was adopted. Subsequent increase went along with increase of labour migration. Interesting development is visible during economic crisis. In contrast to Ukraine, which was hit by downturn in 2009, remittances followed broader international pattern with earlier strike. From the overall development we do not observe countercyclical development of remittances. Though, in order to determine detailed information about factor influencing their movement (along with economic development) we have to apply more sophisticated tools considering empirical and econometric modelling.

[31] World Bank Statistics; Levels of remittances are denominated in 2014 prices. (October 2014)

6 Methodology of the survey and the description of the questionnaire

6.1 Ethnosurvey

The majority of current studies on international migration is based upon official data collections collected by official authorities. Despite advantages in the width of coverage and complexity of the datasets, questions of undocumented and illegal migration prevails unresolved or are estimated by models. Furthermore, the nature of official migration statistics is deficient "in the amount of details they provide about the characteristics and behaviour of immigrants"[32].

In order to provide the most accurate description of migration and remitting behaviour, a microeconomic approach has been adopted as an alternative to macroeconomic perspective. As opposed to macro level approach, this attitude facilitates obtaining more personal and specific characteristics of migrants which increases probability to detect and cover unofficial and undocumented channels or remittances along with concrete determinants of their behaviour.

One of the alternative methods striving to overcome drawbacks of conventional (official) data is represented by the ethnosurvey. Multi-method data gathering enables to complementary combine advantages of quantitative and qualitative procedures. Quantitative part provides sufficiently reliable source for further statistical analysis which is deficient in historical and geographical context. Qualitative part afterwards gives deep insight into individuals' specifics and provides necessary behavioural context. Existence of attitudes generates space for compensation of weaknesses of one part by another and mutual compensation of drawbacks.

The presence of qualitative questions generates additional requirements on the questioners, especially on informality and trust within the interview. Final data set

[32] Massey and Pren (2008)

might produce a standard set of reliable information that carries greater validity than that obtained using normal survey methods"[33].

The methods that were initially developed by Massey et al. (1987) in order to analyse migration behaviour in Mexico have been successfully applied on both theoretical and practical studies by Zai Liang et al. (2008), Massey (1987), Massey, Zenteno (2000) etc. Wider application of method was used in the set of migration projects in Mexico, Latin America, Poland and Ukraine under active participation of Douglas S. Massey.

6.2 Survey design and description of survey questionnaire

The analysis which follows is based on the unique dataset collected in Transcarpathia district (ukr. Zakarpattya). Transcarpathia region is situated in the West corner of Ukraine and shares borders with Poland, Hungary and Romania – 3 member states of EU. Historical development comprising Hungarian, Czechoslovak, Slovak, Soviet and Ukrainian governments together with rich national diversification of population[34] resulted in its proximity facilitating national movement.

The survey was carried out in April 2012 which allowed some time distance from the immediate (eventually most severe) impacts of financial crisis in 2008 and would provide perspective in change of migration behaviour in comparison to researches carried out prior this period. Acknowledging drawbacks of the time period which does not include panel dataset until 2014 that might present interesting results implied by 2014 Ukrainian crisis and the following conflict, a space for further research extension is thus created.

The necessity to attain reliable and detailed observations required adoption of micro-level approach involving detailed information about households. Therefore, informal and trustworthy nature of semi structured interview has to be adopted. For

[33] Massey, Capoferro (2004)

[34] Ukrainians, Ruthenians, Hungarians, the Roma, Germans, Jews, Romanians ect. (Caglar, Sillo, Jówiak, 2011)

this purpose data collection was conducted by the local inhabitants who are able to adjust form of interview to minimize rejection rate.

The design of survey comprises ethnosurvey attitude used in MMP, LAMP, PMP and UMP projects. Size and conceptual adjustment has to be made because of survey and country differences. As opposed to LAMP and MMP projects, encompassing thousands of households originating from various regions, this survey focuses on the single region with statistically and historically high probability of emigration. Geographical position of Latin America countries has made them prone to migration into economically stronger region, USA and North America. Although we might find the most common destination country for Ukrainian migrants, higher objectivity and reliability of study is attained when considering whole EU region as one area of interest. Ukraine belongs to the broadly discussed East-West stream of migration which logical extension includes area of EU as destination “country”.

The questionnaires are divided into subsection dedicated to specific area of interest of migrant or his/her family. First part contains information about household composition and family members (age, sex, number and age of children, marital status and years of education). Second part describes marital history of household head. History of migration experience within and outside Ukraine including wage provides section tree and four. Further, these sections seek information about legal status of each household member. Labour history and history of business ownership is followed by information about relatives and friends with migratory experience. Household equipment and vehicle and capital ownership and usage of financial service home and abroad belong to the next section. Last but not least, there is a part dedicated to financial affairs during the last trip abroad which contains remitted amount, spending and saving structure etc. In the view of heterogeneity and randomness of samples it was not possible to obtain all stated information in full length and therefore we had to account for rejection rate as well as right not to give all information asked by questioner. For those purposes we have focused on the key factors regarding determinants of remittances and spending structure which are further described in hypothesis statement.

The authors acknowledge the drawbacks of data collection which lacks broadness of the richer dataset. Nonetheless, extent of questionnaires allows to obtain

unique characteristics about each household and to set basis for the most curtailed patterns observed and to determine characteristics influencing migration and remittance flows.

6.3 Data correction procedures

Prior actual data analysis and model construction there was needed to correct obtained data and adjust them to the compatible form.

Firstly we have recalculated answers regarding amounts of money from the CZK, UAH and EUR into universal exchange currency USD under exchange rate valid for year 2012 (specifically July 2012). Choice of currency was influenced by later application of the results on the international level.

Also, stated hourly wages did not in certain cases correspond in the volume to the hourly rate. Depending on the type of the answer and its form, respondent answers were unified to single format.

Another set of shortcoming stems from the questioner precision. Within questionnaires we found answers that lack stated structure and were provided in the form of the story etc. We were able to extract proportion of information and fill in database in the formally correct form.

Respondents were also asked about type of their work. Questionnaire scope did not allow selecting one of the possibilities. Therefore, respondents write type of economic activity by hand. Disadvantage of this approach lies in the non-unifies answers that has be in the second stage transformed into the EU classification.

Existence of questionnaires in the paper form demanded transformation of answers into the statistical software and ensuing data analysis in order to obtain statistically relevant results. Initial investigation discovered that within the data sample there is group of people that did not answered in majority relevant questions concerning remittance behaviour and the trip characteristics which are the key elements of model presented in this thesis. Further inquiry showed that all observations of interest were realized by single questioner. Consequently, we were forced not to include these data into the model because of the low reliability of results

and low quality of data obtained. Result of this action reduced sample size by 30 migrants (and their families). Further analysis showed that reduction contributed to the representativeness of the data sample which thus does not include any gaps within variables/observations caused by low data quality.

7 Data description and summary statistics

The scope of questionnaire design enabled, for the purposes of this analysis, to make an insight into the detailed demographic and professional attributes of migrants which might affect their behaviour in context of migration and willingness to send remittances. In order to discover representativeness of selected sample, major factor will be confronted with formal macroeconomic data survey (representing formal stream of data). Therefore, the exhaustive content of questionnaire is divided into relevant subsections enabling total summary of the data sample.

7.1 Lifecycle characteristics and human capital factors

The purpose of this section is to provide a comprehensive description of demographic and personal characteristics. This section represents the main summary of descriptive statistics stemming from the collected data survey. Initially we will describe forms A, B and C (for questions specifications see Appendix B).

	Value	Unit of measure
Personal characteristics		
Males	82	%
Females	18	%
Age	45.43	mean (years)
Single	5.5	%
Married	75.5	%
Divorced	8	%
Household (HH) size	3.42	mean (members per HH)
Human capital		
English language	74.5	%
Education	14.3	mean (years)
Secondary education	60	%
Tertiary education	40	%

Table 1: Summary statistics of demographic and human capital charasteristics [35]

Table 1 displays summary statistics stemming from the initial part of the survey. Predominant majority of respondents (81%) are men. Age structure varies between

[35] Own calculation based on survey

24 and 82 years. Nevertheless, considering family members and adding people living within the same household, rage expands to 2-87 years. Mean age within relevant sample is 45.43 years median age 44 years and the highest density is situated between 37 and 56 years.

Contrary to LAMP and MMP projects, there is significant difference in definition concerning years of school attendance both in theory and actual statistics in the case of EU. In order to attain universality of collected data sample we have considered ISCED[36] classification for duration of each stage of education attainment which is acknowledged on the international level. Within data sample, all respondents reached at least secondary education and 60% attained this level. Second largest group comprises respondents with university degree (tertiary education) reaching 40%. Despite this anticipated shift in comparison with EU levels of 29.9% and 77.8%[37] corresponding to the economic and social disparity there are 27% of migrants representing level above master degree. With regard to knowledge of foreign language, almost 75% of responders are able to understand English.

Variable	Female	Male	Unit
Single	6.7	4.1	%
Married	75.5	75.3	%
Divorced	5.6	10.3	%
English language	76.5	72.2	%
Education	13.0	14.2	%
Secondary education	64.7	54.6	%
Tertiary education	35.3	48.7	%

Table 2: Gender statistics[38]

Family status analysis shows that 94.5% of migrants are not “single” and 75.5% are married. Minority of migrants (8%) are divorced. Average household size consists of 3.42 members and almost 50% (49.5%) with has more than 4 members.

[36] International Standard Classification of Education, United Nations Classification System

[37] Based on EUROSTAT statistics for 2012

[38] Own calculation based on survey

Gender division enables to discover differences in marital status. Opposed to married status which is similar for both genders and overall statistic, there is higher proportion of single women (6.7%). We can also find significantly higher proportion of divorced men (10.3%) than women (5.6%). With respect to education, men tend to spent almost one year more year in school than women. Despite this fact, 64.7% of women finish secondary school compared to 54.6% of men. On the tertiary level statistics reverse situation appears with 35.3% women participating school. General ability to speak English differs moderately with higher proportion of women (76.5%).

Primary sector	
	1-Agriculture, forestry and fishing
Secondary sector	
	2-Mining and quarrying 3-Manufacturing 4-Electricity, gas and air-conditioning supply 5-Water supply 6-Construction
Tertiary sector	
	7-Wholesale and retail trade 8-Transportation and storage 9-Accommodation and food service activities 10-Information and communication 11-Financial and insurance activities 12-Real estate activities 13-Professional, scientific and technical activities 14-Administrative and support service activities 15-Public administration and defense 16-Education 17-Human health and social work activities 18-Arts and entertainment 19-Activities of household as employers 20-Other services[39]

Table 3: Division of economic activities of migrants[40]

With respect to variety of answer regarding economic activities along with disparity of their definition, we have adopted international standardization approach

[39] Category includes remaining activities and participants on the maternity leave, retired and unemployed people.

[40] Based on Statistical Classification of Economic Activities in the European Community, NACE Rev. 2 (2008). Available at: http://ec.europa.eu/eurostat/ramon/nomenclatures/index.cfm?TargetUrl=LST_NOM_DTL&StrNom=NACE_REV2

(NACE[41]) which allows unification of majority of answers and their statistical usage. The approach also provides internationally acknowledged division into economic sectors.

The scope of research focuses on employment status and category both before and during migration. Figure 3 provides distribution between economic sectors within the sample where we also include category "other" including students, unemployed and retired people. Due to the focus of the analysis, migrants are main target group of interest. Within the source country tertiary sector dominates (49%) followed by secondary sector (29%) and seasonal forms of employment (18%). Inclusion of migrants' employment in destination country shows that division changes towards domination of secondary sector followed by tertiary sector and seasonal work. Interpretation of distribution might indicate that migrants tend to choose less qualified positions than those in their former occupations. This fact is also supported by proportion of 30% of migrants that had to change type of working position during migration period. Unexpected developments prove to have seasonal activities which were expected to be more common form of employment in destination country (in comparison with similar studies).

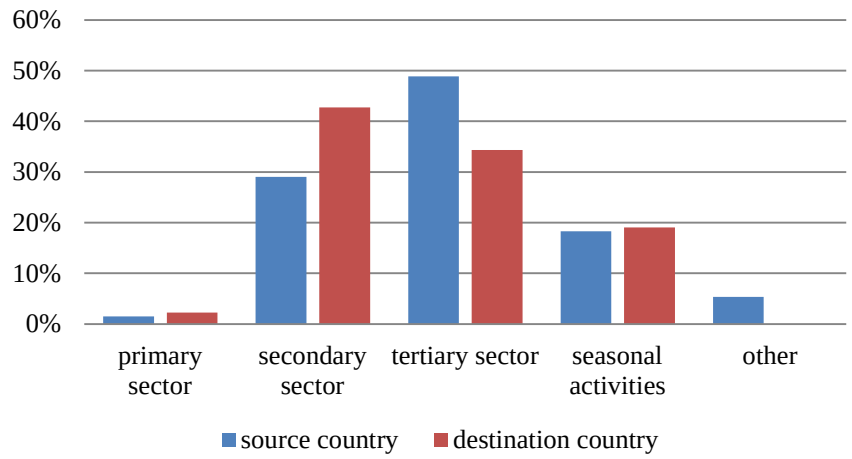

Figure 3: Sectors participation in the source and destination country[42]

Division into specified economic activities is presented in Figure 4 and it shows that construction sector belongs to the most common type of employment. Seasonal

[41] The term NACE refers to „**N**omenclature statistique des **a**ctivités économiques dans la **C**ommunauté **e**uropéenne" or international standardization of economic activities serving for collecting and presenting statistically relevant data from various countries.

[42] Own computations based on the survey

activities take the second place. Destination country economic activities show increase in construction, manufacturing sector and seasonal activities. Accommodation and gastronomy also indicated moderate increase. Nevertheless, to the most common professions within sample prevails less qualified work (especially housekeeping services and waiters).

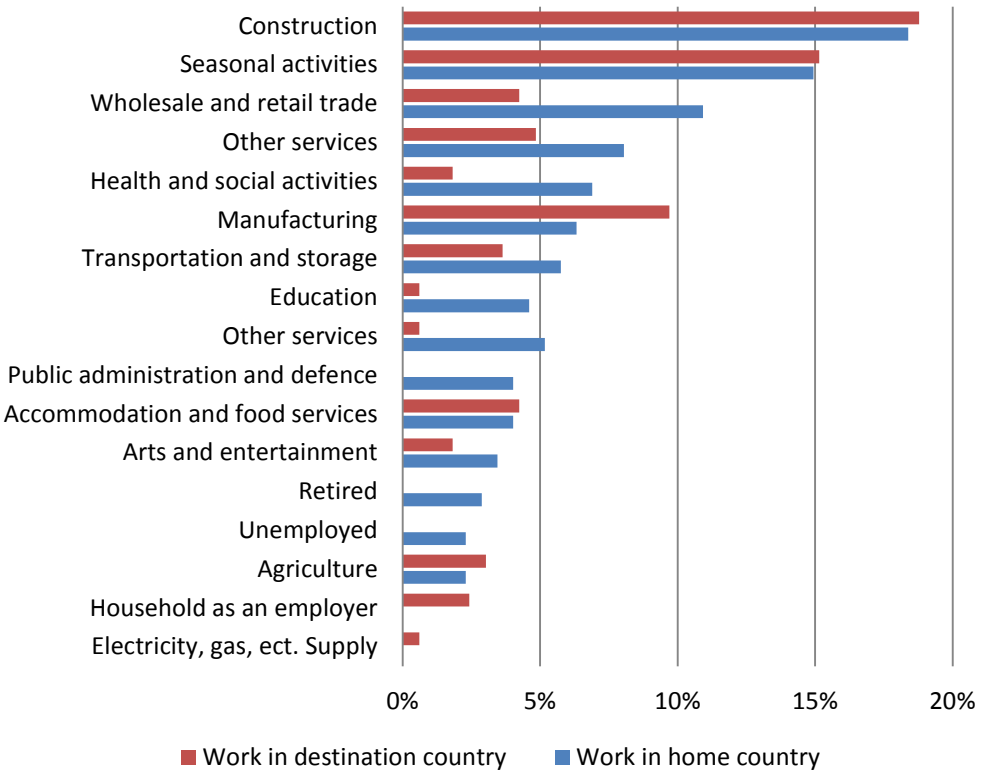

Figure 4: Economic activities in home and destination country[43]

7.2 Remittances

The Western regions in Ukraine belong to the areas with the highest proportion of both national and cross-border migrants in the state[44]. Regional approach might bring, in this case, disparity between macroeconomic (aggregate) and microeconomic approaches. Therefore, we might expect shift in ranking among the most common destination countries corresponding to the geographical specification of the region. Moreover, comparison of differences and their subsequent argumentation might serve as supporting indicator of representativeness of our data sample.

[43] Own calculations based on the survey

[44] http://www.iom.int/jahia/webdav/shared/shared/mainsite/activities/countries/docs/Ukraine/Migration-in-Ukraine-Facts-and-Figures.pdf

Observing range of countries in the Table 5, we see that it corresponds with macroeconomic statistics, where dominates Russia, Poland, Italy and Germany[45]. However, table also shows visible shift in ranking corresponding with proximity to the EU borders (and favouring EU member states). The Czech Republic belongs to the most common option within the sample. The fact corresponds with series of analysis focusing on migrants' performance and interaction between those two countries (Strielkowski, 2012). Comparison of presented statistics with other analysis and similarities observed both on the micro and macro levels supports diversity and representative power of data – sufficient variety of migrants considering destination country choice.

National statistics		Regional statistics	
Russia	50%	Czech Republic	56%
Poland	12%	Russia	15%
Italy	8%	Slovakia	5%
Germany	6%	Poland	5%
Czech Republic	5%	Italy	5%
Greece	3%	Portugal	3%
Spain	3%	Hungary	3%
USA	2%	Germany	3%
UK	1%	Spain	2%
Portugal	1%	USA	1%
Israel	0%	Slovenia	1%
UEA	0%	UK	1%

Table 4: Destination countries – national and regional comparison[46]

Regardless of choice of destination country almost 66% of respondents tend to migrate (Table 5). Also only 41.98% of migrants choose to send regular transfers back to source country (on the monthly basis). Based on our literature review, altruism and consumption smoothing hypothesis belong to the most common motives of short term migration. Therefore, it is surprising that our sample does not tend to show this pattern. The cause of this deviation might be explained in different form of remittance behaviour which does not assign regular pattern. Since 21.8% of migrants return with money (savings) back to the source country, mean percentage amount covering all forms of remittances increases to the 51.88%. Considering gender differentiation, 67.3% of men migrate as contrasted with 62.9% of women. Head of

[45] Commander, Nikolaychuk and Vikhrov (2013)

[46] Own computations based on the survey

the family is usually responsible for providing major income for the family which might influence his decision to migrate with altruistic, insurance or other motive to remit. Male member of the family is usually stated as the head of the family which corresponds with survey involving only 17.5% of families with a woman as the head. Previous studies (Strielowski et al. (2012), observed higher amounts remitted by male. In the case of families with male as head, average monthly remitted amount reaches 460.67 USD compared to 406.25 for female as head which consistently confirms previous conclusions[47].

If we enrich statistics by inclusion of occupational and financial spheres (Table 6) we can see, that mean of hourly wage reaches 6.63 USD. Opposed to women who get significantly lower amount (6.07 USD), men earn exactly mean hourly wage. In average, migrants work almost 44 hours per week which exceeds labour norm 40 hours only moderately. Nevertheless, range of values reaches from 1 to almost 90 hours with 25% of population exceeding 60 hours[48]. Money transfers also show interesting pattern. Average amount sent per month is almost 450 USD, but differs with respect to gender. Mean amount per month send by men is more than 50 USD higher that by women. Similar pattern is observed in transfers brought back. However, savings are higher for women (almost 500 UDS) than for men (477 USD).

Considering answering structure of survey, there are recognized two major types of money flows which might be categorized as remittances. With respect to previous paragraph some migrants send either regularly of irregularly smaller amounts of money on the monthly basis into the source country. However, we observe that migrants might bring single amount at return journey. This money amount is significantly higher than regular transfers. Incorporation into the groups is not exclusive and we observe migrants pertaining to both categories. In the view of this duplicity, literature stream is not uniform or does not differentiate among them. Massey at al. (2013) suggests re-consideration of remittances and money remitted or saved during migration trip. Intended or unintended division or merger between

[47] Similar patters can be observed in amount of money brought back to the source country along with outcomes of the Table 5.

[48] Own computations based on the survey

groups might lead to different estimation of statistical result and later misleading policy recommendation.

Variable	Total	Female	Male	Unit	
Migrate	66.6	62.9	67.3	%	Proportion
Remit	41.98	54.5	39.5	%	Proportion
Hourly wage	6.63	6.07	6.64	USD	mean
Hours worked per week	43.9	41.21	43.84	hours	mean
Remittances	448.74	406.25	460.67	USD	mean
Savings (per month)	482.21	498.4	477.45	USD	mean
Amount brought back	8786.82	7976.67	9029.87	USD	mean

Table 5: Summary statistics – trip characteristics[49]

Another dimension of remittances represents consideration of destination country choice. Literature stream acknowledges number of studies showing amount of remittances sent and revived between EU and third countries (Kupets, 2012). However, very little attention has been paid to the actual proportion of income remitted to the source country. In Figure 5 we shows an overview of the most common destination countries among respondents and respective percentage of income sent back to Ukraine as remittances. Indicator was constructed by determination of income of migrant (in 212 prices in USD) and subsequent multiplication of hourly wage and average number of hours spent in work. For those purposes only regularly sent money transfers were considered.

Major question discussed is whether there significantly different pattern between East and West stream of migration. In order to objectively compare each country cost of living index is considered where Ukraine represent level of 100 and all destination countries indexes are derived from this level. The anticipated outcome would suggest that countries with high cost of living index would generate smaller percentage of remittances than countries with lower cost.

[49] Own computations based on the survey

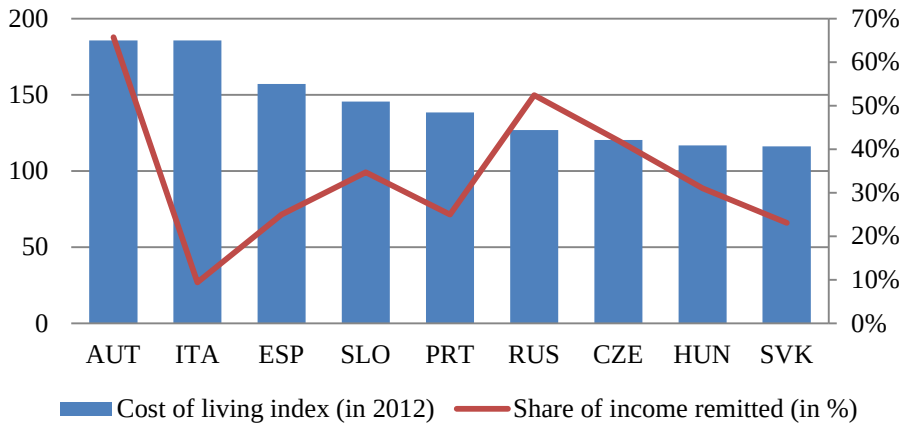

Figure 5: Proportion of income sent as remittances[50]

The highest share (66%) was sent from Austria, followed by Russia, Czech Republic and Slovakia (Figure 5). Negligible proportion was sent from the Southern EU countries as Spain and Italy and eventually Portugal. Division between East and West stream of migration does not appear to show any difference. After the inclusion of the cost of living index there is no sing of inverse relationship between two variables. For example Austria with the highest level of index generates also highest proportion of remittances (66%). Further in Italy with similar level of cost index migrants sent very low share of income (9%). In the case of other countries, no visible pattern is observed.

7.3 Financial and material background and health aspects

Migrants are using wide range of both formal and informal channels to transfer remitted money into the source country. The choice among them is not negligible with respect to impact on international and national statistics which mostly comprise from the more formal form of transfers. Division of each category contains bank transfers, transfer companies, postal services, friends and relatives or by migrant himself. Despite the high development of financial system in destination countries only 2.5% of respondents own a bank account in foreign currency. In average, 67%

[50] Proportion of income sent as remittances is based on the authors' computations. Index for cost of living was adjusted for a basic level of Ukraine = 100 in 2012. Index database available at: http://www.numbeo.com/cost-of-living/rankings_by_country.jsp?title=2012

of migrants receives wage in cash. Decomposition into the destination countries is showed in Figure 6.

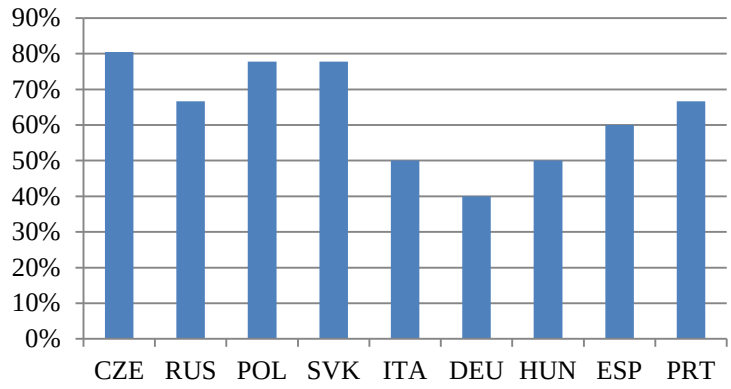

Figure 6: Percentage of wages paid in cash form

There is no difference observed between East and West stream of migration and both assigns high proportion of cash form. However, Germany belongs to the single country with percentage below 50%. This might be explained by more strict form of regulation regarding wage payments and lower proportion of informal forms of employment. Reasons for high percentage of wage paid in cash form might include high proportion of undocumented migration. Also, majority of respondents consist of seasonal and secondary sector workers which do not choose to use this channel. This fact supports preference of informal channels used for remittance transfer.

7.4 Material background

Geographical disposition along with historical and trade proximity to EU, higher standard of living in terms of material background is expected, as compared to less developed states or rural areas from similar surveys in Latin America. Notwithstanding time elapsed and change of Ukrainian political and economic situation, study is emphasizing only situation relevant to year 2012 when questionnaire survey was conducted. At the same time we motivate further researches to compare outcomes with present data in the context of the situation change.

Variable	Proportion (in %)	Variable	Number of items	Proportion (in %)	Financed with money made abroad
duct	96.39%	car	1	33.50%	58.21%
electricity	100%		2	2.50%	80%
sewerage	95.88%	audio-video system	1	21.00%	66.67%
cooker	98.97%		2	10.50%	85.71%
washing machine	95.34%		more	15%	83.33%
radio	87.30%	cottage		3%	33.30%
TV	98.97%	land ownership			
telephone	74.60%	land < 1ha		15%	30%
stereo system	73.80%	land > 1ha		4%	25%

Table 6: Material background[51]

Despite unfavourable development after financial crisis in 2007, Ukraine preserved very high standard of living among developed countries. This level reflects economic interaction with Russia and EU showed in the high proportion of material ownership. Table 6 shows along with detailed description of general ownership type of financing. Almost 58% of families tend to buy their first car from the money earned abroad. Moreover, in the case of second car, proportion increases to 80%. Similar pattern exists among audio and video systems. Considering very high level of standard of living based on the facilities statistics, migrants use remittance mainly to enhance already achieved quality of living. Their living standard might not be classified as poverty considering facilities of TV, electricity and other equipment. More appropriate definition would include underdevelopment of middle class described in the section 4 that rather meet ownership structure described in the Table 6. This evidence supports hypothesis that different approach has to be achieved in different areas. Especially there is should be proceeded with caution in comparison of reason for migration between region below poverty line and developing countries that do not fully meet this criteria.

7.5 Health status

Health status of migrants belongs to the less exposed topics which stands on the edge of economic interest and also on the edge of the economic science it selves. There is evidence in the literature stream of studies conducted with developing

[51] Authors' computations.

regions as Asia and Pacific region (Calderon et al., 2012) or from Africa region. We can also find evidences from anthropological and medicine perspective, however, mass inflow of migrants might generate pressure on the destination country health system and issue following challenges for future policy direction and overall financing of the system (Nagy, 2011).

Topic has initiated discussions within the EU countries especially in the context of illegal migration inflow from the North Africa (and subsequent tragedies occurring during transportation of migrants to the Europe across Mediterranean Sea). There is also alternative stream of interest analysing migrants aspects of refugees from politically or military exposed region in the neighbourhood of EU. Majority of the above mentioned cases share one common factor: they belong to the category of involuntary migration pushed by economic or political conditions of the source country. The labour migration belongs to the most common type of migration within the EU borders which implies questions: how much different are effects of these two groups on the health system and economy. Acknowledging limited range of this study, following section strives to provide brief insight into health status of migrants within Ukrainian migration population and motivate future attempts to enhance knowledge of this area.

General health characteristics of the respondents do not assign irregular pattern. Average height is 1.77 meters, weight 79.89 Kg and BMI 25.38 which does not detect any preconditions for rapid health change corresponding to the physical measures. As in any average sample, smokers are present. Almost 33% of respondents smoke now. Detailed insight shows that the most likely male (76.74%), married (84.78%) and people who migrate (89.13%) tend to smoke.

	average	migrate
Smoker	33.33%	35.96%
No health change	87.60%	86.72 %
high blood pressure	25.35%	26.32%
diabetes	2.80%	3.51%
heart problems	9.09%	10.53%
stroke	2.10%	2.63 |%
chronic lung condition	2.80%	3.51%
psychiatric problems	4.23%	4.39 %
cancer	2.80%	1.75%

Table 7: Health summary[52]

Table 7 presents summary of health diagnosis of respondents where we distinguish population with migration experience. Presence of all below mentioned diseases is not significantly high and only small fraction below 10% of respondents fulfils criteria of at least one of them. Detailed distribution is presented in the table. Nevertheless, comparison of migrants and respondent without migration experience indicates that migrants tend to be more exposed to the health exacerbation within this extent. Along with higher proportion of smokers there is lower percentage of people without health change during the last year.

In order to determine health status, respondents were asked to evaluate their subjective health perception on the scale from very good to poor (in ascending order: very good, good, regular and poor). Here we distinguish two types of questions: health change within the last year and before after migration.

In the first case 71% of people did not detect any health change. However, in migrants' category, proportion increased to the 78.17%. This might indicate that working and living conditions did not negatively influence heal status of migrant compared to the whole sample. This fact is supported by previous statistics showing that usually men within productive age tend to migrate (as a part of labour migration process).

[52] Authors' computation based on the own dataset.

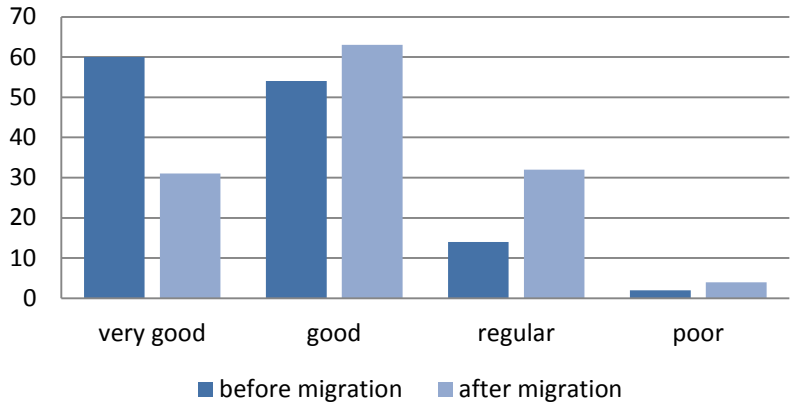

Figure 7: Heath status before and after migration from Ukraine[53]

Second category concerns change of health as a result of international migration. Summary statistics provided above showed higher procurement of employment in the secondary sector, especially on the positions worker and seasonal worker. Manually intensive positions might generate demand on the general physical robustness of migrant and result in worsening of health status. This survey outcome shows that more that 80% of migrants did not detect any change after migration period. Detailed distribution of answers is showed in the Figure 7 where we might detect slight change of density from “very good” to “good” and overall shift of distribution towards more negative evaluations. Acknowledging limited extent of the outcome, change due to migration experience in present within the sample and might provide basis for the further investigation.

[53] Authors’ computation based on the own dataset.

8 Empirical model

8.1 Research hypothesis

Current stream of literature follows the most significant migration flows in the North-Atlantic region comprising especially migration into the USA and West-East stream in the Europe. Consideration of design of either realized or future survey therefore offers, beside the stream choice, form of approach by stating scope of interest: destination or the source country. Massey et al. (2013) provided wide international analysis of multiple source country with singular destination country, USA. Purpose of this survey is to reverse this approach by putting stress on the source country.

The main objective of this section is to define research hypothesis and to put them into the context of contemporary stream of research. In addition to this, we will present methodology concept for testing the stated hypothesis.

Hypothesis #1: Remittance behaviour is significantly influenced by demographic factors (age, social status, family status etc.)

Hypothesis statement is based on the LAMP and MMP projects and Massey et al. (2013) comparing results from eight Latin America countries. The purpose of this study is to adopt similar approach which would determine applicability of results on the Ukrainian migration into EU countries. Design of the model will also aim to extend validity of this hypothesis already tested on migration between Ukraine and Czech Republic (Strielkowski et al. 2012).

Hypothesis #2: Remittances channelled to the source country are invested into productive forms of consumption.

Remittances have shown to play important role in the economic growth of the source (home) country. Various studies have therefore focused on the description of extent (Iradian, 2007) or determinants of this effect (Strielkowski et al., 2012). Remittances do not have sufficient power to influence economic growth directly.

However, if we consider intermediary in the form of investment or consumption logical chain may emerge. Opposed to investments generally acknowledged as the accelerator of economic growth consumption can be divided into two parts leading to contradictory results: productive and unproductive consumption (spending). Scope of this thesis is to focus on the productive consumption. Steger (2000) defines productive consumption as consumption that:

"…enables the satisfaction of current needs and, at the same time, increases the productive potential of labour."

Steger also highlights importance of this form of consumption for low income and developing countries which can be applied on Ukraine as one the European developing countries[54]. However, ours analysis needs more particular definition. Massey et al. (2013) mentions groups of spending which are considered to be productive as spending into human capital and family enterprises. Number of observation within our survey does not allow us to distinguish between these two categories. We will, therefore, merge them into single unit which helps us find major determinants.

Hypothesis #3: There is positive effect of education and associated human capital factors (knowledge of foreign language etc.) on the probability of getting skilled position.

In 2011 researchers Massey, Durand and Conor presented comparative study of migrants in Spain and United States which strived to describe possible similarities in migration behaviour on the international level. One of the models investigated influence of variables on the probability of getting a skilled position. Arrangement of any form of employment during migration is perceived as the positive step in integration process in the destination country. Short term migration might not see integration as the primary aim of interest. Nevertheless, procurement of skilled position has impact on the labour market in the area of wages (investigation of

[54] Categorization depends on the definition of the low-income or developing country with respect to macroeconomic outputs.

adverse effect) and level of unemployment55. Generally, skilled position can be defines as:

"…employment that requires specialist, technical or management expertise."[56]

The EU distinguishes two types of this form of employment: "skilled" and "highly skilled". Moreover, there is difference in the definition with respect EU-member and "third countries" (European migration network, 2007). This thesis focuses on the EU-member countries as the destination countries for Ukrainian migrants. Therefore, classification of International Labour Organisation ISCO-88 is applied as the key benchmark for "skilled employment" recognized by EU authorities within EU[57].

8.2 Empirical model definition

Prior research (Massey et al., 2013) asserts that determinants of remittance behaviour are uniform but differs with respect to personal, demographic and human capital characteristics and macroeconomic conditions. In order to provide exhaustive results of the problem, two phases of tests are adopted. Initially, we focus on the general propensity to remit. For this purpose binary dependent variable is included, where outcome equals to 1 if person migrates and remits money back at the same time (either monthly or occasionally at return journey) and 0 otherwise. Dichotomous dependent variable predetermines range of models consistent for this analysis. Therefore, binary response models are applied, in particular linear probability model (LPM), Probit and Logit models. Despite the fact, that we have cross-section data, application of OLS methods (in particular LPM) might lead to heteroskedasticity, non-normality of errors or violation of linearity resulting in invalid inference or general misestimating of results. However, consideration of LMP might, in the case that all assumptions are met, provide measure for robustness of each of the model. Also, acknowledging drawbacks of each of the proposed models, especially in the

[55] Conclusions based on the literature focusing on the labour market impacts of migration. For example: D'Amuri et Al, 2010 and other studies mentioned in the literature review.

[56] Definition of skilled employment based on the Immigration New Zealand. Available at: http://www.immigration.govt.nz/

[57] List of positions available at: http://www.ilo.org/public/english/bureau/stat/isco/isco88/major.htm

case of LPM, and uncertainty about distribution of all three possibilities comparison of results followed by discussion is provided. Afterwards, statistical inference is tested in order to obtain consistent and efficient results of estimation model.

In the second stage, we will focus on the amount remitted and factor influencing its magnitude. Initially, we have to define dependent variable – remitted amounts of money by migrants ("migradollars"). With respect to section 7., two possibilities arise concerning inclusion of amount of remittances. Firstly, there is existence of regular money transfers send to the source country. On the other hand we should be aware that money (savings) is being brought occasionally at return journey. Division of both types is important with respect to magnitude of each of them that might generate significantly different estimation outcomes. Literature, focusing on this topic, tends to choose either of patterns as a benchmark of definition of remittances. Strielkowski et al (2012) considers remittances as general amount of money brought back to the home country. Reverse approach is observed in Massey et al. (2013) who operate with both definitions of remittances: amount remitted and saved during the migration period. Third possibility based on the design of the survey is to consider only monthly transfer payments. In order to avoid drawbacks of separation of both categories, we will test both monthly and singular money transfers and observe consistency of result which might lead to higher robustness of conclusions. In the view of cross-section nature of the data OLS model is considered, providing discussion of assumptions validity in the next section. Last but not least, additional tests are applied to achieve consistency and robustness of the model and validity of statistical inference.

Second hypothesis strives to test channelling of remittance into the productive/unproductive forms of spending. Complicated nature of remittances definitions described in the previous paragraph does not reach to this model. However, range of generalization might, again, influence explanatory power of model. It is crucial to state how detailed results are to be obtained. Low number of observation obtained from migration survey predetermines usage of both groups as one variable that describes channelling any form of remittances into productive consumption. Model comprises of binary dependent variable model as LMP, Logit and Probit. Again, consideration of all results is crucial for level of robustness of

model without violation of initial model assumptions. Post-estimation methodology provides series of test for heteroskedasticity and general statistical reliability of results. Final output of model estimation can be discussed with perceptual summary from section 7.

Third hypothesis revolves around factors influencing probability to obtain skilled positions. Dependent variable is equal to one in the case of position satisfying EU classification of skilled position and 0 otherwise. Again, binary response model are applied as the main approach. The choice of the factor (independent variables) is similar as in the previous paragraphs. Hypothesis stems from the study by Massey, Durand and Connor from 2011 which presents very similar independent variables that are adjusted for purposes of this study. Post estimation methods present the most statistically consistent model with inclusion of alternative result and their subsequent discussion.

Following results of deep statistical summary and relationships in the previous chapter, we have pre-selected potentially interesting factors that might influence dependent variables in each hypothesis.

Variable	Description
Remittances	
Remit monthly	Dummy variable; 1= money transferred monthly
Remit occasionally	Dummy variable; 1= singular money transfer act
Remit	Dummy variable; 1= money transferred either singularly or monthly
Monthly remittances	Logarithm of amount of money remitted monthly (in USD)
Money brought back	Logarithm of amount of money brought back to the home country (in USD)
Savings	Logarithm of monthly savings during migration period (in USD)
Demographic and human capital characteristics	
Age	Years of age
Female	Dummy variable, 1=women, 0=men
Household size	Number of family members
Education	Number of years spend in school
Knowledge of English language	Dummy variable, 1= if migrant understand and speak Engligh,0 otherwise
Secondary education	Dummy variable, 1= finished secondary education, 0=otherwise
Tertiary education	Dummy variable, 1= finished tertiary education, 0=otherwise
Legal status	
Undocumented	Dummy variable
Legal form of residence	Dummy variable
Trip characteristics	
Duration of the stay	Duration of the migration trip (months)
Accompanied by family	Dummy variable, 1= migrant was accompanied by family member; 0=otherwise
Wage	Migrant's income (in USD)
Wage paid in cash	Dummy variable; 1= wage paid in cash; 0=wage paid by check
Tax	Dummy variable; 1= migrant paid income tax; 0=otherwise
Material background	
Land ownership	Dummy variable; 1=ownership of land
Business ownership	Dummy variable; 1=ownership of business
Economic activity	
Skilled position	Dummy variable

Table 8: Variable description and summary[58]

Table 8 presents summary of the major factors of interest which have been considered as the independent variables for econometric model. Their final selection revolves around previous researches made by Strielkowski et al. (2012) and Massey et al. (2013).

First group of variables within Table 8 represents dependent variable used in our models. Independent variables descriptions situated in the subsequent rows are divided into the area of interest as demographic and human capital characteristics, legal status, trip characteristics and material background. Demographic and human capital characteristics are considered to be basis for the initial model and subsequent

[58] Own calculations based on the survey

calibration. Along with age and its squared form we have also number of family member within single household, logarithm of family income prior the migration, knowledge of foreign language (in our study English language[59]) and level of education. Along with general impact of years of school we can also consider deeper insight into the effects of secondary and tertiary school. Questionnaire design was originally constructed in the USA for purposes of Northern and Latin America migration; therefore there is disparity in understanding of definitions as secondary and tertiary school. As the result, secondary school is adjusted as 13 years of education (which corresponds with European definition of term consisting of 9 years of elementary school and 2-4 of secondary school). Tertiary education consists of education above 16 years of schooling[60]. Second group describes legal status of Ukrainian migrants with emphasis on the undocumented status. Trip characteristics majority of trip features as duration of stay, level of income but also presence of family members and participation on the social security system and income tax payments which might have impact on the dependent variables of interest[61]. Last but not least, material background might play an important role in remittance behaviour, especially in the case of business or land ownership and subventions in the form of remittances. Last group represent dependent variable of the third hypothesis focusing on the probability to obtain the skilled position.

8.3 Models construction and results summary

The scope of this study comprises of determination of migration of remittance behaviour that includes cross section data usage in Probit, Logit LPM and OLS models. The choice of the model predestines nature of data and presence of dichotomous dependent variable.

[59] Choice of variable is based on the study by Strielkowski et al. (2012) who included variable knowledge of Czech language in the study focusing on the Ukrainian migration into the Czech Republic. Due to wider range of destination countries within current study, knowledge of English language is included.

[60] Based on the EU classification of education systems. Available at: http://www.uis.unesco.org/Education/Documents/isced-2011-en.pdf

[61] Based on the Massey at al. (2013)

In the binary response variable models sing of the coefficient is of main interest followed by the determination of the magnitude of the effect. The sign of the effect is to be presents under *ceteris paribus* condition. The calculation of the magnitude effect is described by the odds ratio and depends on the final model selection. In the case of Logit model, taking exponential value of the coefficient estimate is sufficient. The Probit model demands more elaborated techniques including derivative form based on the cumulative density function.

In the following section we present gradual detailed construction and testing of each model along with subsequent discussion of magnitudes and sings of major results. Each subchapter represents one hypothesis testing.

In the view of analysis of migration outflow from the one country to the series of countries, authors expect that unobserved effect is present. Along with mutual international effects (common fort all countries), diversity of the EU states and other destination countries are considered to have country specific effects which will differ in each case. The proper model formulation should therefore include these effects in the form of additional variable by which final results would be adjusted for. Nevertheless, application of these variables requires sufficient data background with potential to construct statistically significant variable. Limited of scope of presented study and high possibility that into certain countries migrated only units of respondent caused that we have not included the country specific effects. However, we propose this methodology as appropriate suggestion for further Ukrainian migration effect evaluation.

8.3.1 Factors influencing remittance behaviour

Following methodology presented in the previous paragraphs, binary response models are used for purposes of the first hypothesis testing. The uncertainty concerning cumulative distribution function with respect to the data sample implied that that both Logit and Probit model are considered. Decision between them can be provided by post estimation methods (LR ratio, information criteria, McFadden's R^2 etc.). Theoretical construction showed in Equation 1 (Wooldridge, 2002).

$$P(y = 1|x) = G(\beta_0 + \beta_i x_i)$$

Equation 1

Generally both models are applicable for this type of study. Probit model uses standard cumulative distribution function (Equation 2; Wooldridge, 2002) which is considered to be more realistic in the majority of situations.

$$\boldsymbol{G(x) = \int_{-\infty}^{z} \frac{1}{\sqrt{2\pi}} e^{-\frac{x^2}{2}} dx}$$

Equation 2

However, logit model (with logistic cumulative distribution function in Equation 3; Wooldridge, 2002) offers more simple way for determining magnitude of each effect.

$$P(y = 1|x) = \frac{\exp(\beta_0 + \beta_i x_i)}{[1 + \exp(\beta_0 + \beta_i x_i)]}$$

Equation 3

Respecting importance of magnitudes, our main interest is to estimate sign of each effect with the highest possible robustness. Both models are therefore considered and their results discussed.

The survey design, especially its particularity, allowed us to observe whether person sends remittances regularly as monthly transfers or if it was merely occasional money transport. Previous chapter described possibility to distinguish these two types to obtain more specific results. Nevertheless, because of limited number of observation of this study we merged both types into singular variable. This dependent binomial variable is equal to 1 if person migrated and sent remittances either regularly during return journey and 0 in the reverse case. Independent variable choice stems from the previous statistical summary which offered inspiration for main variable candidates described in the Table 8.

In order to obtain consistent estimates result the selection of independent variables was carried out gradually and tested (in each stage) with Likelihood-Ratio test which substitutes test for multiple restriction of parameters within limited dependent variables model. Information criteria parameters offers supporting

technique for model evaluation enabling comparison of two model and helping in final determination of variable count and selection. In this model Bayesian Information Criterion (BIC) and Akaike Information Criterion (AIC) are used (Appendix A). Resulting model with finalized variable selection is presented in the Table 9. Brief visual comparison between Logit, Probit and LPM model show very little differences and speak in favour of model stability. However, signs of LPM differ in few variables but they are not used in the results interpretation and provide only information about extent of results robustness and universality.

The first model results describe probability of migrant to send remittance regularly (in our study monthly) to the country of origin. Low P-value of Wald statistic suggests that we reject null hypothesis of join insignificance of variables. Maximum Likelihood Estimation method (MLE) is applied as the result of existence of binary dependent variable. Therefore we cannot interpret conventional tools for "goodness of fit" common for OLS estimation. Alternative to the R^2 provides Pseudo or McFadden R^2. Value of 0.47 or 47% represents sufficiently strong power of the model Wooldridge (2001). Tests for presence of multicollinearity are provided by analysis of tolerance and Variance Inflation Factor (VIF). Low values of VIF and sufficiently high values of tolerance close to 1 indicate that there is no multicollinearity present among variables of interest. Interpretation of result in binary response model is not straightforward as the sign determination. Logit model provides advantage in simplicity of calculations. By taking exponential value of the coefficient we obtain odd ration of the real effect that can be ceteris paribus presented.

Probability of person remit regularly	(1) Logit	(2) Probit	(3) LPM
Demographic characteristics			
Age	0.450	0.280	0.0774**
	(0.213)	(0.170)	(0.069)
Age2	-0.00305	-0.00198	-0.000651
	(0.446)	(0.380)	(0.166)
Female	0.291	0.145	0.00254
	(0.854)	(0.879)	(0.989)
Household size	0.163	0.0749	-0.000677
	(0.722)	(0.787)	(0.991)
Married	2.388**	1.391**	0.280**
	(0.071)	(0.063)	(0.071)
Human capital characteristics			
Secondary education	-2.907	-1.696	-0.262
	(0.444)	(0.412)	(0.343)
Tertiary education	-0.112	-0.0384	-0.0302
	(0.906)	(0.945)	(0.829)
Trip characteristics			
Length of the trip	-0.150	-0.0890	-0.0133
	(0.259)	(0.252)	(0.378)
Log of the monthly wage	-3.407**	-1.983**	-0.417**
	(0.006)	(0.004)	(0.003)
Wage paid in cash	0.567	0.336	0.0697
	(0.630)	(0.626)	(0.683)
Legal status			
Legal residence	4.050**	2.364**	0.486**
	(0.019)	(0.014)	(0.010)
Social security	-1.442	-0.868	-0.118
	(0.381)	(0.334)	(0.578)
Income tax	1.071	0.624	0.136
	(0.537)	(0.515)	(0.561)
Ownership			
Agriculture land	-1.952*	-1.096*	-0.192
	(0.144)	(0.132)	(0.253)
Business	-0.0620	-0.216	-0.0342
	(0.963)	(0.759)	(0.852)
_cons	8.404	4.585	1.061
	(0.400)	(0.416)	(0.400)
N	55	55	55
Prob > chi2	0.0026	0.0024	
Pseudo R2	0.4705	0.4734	
Prob > F			0.0119
R2			0.4872
Breusch-Pagan test			
Prob > chi2			0.8418

Table 9: Probability of person remit regularly[62]

[62] Results of the regression based on the authors‘ computation. Note: p-values in parentheses * p < 0.05, ** p < 0.01, *** p < 0.001

Demographic factors appear to have positive effect (ceteris paribus) on the odds of sensing remittance monthly. Negative value of squared form of Age does not reverse positive value of Age variable. Strongest and the most significant effect is observed among married people that increases odds of remittances sending almost 10 times [exp(2.388)=10.89]. High number of family members also increases odds by 17% [exp(0.163)=1.177] and in the case of female by 33% [exp(0.291)=1.33].

Level of education does not have positive effect in both cases of secondary and university education. However, magnitude of the effect has decreasing tendency with the increasing level of education attained (from 94% to 10%).

Trip characteristics variables do not have uniform sign. The length of the stay decreases odds of remittances by 14% [exp(-0,15)=0.86]. High level of wage earned during migration also decreases odds. Reverse trend appears in the case of wage paid in cash form, where effect is positive.

Legal status of migrant appears to provide sufficient security for migrant to increase odds of sending regular transfers. Effect is enhanced by tax payment that also indicates legal form of status. Surprisingly, participation on the social security program decreases odds by 76% [exp(-1.442)=0.23].

Business or agriculture activities in the country of origin decrease odds of regular remittances. Result indicates that this type of remittance behaviour might not be the primarily motivated by business financing and subsidies provision.

The second model analyses alternative type of remittance behaviour where migrants do not send money regularly but save them. Saved amount is at return journey transferred to Ukraine as single undivided amount (occasional form of remittances). Results obtained by this model would explain whether there is difference in motivation to remint among there two types. Model construction follows similar model calibration techniques as in the prior case. Results of the model estimation are summarized in the Table 10. Number of observation remained unchanged. P-value of Wald statistics increased to 0.0501 or 0.0479 showing that null hypothesis of joint insignificance is rejected on the 5% level of significance. McFadden R^2 decreases to the 36% but remains within the range of tolerance and is comparable to the thematic studies (Messeay at al. 2011). Again, model shows, with two exceptions in the LPM model, similar signs and value of coefficients.

Probability of bringing money back to Ukraine	(1) Logit	(2) Probit	(3) LPM
Demographic characteristics			
Age	-0.216	-0.117	-0.0210
	(0.480)	(0.489)	(0.625)
Age2	0.00205	0.00108	0.000194
	(0.553)	(0.571)	(0.684)
Female	0.672	0.396	0.0723
	(0.581)	(0.566)	(0.708)
Household size	-0.204	-0.108	-0.0241
	(0.551)	(0.604)	(0.684)
Married	0.0986	0.0963	-0.0189
	(0.925)	(0.870)	(0.904)
Human capital characteristics			
Secondary education	0.625	0.308	0.117
	(0.716)	(0.759)	(0.681)
Tertiary education	-0.178	-0.0873	-0.0246
	(0.856)	(0.875)	(0.864)
Trip characteristics			
Length of the stay	0.00956	0.00188	-0.00151
	(0.936)	(0.978)	(0.922)
Log of wage earned	0.869	0.495	0.125
	(0.339)	(0.345)	(0.352)
Wage paid in cash	1.917	1.165	0.183
	(0.252)	(0.229)	(0.300)
Legal status			
Legal residence	1.062	0.620	0.103
	(0.430)	(0.407)	(0.579)
Social security	-0.537	-0.279	-0.0590
	(0.739)	(0.762)	(0.787)
Income tay	-0.582	-0.290	-0.107
	(0.732)	(0.763)	(0.656)
Ownership			
Agriculture land	4.076**	2.372**	0.664**
	(0.003)	(0.001)	(0.000)
Business	0.442	0.269	0.0461
	(0.738)	(0.703)	(0.807)
_cons	-4.707	-2.950	-0.333
	(0.581)	(0.541)	(0.797)
N	55		
Prob > chi2	0.0501	0.0479	
Pseudo R2	0.3593	0.3617	
Prob > F			0.0712
R2			0.4087
Breusch-Pagan test			
Prob > chi2			0.1079

Table 10: Probability of bringing money back to Ukraine[63]

[63] Results of the regression based on the authors‘ computation. Note: p-values in parentheses * p < 0.05, ** p < 0.01, *** p < 0.001

Results of the model estimates are showed in the Table 10 are divided into the same categories of variables as the previous model. These groups help to compare results of models with different remittance types.

Sign of demographic factors has changed. From the strictly positive coefficients variables Age and Household size in the first stage, negative effect appears. Magnitude of effect suggests that unlike regular remittances probability of single amount transfer increases in the case of young people with low number of household members. Age increase decreases odds by 20% [exp(-0.216)=0.8057], another household member then by 19% [exp(-0.204)=0.81].

Human capital factors also changed in sign in the variable Secondary education level which now has positive effect and increases odds by 86% [exp(0.625)=1.868]. The change might be connected to the fact that migrants might be engaged in undocumented or illegal form of employment or simply prefer informal distribution channels. Also, since 89 % of studied secondary respondents in the productive age (between 18 and 65 years), high proportion of workers and seasonal workers is expected (based on the summary statistics).

Trip characteristics of this type of behaviour also changed. Length of the trip has no longer strong but very weak effect. On the other side, higher level of wage earned increases odds 1.3 times [exp(0.869)=2.385)].

Effect of legal status also reversed and indicates that this form of remittances is send more by migrants who do not pay income tax in the destination country.

To the most surprising categories belong ownership structures, where all variables have positive sign. Results shows that having business or land increases odds of money transfer by 55% [exp(0.442)=1.55]. This might imply that remittance behaviour of this form is motivated also by business financing.

Statistical significance of both models suggests that majority of variable are singularly insignificant with exception of Married, Wage and Legal residence. In the case of second model significant variables reduces to the Land ownership. Nevertheless, both models have proven to have jointly significant variables.

The second part of hypothesis testing consists of model describing amount of remittances sent and variables explaining factors that are believed to have effect on the amount. Dependent variable – amount of remittances sent is divided into the three categories. Amount of remittances sent monthly, amount of money (savings) brought

back to Ukraine at return journey and monthly savings. First and second type corresponds with previous Binary response variable model (specifically its dependent variable). Third dependent variable describing level of savings is used in construction of supporting model. Multiple version of model is inspired by Massey et al. (2013) who studied similar model describing spending behaviour of migrants in Latin America.

Dependent variable is applied in the logarithm form for purposes of easier interpretation of results. In the view of cross section nature of data, Ordinary Least Squares (OLS) method is considered to be the most appropriate tool of analysis. We begin with the model calibration in the initial form with few independent variables and then gradually increase number of variables. Measures of interest for model evaluation are number of observations, R^2, joint and singular significance of model and further statistical inference. Results of the regression model are showed in the Table 11. Final versions of all three models include control variables that help us to define model reliability.

OLS method defines R^2 and an effective supporting indicator for "goodness of fit" determination. Values between 37% and 53% are comparable with similar studies (Massey at al. 2013, Strielkowski et al., 2012). However, in order to obtain efficient coefficient we have to verify hoskedasticity of residuals. The Breusch-Pagan test with P-value 0.6279 and 0.4726 suggest that we do not reject null hypothesis of homoskedastic residuals. In the case of the third model, P-value is 0.0347 suggesting non constant variance of residuals and presence of heteroskedasticity. Correction procedure that would eliminate problem would be computation of unbiased robust standard errors. Limitation of this procedure is asymptotic validity of F and t statistics and standard errors. Application on the small data sample would not have to result in the valid statistical inference. Therefore we do not include third model in the result discussion. Following test reject presence of multicollinearity among variables in two remaining models.

Table 11 shows that in the case of amount of regularly sent remittances, age and household size have positive effect. Additional household member increases amount remitted by 8%. On the other side marriage and gender (female) generate reverse effect. Additional year of school appear to increase amount by 15%. Length of the stay appears to have very limited positive effect but presence of family member decreases transferred amount. Explanation might be that presence of close family

members demotivate in sending additional money transfers to Ukraine. Wage earned during trip and business ownership tend to decrease remittances. Therefore, model does not suggest business financing from regular foreign transfers. Control variable "savings" confirms validity of model (higher savings tend to generate lower regular remittances – exclusive relationship).

Second variant of the model employs dependent variable – single amount brought back to Ukraine. Comparison of both models shows identical signs of variables Age, Married, Length of the stay and Presence of family. Direction of all effects corresponds with results of LAMP Massey at al. (2013). On the other side, there are visible differences in the profile of migrant sending this type of remittances. Household size appears to motivate to send larger amounts rather regularly than at once. Length of the stay appears to have stronger positive effect of the amount sent. Income tax payment withholding tends to increases amount brought.

The most interesting development show variable business ownership which does promote higher amount brought to Ukraine. This indicates that businesses receive larger amounts from single money transfer rather than from regular. Control variable confirms validity of the model.

Despite very promising outcomes and joint significance, main model shortcoming is singular significance of variables. Authors suggest that increase of the data sample would contribute to increase of explanatory power of the model.

Amount of remittances send	(1)	(2)	(3)
	Log Remit	Log money brought	Log Savings
Demographic factors			
Age	0.108***	0.309	0.213*
	(0.0102)	(0.212)	(0.0838)
Age2	-0.000884***	-0.00317	-0.00210*
	(0.000114)	(0.00240)	(0.000926)
Female	-1.235***	2.123	-1.306***
	(0.0276)	(0.892)	(0.210)
Household size	0.0853***	-0.186	-0.138
	(0.00886)	(0.190)	(0.0694)
Married	-0.383***	-0.897	-0.599*
	(0.0279)	(0.405)	(0.210)
Human capital factors			
Education	0.150***	-0.0133	0.0901**
	(0.00412)	(0.106)	(0.0256)
Trip characteristics			
Length of the stay	0.0503***	0.163	-0.0103
	(0.00199)	(0.0742)	(0.0148)
With family	-0.289***	-0.556	-0.242
	(0.0291)	(0.852)	(0.178)
Log of wage earned	-0.456***	1.022	0.752***
	(0.0226)	(0.771)	(0.145)
Income tax	1.021***	-0.160	-0.293
	(0.0412)	(0.362)	(0.232)
Ownership			
Business	-0.905***	0.682	-0.173
	(0.0230)	(0.416)	(0.158)
Control variables			
Log Savings	-0.177***	0.300	
	(0.0114)	(0.554)	
Log Remit			-0.537***
			(0.0997)
_cons	4.499***	-6.715	-0.728
	(0.215)	(4.479)	(1.506)
N	21	15	22
Prob > F	0.0000	0.0890	0.0002
	Robust SE		*Robust SE*

Table 11: OLS regression for amount of remittances [64]

[64] Results of the regression based on the authors' computation. Note: Standard errors in parentheses * p < 0.05, ** p < 0.01, *** p < 0.001

8.3.2 Productive consumption hypothesis testing

There is no clear consensus about channelling remittance to the productive or unproductive forms of consumption. We may observe two related approaches that studied topic. First focuses on the general tendency to spend productively in connection to receiving remittances (Strielkowski et al., 2012). Second approach analyses factors influencing probability to spend productively. Aim of this model if to partially merge approaches and presents more conclusive results. For purposes of our study we consider only migrants' answers as representative respondents and not to all family members (whose answers were very limited[65]). We believe that answers of the family representative are sufficiently valid for the whole family and there is no need to artificially increase data sample[66].

Dependent variables of binary response variable models are chosen based on the answers of respondents where they stated how do they spent money remitted from abroad (choice from the sample of numbered possibilities). Question form allowed division of the data into three categories: regular remittances and money saved during migration period used for productive consumption and merger of both categories. Definition of productive spending includes spending into education and business (Massey et al. 2013).

Model construction follows identical steps as previous binary response variable models. Based on the comparative tests and information criteria we have chosen Logit model that offers favourable computation of magnitude of the effect (see Appendix A). McFadden R^2 shows values 38% and 24% corresponding with this type of study. Wald test statistics close to 0 suggest that all variable are jointly significant.

The main variables of interest are showed in the Table 12 in the last three lines and are crucial for identifying nature of the effect. Sending remittances (irrespective on type) increases odds of spending money productively. We see that in some cases are variables significant on the 1% and 5% level of significance. Results therefore confirm validity of hypothesis.

[65] Scope of questionnaire allowed obtaining only basic family information about members of the family. Migrants were asked to answer all relevant questions including family spending behavior.

[66] Respondents were asked to describe spending behavior of the whole family and state types of consumption.

Interesting accompanying effects shows that business ownership increases odds of productive spending only in the case of money brought to Ukraine (not regular remittances). Also, additional family member decreases odds of productive spending (in this case education) only in the case of regular remittances. These findings explicate that regular remittance have significantly lower productive spending potential than money saved and brought to Ukraine.

Probability of productive spending	(1) Remit	(2) Money brought	(3) General
Demographic factors			
Age	0.299	0.330	0.292
	(0.208)	(0.193)	(0.171)
Age2	-0.00307	-0.00253	-0.00266
	(0.00227)	(0.00204)	(0.00188)
Female	0.119	0.159	-0.359
	(0.776)	(0.942)	(0.759)
Household size	-0.0374	0.0170	-0.0858
	(0.252)	(0.252)	(0.225)
Married	-0.265	-1.579	-0.475
	(0.665)	(0.867)	(0.622)
Human capital factors			
Education	-0.124	0.159	0.0121
	(0.0929)	(0.120)	(0.0858)
Trip characteristics			
Wage paid in cash	0.730	1.371	0.525
	(0.868)	(1.332)	(0.754)
With family	0.335	0.0652	0.0707
	(0.667)	(0.817)	(0.651)
Ownership			
Business	-1.169	1.178	-0.0567
	(0.825)	(0.854)	(0.723)
Remittance behaviour			
Remitting	2.307***		1.580**
	(0.670)		(0.543)
Remitting occasionally		2.591***	0.788
		(0.712)	(0.547)
_cons	-7.751	-14.35**	-8.757*
	(4.655)	(4.798)	(3.863)
N	98		
Prob > chi2	0.0000	0.0010	0.0010
Pseudo R2	0.3832	0.2370	0.2370

Table 12: Probability of productive spending model [67]

[67] Results of the regression based on the authors' computation. Note: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

8.3.3 Factors influencing probability of obtaining skilled employment

Procurement of skilled position is considered to be the first step towards the integration in the destination country and in the long term perspective higher probability of economic adaptation within new environment (Massey et al. 2011). Moreover, procurements of skilled position significantly increases probability of higher income that might have (based on the previous regression model) positive impact on the certain types of remittances.

Despite the fact, that majority of migration between the EU countries, Russia and Ukraine are short term (length of the stay does not exceed several months), we believe, that similar effect (with smaller magnitude) can be observed here. We acknowledge that the length of the stay might not be the singular factor of interest. Therefore, we have constructed model inspired by Massey et al. (2011) which was applied on comparison study of Spain and United States. The choice of variables described in the original study has been modified for the scope of questionnaire outcomes. We preserve variables concerning general demographic characteristics (age, gender, marital status) and human capital factors (level of education and ability to speak foreign language). Adjustments made include change of foreign language (English) and new variable household size and procurement of skilled position prior migration. Moreover we enrich variable range with whole new category: Trip characteristics. Trip characteristics consist of length of the stay. Finally we added variable for business ownership which might explained whether prior business experience have positive effect on the position procurement.

Wide range of the data sample collected within the survey might include people that are already retired or very young members of family that are not adults. In order to provide results covering only productive population we have restricted data sample to respondents between 18 and 65 years old as a representative sample with higher potential to undercover probability having skilled employment.

Dependent variable of the model is dichotomous variable gathering information about migrant employment status. If migrant has acquired a skilled position, y=1 and in the reverse case y=0. Classification of skilled position stems from the EU standards described in detail in section 7..

Probability of getting skilled position	(1) Logit	(2) Probit
Age	-0.110	-0.0631
	(0.242)	(0.141)
Age2	0.000173	0.0000893
	(0.00274)	(0.00161)
Female	-0.391	-0.214
	(1.040)	(0.620)
Married	-0.317	-0.104
	(0.928)	(0.530)
Household size	0.279	0.156
	(0.387)	(0.225)
Secondary education	-3.308*	-1.918
	(1.670)	(1.018)
University education	0.674	0.455
	(0.717)	(0.406)
Skilled position before	2.851***	1.662***
	(0.773)	(0.426)
Length of the stay	0.0808	0.0434
	(0.0977)	(0.0570)
_cons	4.698	2.661
	(5.193)	(3.014)
N	69	69
Prob > chi2	0.0001	0.0001
Pseudo R2	0.3661	0.3677

Table 13: Probability of getting skilled position[68]

[68] Results of the regression based on the authors‘ computation. Note: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The model construction consists of initial model setting which was gradually enhanced by new variables inclusion. Decisions about model choice are based on the extended range of measures provided by traditional measures of "goodness of fit" as likelihood ratio or R-squared but also by additional tools and comparison of each model stage using AIC (Akaike Information Criterion) and BIC (Bayesian Information Criterion). Along with likelihood ratios, general significance statistics and value of BIC and AIC, variable describing business ownership was excluded from the model (details in Appendix B). Also significantly high value of estimate for knowledge of foreign langue and high standard error indicate that tests for possible should be provided. We perform test showing measures for tolerance and VIF (variance inflation factor) which could detect possible. Results indicate that low value of VIF (1.14) and value of tolerance (0.7651) close to 1 provides no support presence of multicollinearity. In order to provide robust and valid estimate we excluded variable from the set. The costs of this action were lowering explanatory power of the model and loss of key explanatory variable. Nevertheless, because of low number of observation non-standard and more cautious methods have to be applied. Additional calibration of the model resulted in the variable estimates presented in the Table 13.

Despite relatively low number of observations we have obtained very low P-value for Wald statistics close to 0. Result of this indicator shows that null hypothesis of joint insignificance of variables can be rejected on the 1% level of significance. McFadden or pseudo R2 shows value almost 37%. Other alternative measures shows in average higher values than 37%.

Comparison of Logit and Probit model shows that none of selected variables changes sign. However, coefficient size decreases if Probit model is considered. Despite significant decrease in some variables, there is support for limited robustness of the model up to this extent. Decision about the final model is based on the information criteria and log-likelihood ratios (LR) comparison. Decrease of AIC and BIC by -0.111 and increase of LR by 0.055 offers weak support for Logit model which is easier to interpret than Probit model.

Results of the estimates coefficients provided wide range of information. The content of the model should effectively test whether probability of getting skilled position during migration period is positively influenced by education and associated human capital factors. Therefore, major variables of interest are foreign language knowledge and experience prior migration period.

Question of education generates dissimilar results. Secondary education variable has negative sign which indicates lowering odds of skilled position procurement by

96% [exp(-3.308)=0.036]. Reversely, university degree almost double the odds [exp(0.674)=1.96]. Diversity among human capital result does not have to be inconsistent. The reason might be different labour market saturation in the destination country. Within the EU countries wide range of programs exists that promote labour migration of highly educated people (“brain gain”). Also impact of the economic crisis might saturate labour market with less qualified jobs (medium level of qualification) or higher blue collars positions.

Years of experience are in the model substituted by proxy variable signalling that migrant had skilled position prior migration period. Positive sing of variable is consistent with results by Massey at al. (2011) who obtained similar sing for Spain labour market as destination country. Magnitude of the coefficient shows that it increases odds by [exp(2.851)=17] 16 times. Other outcomes show that length of the stay also increases odds by almost 10%]. Also gender being married women decreases chance by [exp(-0.317-0.391)=0.49] more than half. Consideration of major variables of interest shows that we have confirmed validity of hypothesis.

9 Conclusion

The aim of this thesis was divided into the several tests within which we strived to analyse Ukrainian remittance behaviour in the context of the EU as destination region. Literature stream acknowledges number of studies focusing on the topic of migration and remittances. The scope of their interest includes determination of impacts on the source and destination country and identification of migrants' characteristics. Despite wide range of geographical coverage of the studies we find contradictory effects that differ on both macro and microeconomic level. Inconsistent results provide space for further research that would detect statistical significant direction and magnitude of effects.

A non-negligible role in the development of the European migration has played integration process that during the last 60 years implemented series of freedoms and restrictions that has shaped form of migration into the current state. The main scope of the EU migration policy was focused both to intra-EU migration and enhancement of freedom of movement and to non-EU countries where visa agreements and programs participation dominates. The Central and Eastern Europe region includes countries with intensive frequency of migration. Ukraine has special a position among those countries as state sending and receiving high number of migrants that have significant impact on the EU labour market. Relationship that has been determined both economically and historically.

Methodology of this study stems from the Latin America and Mexican Migration Project realized in cooperation with Douglas S. Massey that analysed remittance and migration behaviour (Massey at al., 2013). Purposes of this thesis was to a merge this approach with its European application (Strielkowski et al., 2012) and provide more detailed analysis of the topic that would explain details of remittance behaviour and would be applicable on the international level.

The first hypothesis tested determinants of remittance behaviour. In two stages model we gradually tested factors influencing probability to remit and amount transferred to Ukraine. Our findings confirm that probability to remit is determined by demographic factors. However, there is difference between remittances regularly send and saving with which migrants return. There is also difference in types of migrants.

Odds of regular remittances increase in the case of older and less educated migrants with larger family that might have undocumented status. Negative sign in “ownership” variables suggest that remittances are not motivated by business financing. Based on the sign of coefficients and their magnitude results speak in favour of altruistic motive of regular remittances.

Further, savings brought back to Ukraine at return journey show different type of effect. Odds of this type behaviour increases with young migrant with small or any family and finished secondary education. However, there is also small impact of income tax withhold suggesting that there is undocumented form of employment present. Variable signs and magnitude also showed that businesses in the source country are more likely to be financed from this form of transfer (with statistically significant results).

Concerning amount of remittances sent, results confirmed above described effect respecting remittances types. Results are mostly consistent with previous finding of Massey at al. (2013) but there is also interesting effect of income suggesting that higher income increases amount of money brought back but not regularly sent remittances. Though, result of the model did not show statistically significant effect.

A policy implication stemming from the first hypothesis should highlight the remittances typology. Results confirm that despite highly developed financial system, informal channels are preferred for money transfer. The reason might be prevailing illegal or undocumented form of employment as seasonal worker.

Some studies suggest that migrants tend to channel remittances into the short term consumption for food and to smoothened long term consumption. Nevertheless, contradicting findings questions validity of the statement. Result of the second hypothesis testing shows that both forms of remittances are mainly invested either as business investment or investment into education (productive spending). Statistical significance of these variables supported by control factors therefore confirms validity of stated hypothesis that: Remittances channelled to the source country are invested into productive forms of consumption.

The third hypothesis goes back to the source of remittances: a procurement of the skilled position that would both provide finances for money transfers and intermediate socio-economic integration of migrant. The model outcomes confirm hypothesis that human capital factors positively influence probability of getting skilled position with limited validity for secondary education. Cause of this effect

might stem from the market saturation and the programs focusing on the employment of highly educated migrants.

Generally we may say that outcome of the models support microeconomic and individual level point of view. Diversity among different subtypes of the one variable confirms that the aggregated macroeconomic dataset might omit important details that after extraction generate contradicting effects. For example: A reverse economic effects of remittances on the source country then might be simply combination of regular and occasional form with different weight. Therefore, migration policy development should not neglect microeconomic effects that have potential to solve aggregate level problems.

Authors acknowledge limitation of this study which is primarily based on the small data sample that allowed construction of models with limited robustness. However, current sample significantly tested methodology and data potential for further research.

Realization of the survey in the Zakarpattya district in Ukraine has tested dimensions of the questionnaire under European conditions. Despite high explanatory power of questions we believe, that questionnaire includes high number of open question that might demotivate respondents to answer. Shift of the type of answers to the numeric values and choice from the possibilities would simplify data processing and increase unified form of the data sample without deterioration of “ethnosurvey” principles.

On the other side high quality of the dataset allowed extending of previous models by division of dependent variable and new findings that would contribute to the migration policy orientation. Methodology and models acquired during realization of this study would contribute to extension of the study to the other European countries. The dimensions of the migration and remittance behaviour have not yet been fully discovered and there is high potential for new and unconventional studies that would analyse two side interactions between countries and other unconventional forms of models.

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Appendix A

Table 9

Correctly classified	83.64
Sensitivity	0.9091
Specificity	0.7273

	Probit	Logit	change
Log-likelihood	-19.49	-19.6	0.107
Chi-square			
LR (df=13/14/-1)	35.034	34.83	0.23
R2			
McFadden	0.473	0.47	0.003
IC			
AIC	70.989	71.202	-0.213
BIC (df=14/15/-1)	103.1	103.31	-0.213

Table 10

Correctly classified	81.82
Sensitivity	55.56
Specificity	94.59

	Probit	Logit	change
Log-likelihood	-34.77	-34.773	-0.171
Chi-square			
LR (df=13/14/-1)	25.157	24.98	0.171
R2			
McFadden	0.36	0.359	0.001
IC			
AIC	76.38	76.56	-0.171
BIC (df=14/15/-1)	108.5	108.67	-0.17

Table 13

	with	without	change
Log-likelihood			
Chi-square	-21.164	-20.929	-0.235
LR (df=13/14/-1)	49.342	49.812	-0.47
R2			
McFadden	0.538	0.543	-0.005
IC			
AIC	70.327	71.857	-1.53
BIC (df=14/15/-1)	101.193	104.928	-3.735

	Logit	Probit	change
Log-likelihood	-29.87	-29.944	0.074
Chi-square			
LR (df=13/14/-1)	34.738	34.59	0.148
R2			
McFadden	0.368	0.366	0.002
IC			
AIC	79.739	79.887	-0.148
BIC (df=14/15/-1)	102.08	102.228	-0.148

Appendix B

Questionnaire design – summary of areas of interest

A. Information on members of the household and other children of the household head not living in the household
B. Marital History of the Household Head
C. Number of children from the spouse
D. Information about each person in the table with migration experience within Ukraine and to EU
E. Information on each person in Table A who has applied for legal residence or citizenship in the EU
F. History of businesses, companies, or other investment-related activities of the household head or the spouse.
G. Labour history of household head since he/she began to work
H. EU migratory experience of household head's family of origin
I. Information on the household head's relatives and friends with migratory experience to the EU
J. Information on current residence and history of other properties owned by household head and spouse
K. Household amenities
L. Vehicles currently owned?
M. Remittances
N. Information about undocumented crossings
O. Information about household head's experience in the EU
P. Information about financial affairs of the head and the spouse during the last trip to the EU
Q. Information about the use of public services in the EU
R. History of household head's current and former agricultural properties
S. Information on cultivation tasks in current land parcels
T. Health of household head & spouse and other migrant