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Bringing Home the Money - What Determines Worker's Remittances to Transition Countries?

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Bringing home the money

What determines Workers' Remittances to Former Socialist Countries

by

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Abstract

Workers' remittances are a major source of external finance in many former socialist countries. While previous studies showed that remittances have a positive impact on economic development, this study focuses on the determinants of remittances. Therefore, dynamic panel-data estimation techniques are applied. Major findings are: Remittances per capita and remittances in percent of GDP are driven by similar factors. In general, remittances are highly persistent and increase with the domestic unemployment rate. A higher GDP per capita as well as a higher degree of international integration of the sending countries' real sector leads to a decrease of remittances. In addition, there seems to evidence that remittances operate as a substitute for a well performing domestic banking sector. Institutional development seems to have no significant influence on the size of remittances. However, remittances per capita increase in times of war. (139 words)

Keywords: remittances, migration, dynamic panel data models

JEL classification: F22, F36, C23

1. Motivation

Transition led to a tremendous increase of all kind of cross-border flows from and to former socialist countries. While there exists a huge literature on the determinants of trade, international capital flows and migration, the analysis of the determinants of workers' remittances to these countries seems to be almost neglected.[1] However, this financial flows amounted for more than 10.8 billion US-dollar in 2003. In many countries remittances are higher than the sum of official aid programs.

Usually, remittances as well as migration are considered as the result of differences in income and productivity between a sending and a hosting country. In general, three strands of literature concerning the macroeconomics of remittances can be detected. One group argues that remittances are similar to other international capital flows, since both kind of cross-border activities lead to higher foreign exchange and induce higher investment in the home country (Djajic 1986, Quibria 1996, Taylor et al. 1996, Taylor 1999). In contrast to this, a second group of authors focus on the adverse effects caused by remittances. Since the economy can spend more than it produces, remittances might lead to "Dutch disease" effects, encourage for future migration, lead to a high dependency of the economy and the families on these kind of financial funds (Martin 1990, Boone 1995). The third group of authors tries to bring together the above mentioned arguments. Glytsos (1997) as well as McCormick/Wahba (2000) showed that the effects of remittances on the home country depend to a high degree on domestic policy, especially concerning the overall investment climate.

Seminal empirical work on the macroeconomics of remittances was conducted by Swamy (1981) who employed a broad set of country specific variables to explain the general patterns of remittances. Recent empirical studies come to the result that remittances have a positive impact on the economy in the home country of the remitter (World Bank 1995; El-Sakka/McNabb 1995; IMF 2005). Focusing on transition countries León-Ledesma/Piracha (2004) show that remittances have a highly positive impact on productivity and employment in the home country. While the consensus of empirical studies on *impact* of remittances on the home country increased during the last years, there is no strong consensus about the *determinants*

of remittances (Buch/Kuckulenz 2004; Buch et al. 2002; Adelman/Taylor 1990; Straubhaar 1986). A comprehensive study concerning the determinants of remittances to transition countries is – to my knowledge – still missing.

Therefore, this paper seeks to fill at least three analytical gaps: First, the study focuses on a broad set of transition countries. Within this setting, the determinants of remittances to 24 former socialist countries during the period of 1990 to 2003 are analyzed (Appendix, table 1). Second, to take advantage of the full information in the data set, panel estimation techniques are employed. Third, since the former socialist countries underwent far reaching legal changes the impact of the general institutional situation as well as the influence of wars is analyzed. Main findings are: The determinants of remittances in percent of GDP (REM 1) and remittances per capita (REM 2) are similar. In general, remittances seem to increase with problems of the domestic economy. There is no specific impact of the quality of the institutional framework on the size of remittances. In addition, remittances per capita increase in times of war.

The paper is organized as follows: in the next chapter, some stylized facts on the size and importance of workers' remittances are presented. Chapter three reconsiders the "theory of remittances". Chapter four outlines the econometric approach. In Chapter five, the empirical results are discussed. In the conclusion, findings are summarized and some policy recommendations are developed.

[1] Conceptually, workers remittances are defined to be transfers that migrants return to their home country.

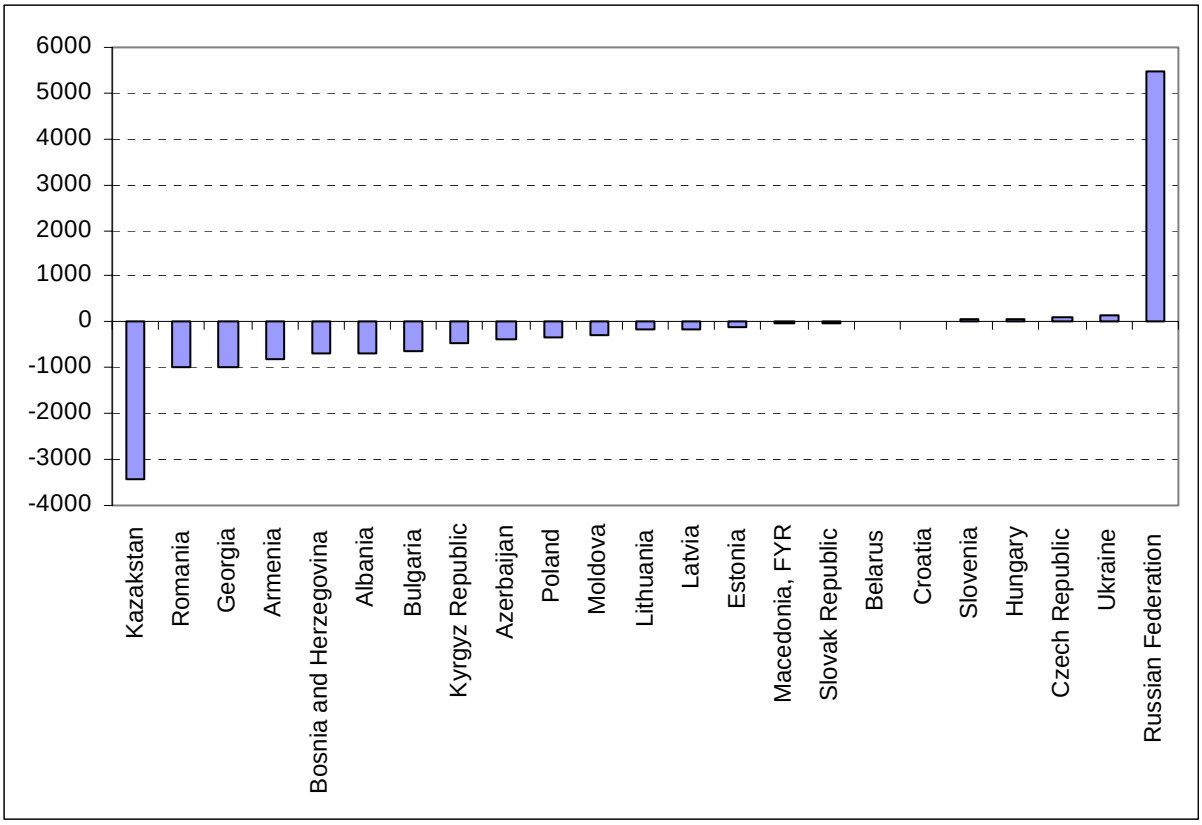
2. Stylized facts

In times of the socialism, migration to Western countries was very difficult while migration within the Eastern bloc was comparable easy. After the collapse of the socialist system, migration from transition countries followed different patterns. First, between 1991 and 1992 migration was primarily consisting of minority ethnic groups; this type of the migration was *permanent*.[2] Second, from 1993 many host countries started to introduce more restrictive policies. This was often accompanied by facilitating seasonal work and subcontracted employment.[3] Third, in the mid of the 90ies was an active asylum policy for refugees from former Yugoslavia – with the perspective to repatriate these people in times of peace. Taking these different patterns into account it can be said, that over time the incentive for *temporary* movement increased, while the incentive for *permanent* migration decreased. Nevertheless, in the years 1990-2000 most of these countries reported a negative net migration (figure 1). The important exception is the Russian Federation which shows a high positive net migration figure. This is at least partly due to considerable migration from other former Soviet republics, which seems to follow three rules: (1) forced migration from areas with ethnic or civil war, (2) post-Soviet repatriation of ethnic Russians to Russia and (3) economic reasons (Codagnone 1998).

[2] These flows were mainly directed to Germany, Finland, and Turkey. Turkey took a little more than 300000 Bulgarians of Turkish origin.

[3] For instance, the agreement between Poland and Germany meant that there were nearly 200000 seasonal and about the same number of temporary contract workers employed in Germany in 1999.

Figure 1: Net Migration (1990-2000), in thousands



Source: The World Bank. World Development Indicators CD ROM 2005. Own calculations.

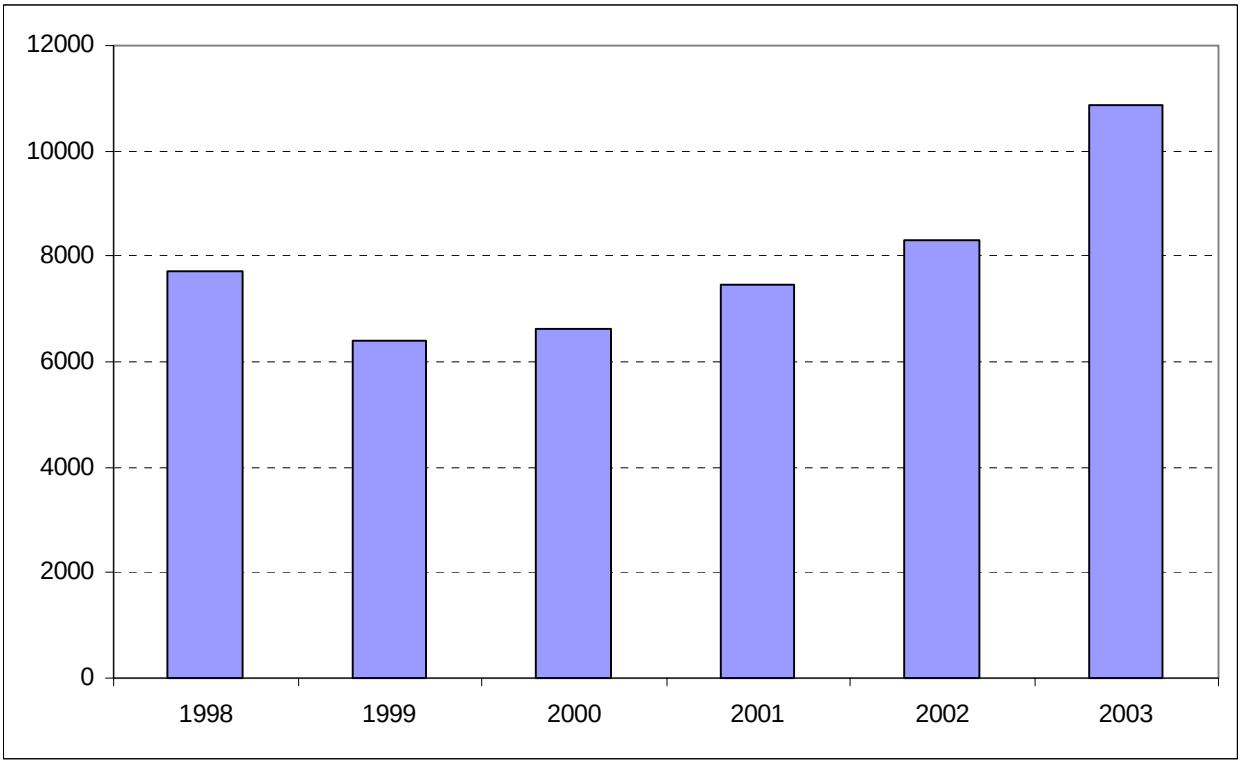
While workers' remittances and migration are strongly linked, they are not totally correlated. Furthermore, while migration streams have matured of time workers' remittances increased. Workers' remittances are transfers from a citizen living abroad to the home country. Therefore workers' remittances appear in the current account of the balance of payment system and are conceptually part of the gross national product.[4] In general, the International Monetary Fund distinguishes between three categories of migrants' transfers: (1) workers' remittances, from workers living abroad for more than one year, (2) compensation of employees, from workers living abroad less than one year and (3) migrants' transfers, which reflect the migrants' claims on residents of an economy. The most important data source for workers' remittances are the Balance of Payment Statistics (BoP) published by the International Monetary Fund and the World Development Indicators (WDI) dataset available by the World Bank (for details see Appendix, table 2).

[4] Despite the fact that remittances, as money earned abroad by nationals, are part of Gross National Product they are, however, only rarely reported and published in the SNA statistics.

In 2003, official remittances to the 24 transition countries under consideration (Albania, Armenia, Azerbaijan, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Georgia, Hungary, Kazakhstan, Kyrgyz Republic, Latvia, Lithuania, Macedonia, Moldova, Poland, Romania, Russian Federation, Serbia and Montenegro, the Slovak Republic, Slovenia, Ukraine)[5] amounted for more than 10.8 billion US-dollar. Reported remittances over the period 1992-2003 were above 71.4 billion US-dollar.[6]

Figure 2: Remittances to transition countries

US-DOLLAR million



Source: The World Bank. World Development Indicators CD ROM 2005. Own calculations.

All in all, we have to bear in mind that these figures only represent the official data. Remittances are relatively difficult to measure, since migrants send money back to their country of origin in a variety of ways. This might be also due to the fact of high

[5] While these countries share the past as a socialist economy nowadays eight of them joined the European Union (Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic, Slovenia).

[6] Some of these countries report official remittances only since 1998.

transaction costs[7] and strong regulations. According the information of Western Union now, sending 100 Euro from Germany leads to a general transfer fee of 14.50 Euro, and therefore of 14.5%. (for details see box 1). As other emerging economies transition countries have well-designed informal channels through which earnings and transfers in kind might reach the home country of the migrant.[8] Therefore it can be assumed that official figures tend to underestimate the real size of remittances, consequently remittances reported in the balance-of-payments statistics have to be considered as a minimum level.[9]

Despite these general data problems, official figures indicate, that remittances are increasing over time. Nevertheless, the magnitude of remittances differs widely among the countries under consideration. Table 1 shows that in nominal terms, within the group of the transition countries the Russian Federation is the most important recipient of remittances, followed by Bosnia and Herzegovina. It seems to be noteworthy, that within the group of the ten biggest recipients there are four new member states of the EU: Poland, the Czech Republic, Slovenia and Hungary. Nevertheless, remittances measured in nominal terms give only first insights concerning the importance of these cross-border transfers for a given country. More meaningful are the remittances per capita. In 2003, by far the highest per capita remittances where received in Bosnia/Herzegovina, Albania, Croatia and Slovenia. These are countries which were - directly or in the case of Albania indirectly[10]- hit by civil war following the collapse of the former Yugoslavia.

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7 Involving both explicit fees and exchange rate spreads.

8 Anecdotal evidence suggests that incentives such as tax exemptions or preferential credits for migrants may affect significantly the share of remittances sent through the banking system (official remittances). IMF (2005): World Economic Outlook. p. 83.

9 Estimations of the size of these informal transfers are difficult. A recent IMF study on the size of workers' remittances comes to the result that worldwide informal remittances reach the amount of around 10 billion US-dollar per annum (El-Qorchi, Maimbo and Wilson 2002). To tackle the data problems a joint working group of the IMF and the World Bank started in January 2005 with a focus on the measurement problems concerning workers' remittances.
http://www.worldbank.org/data/remittances.html#s1.

10 Concerning the specifics of Albania see Korovilas (1999).

Table1: Workers' Remittances in 2003

	Remittances in mill. US-dollar		Remittances per capita in US-dollar
Poland	2314	Bosnia and Herzegovina	285
Russian Federation	1453	Albania	281
Serbia and Montenegro	1397	Croatia	241
Bosnia and Herzegovina	1178	Serbia and Montenegro	172
Croatia	1069	Slovenia	128
Albania	889	Moldova	110
Czech Republic	500	Macedonia, FYR	83
Moldova	465	Slovak Republic	79
Slovak Republic	425	Latvia	74
Ukraine	330	Poland	61

Source: Wordbank: World Development Indicators. CD ROM 2005. Own calculations.

The dependency of a country on remittances can be measured in terms of GDP and exports. Table 2 shows that the group of the top ten remittances-depending countries is dominated by the successor states of the former Soviet Union and former Yugoslavia. By far the highest dependency on remittances, measured in percent of GDP, was reached in Moldova. Here, remittances amounted for more than 20 per cent of GDP, a figure which is extraordinary high, even in international comparison. Measuring the dependency of the domestic economy on remittances in terms of exports of goods and services the picture changes only a little bit. Furthermore, there seems to be evidence that remittances are most important for relatively small economies with a low income level. Especially in countries belonging to the Commonwealth of Independent States (CIS) as well as in former Yoguslavian countries remittances of labour migrants are a critical component of income.

Table 2: Economic Dependency on Remittances 2003

	Remittances in percent of GDP		Remittances in percent of exports
Moldova	23.7	Albania	76.2
Bosnia and Herzegovina	16.9	Bosnia and Herzegovina	66.9
Albania	14.5	Moldova	44.1
Serbia and Montenegro	6.7	Serbia and Montenegro	35.2
Georgia	6.2	Georgia	19.4
Armenia	6.0	Armenia	18.8
Kyrgyz Republic	5.7	Kyrgyz Republic	14.9
Croatia	3.7	Macedonia, FYR	9.7
Macedonia, FYR	3.7	Croatia	7.9
Azerbaijan	2.4	Azerbaijan	5.6

Source: Wordbank: World Development Indicators. CD ROM 2005. Own calculations.

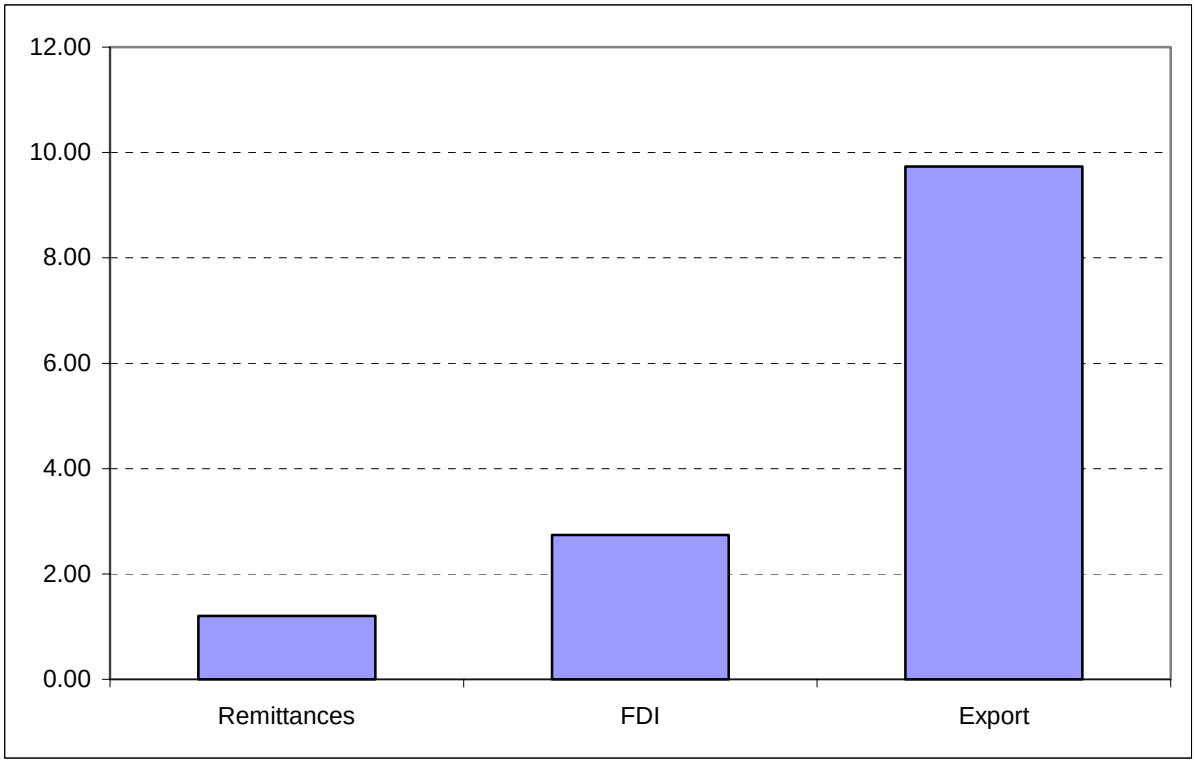
Table 3: Remittances, FDI and official aid 2003

	Remittances in percent of of FDI (net)		Remittances in percent of official aid
Moldova	796.6	Croatia	886.5
Albania	499.3	Belarus	507.2
Bosnia and Herzegovina	308.6	Moldova	398.8
Kyrgyz Republic	237.1	Slovenia	386.8
Macedonia, FYR	181.4	Slovak Republic	265.9
Armenia	139.4	Albania	259.7
Serbia and Montenegro	100.1	Bosnia and Herzegovina	218.7
Belarus	95.1	Poland	194.2
Lithuania	81.0	Czech Republic	189.9
Slovak Republic	79.3	Latvia	150.4

Source: Wordbank: World Development Indicators. CD ROM 2005. Own calculations.

Since remittances are a significant source of income in many countries, in several economies the amount of inward remittances is higher than that of official aid programs and FDI inflows (table 3). In addition, the investigation of the volatility of reported remittances shows that this kind of cross-border flows is relatively stable. They do not show the relatively high volatility which is usually associated with private capital inflows as FDIs and exports (figure 3).

Figure 3: Volatility* (1992-2003)



*Volatility is measured as the standard deviation of the ratio of the relevant inflow to GDP.
Source: World Bank: World Development Indicators. CD ROM 2005. Own calculations.

Box 1

The oldest method to send remittances is sending the money by a courier. Nowadays, there exist several ways to transfer the money to the home country. International money transfer companies, which are usually considered as non-bank financial institutions, are specialized on this task. The fees to send money abroad usually depend on the amount: In the case of sending money from Germany – one important hosting country for migrants from former socialist countries -, Western Union takes a fee of 8.5 Euro for amounts to 40 Euros, for amounts to 75 Euros a fee of 10 Euros, to 145 Euros a fee of 14.50 Euros, for amounts to 215 Euros a fee of 19 Euros, for amounts to 290 Euros a fee of 23 Euros, for amounts to 360 Euros a fee of 26.5 Euro, for amounts to 540 Euro a fee of 30 Euro, for amounts to 720 Euros a fee of 33.5 Euros, for amounts to 895 a fee of 39 Euros and for amounts to 1075 Euros a fee of 42.5 Euros. However, the upper limit for sending money with Western Union to these countries is 1000 Euro. While these fees are the same concerning all the transition countries under consideration, big cost differences emerge due to considerable exchange rate spreads. In 2001, Western Union realized around 13 percent of its totally revenue in Eastern Europe.
http://www.reisebank.de/sixcms/detail.php?id=1036&_lang=de.

3. The Economic Rational of Remittances

There is a huge theoretical literature focusing on the motives of migrants to remit money to their relatives in there home country. Most of these studies use a microeconomic approach. Seminal theoretical work on remittances was done by Lucas and Stark (1985; Stark and Bloom 1985; Stark 1991), who interpreted the phenomenon of remittances in the context of the new economics of labor migration (NELM), and therefore with respect to contract theory. In this context, the decision on migration and remittances is part of the overall family/household decision making process. In general, these models argue on the base of an implicit insurance scheme between the migrant and future remitter and the household of origin. Furthermore, these models usually explain that the household owns uneducated and a certain share of well educated labour; it is assumed that non-educated labour can only be offered at home. Therefore, only an "inner-group" of the household is considered as to be able to earn money abroad. Nevertheless, since well-educated labour can also be offer on the domestic market, the household has to decide whether a member migrates or not. The families engage in education and sending costs, while the migrants share their income with their family left in the sending country. From a life-cycle perspective remittances decline with the length of the stay of the migrant in the foreign country and tend to decline with the decision of the migrant to settle down in the host country. According to these theoretical considerations migrants play an important role as financial intermediaries by providing the sending family financial resources and offering income insurance. While Lucas and Stark argue within a unitary household model, other authors try alternative ways of conceptualizing the household decision making on migration and remittances (Hoddinott 1994, Posel 2001). Katseli/Glytsos (1986) distinguish between "required" and "desired" remittances. While required remittances are based on intrafamily obligations; the latter can be explained as a part of the portfolio choice of the migrant. Therefore, the performance of the domestic financial sector seems to be an important factor concerning the size of remittances. Building on the idea of an intrafamily loan contract developed by Stark, Poirine (1997) considers the family as an informal financial market with an implicit financial contract and finds explanations for self-interest motivations to remit. Three phases of the contract can be distinguished: First, the family invests into the future migrant. Second, the migrant remits a significant

amount to play back the implicit loan. Third, before returning to their home country the migrant invests the own accumulated capital into the domestic economy and therefore increases the size of remittances. In the case of permanent migration remittances decrease over time. All in all, these microeconomic theoretical models emphasize the impact of the income situation of the household, the costs of migration and the performance of the financial sector in the domestic economy on the amount and size of remittances.

In comparison to the microeconomic literature the theoretical literature on the macroeconomics of remittances, especially on the determinants of remittances is much less rich. Nevertheless, three types of models can be detected. First, there is a class of models arguing that remittances have a positive impact on the domestic economic development since they provide a fund for higher savings and foreign exchange. Within this framework remittances are often considered as to perform similar functions as other international flows and thus to broaden the base for economic development (Connell/Conwey 2000). This again might have a positive impact on investment; the catching-up process of a given emerging economy will be faster. A second strand of literature focuses on the adverse effects of remittances. These studies show that a high dependency on remittances might decrease the incentives for a sufficient domestic economic policy. Furthermore, worker sending countries might get accustomed to these additional funding (Martin 1990). The incentives for creating an efficient domestic institutional framework, which enables the economy for catching up might be decreasing. Furthermore, there might be a continuing trend for substituting a sufficient economic policy by higher future migration. In addition, “Dutch disease” effects might occur. A third strand of literature tries to bring together the pro and cons mentioned above. Since remittances influence investment and growth in many ways, directly and indirectly, these studies clearly show that the impact of remittances on the domestic economy highly depend on the domestic policy (Glytsos 1997; McCormick/Wahba 2000).

Summing up, the theoretical literature comes to the result that the size of remittances is depending as well as on subjective as on more general, objective factors. Concerning the subjective factors the duration of the stay, the skills and earnings of the migrant as well as the economic situation of the family of origin might play a crucial role. Concerning the objective factors, macroeconomic conditions in the home country might be important. Especially, the he average income level and the

unemployment rate seem directly and indirectly effect the situation of the household of origin. In addition, remittances are often considered an instrument to overcome constraints and market failures in the domestic financial sector.

4. Econometric Issues and Modelling

Two significant problems arise when the determinants of remittances are investigated empirically. First, the share of remittances to GDP might be rather persistent, i.e. the current values might on the past values. Therefore, a dynamic model specification is required. Second, it is very likely that many of the explanatory variables are determined jointly with the dependent variable. To tackle these issues dynamic panel data models using the first-differenced GMM estimator are estimated in this study (see Arellano/Bond 1991). This estimation procedure provides a framework that enables us to deal explicitly with the problem of potential endogeneity of explanatory variables using a set of appropriate instrument variables.

Therefore, throughout this study, we estimate dynamic panel data models of the form

(1) $$rem_{it} = \alpha + \beta_1 rem_{i,t-1} + \beta_2 x_{it} + \nu_{it},$$

rem_{it} denoting the share of remittances to GDP, x_{it} the set of potential explanatory variables, ν_{it} a white-noise disturbance term, and i and t denoting country and time period, respectively with β_i and α as estimation coefficients.[11] For each model, the validity of the instrument variables is checked using the Sargan test of over-identifying restrictions (see e.g. Arellano/Bond 1991). The hypothesis being tested with the Sargan test is that the instrumental variables are uncorrelated to some set of residuals, and therefore they are acceptable, healthy, instruments. The model specification is confirmed if the null hypothesis, stating that the instruments are valid, cannot be rejected. Furthermore, since the consistency of the GMM estimator depends upon the assumption that the disturbance terms are not serially correlated, we always check for this, exploiting the fact that if the disturbance terms are serially correlated, we will detect second-order serial correlation in the first-differenced residuals. The lack of second-order serial correlation in the differenced residuals

[11] Other recent estimation approaches such as the Pooled Mean Group Estimation (Pesaran/Shin/Smith 1999) which allow for a higher degree of heterogeneity across countries, require that the number of time series observations be large enough that the

therefore indicates that the disturbance terms are serially uncorrelated.[12] The dynamic specification is required to assure that the parameters of interest can be identified and precisely estimated (see Bond 2002). Then, insignificant variables are excluded from the initial model step by step until a "core" specification is achieved, which is called the baseline model. Finally, additional potentially relevant variables are checked one by one to see whether they fit into the model.

To analyze the determinants of remittances two dependent variables are defined: the inflow of remittances into country i over GDP and remittances per capita. The remittances to GDP ratio can be considered as the dependency of the country on remittances. The remittances per capita might give some insights on the dependency of the population on this kind of financial flows. Since the paper concentrates on the situation in the country of origin the set of independent variables includes

- **Lagged remittances**. Since the share of remittances to GDP seems to be relatively stable and rather persistent. Since the current value might depend on the past value, thus, a dynamic model specification is used to test for this.
- The general economic situation in the home country is captured by **GDP per capita**, which is a proxy for income level. Microeconomic studies show that negative shocks to output, employment, and wages in the home country may encourage migrants to send more remittances. Since a higher level of domestic income makes remittances to support relatives less necessary, a negative sign is expected.
- The Domestic labor market situation is covered by the **unemployment rate**. Unemployment is used as an indicator for tensions on the domestic labor market and uncertainty concerning wage income. High unemployment rates give an incentive to migrate and may be also to return money to the home country. Therefore a positive sign is expected. In addition the female labour market participation rate is taken to check for the general access of women to the labour market in the domestic country. Thereby it is expected that a higher female labour market participation rate and therefore a better access of women to the labour market is accompanied by lower remittances.

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model can be estimated for each country separately. This cannot be applied to our short panel.

- The **openness** of a given economy and its international integration is measured by the standard indicator, the sum of exports and imports over GDP. A higher degree of international integration of the real sector makes the export of labor forces - which is a precondition for remittances - less attractive. Therefore, a negative sign of this variable is expected.
- The future perspectives of the economy are mirrored in the **growth rate** per capita. Since economic growth might increase the incentive for investment in the home country a positive sign is expected.
- Remittances might be caused by the lack of domestic credit and the weakness of the domestic banking sector. Therefore, the variable **domestic credit to the private sector in percent of GDP** as well as the variable **spread** defined as the difference between lending and deposit rate are taken to capture the performance of the domestic banking system. Since remittances are often considered as to be substitute for formal credit, to soften the budget constraint of the household of origin and to offer an additional source of funding, it is assumed that the sign of the variable credit to the private sector is negative. In addition, the spread between lending and deposit rate is considered as an indicator for transaction costs and efficiency in the banking sector. As higher these "sunk" costs as lower the performance of the banking sector. A lower performance of the banking sector - reflected in higher transaction costs - are expected to lead to higher remittances.
- In addition, two variables concerning general institutional situation of the countries are employed. First, since many of these countries were hit by major wars, a dummy variable controls for the influence of such far reaching conflicts on remittances. The variable "**war**" takes the value of 1 for the years of war and for the first two years in the post-war period and the value of zero otherwise. It is assumed that in times of war a higher amount of remittances is transferred to the country. Second, the quality of the institutional framework is an appropriate indicator was constructed using the data of the EBRD transition report, by calculating the average of the EBRD transition index on enterprise reform, competition policy, banking sector reform and reform of non-bank financial institutions. In general, the index for **institutional development** runs

[12] Since in small samples, like our data set, the two-stage GMM estimator may have poor properties here going in line with the existing literature the more stable first-stage estimator

from 1 to 4.5. As higher the figure, as better the institutional framework. Nevertheless, the influence of the institutional framework on the size of remittances is not clear cut. This is due to the fact that with a better institutional framework the remittances based on the existence of market failures might decrease, while remittances caused by portfolio allocation considerations might increase.

The dependent variable and most of the explanatory variables are taken in logs, and the resulting coefficients can thus be interpreted as elasticities. A coefficient of, say, 0.6 on one of the logged explanatory variables (such as per capita GDP) would imply that a 1% increase in this variables would trigger a 0.6% increase in the dependent variable (such as remittances to GDP). In the baseline regression, lagged remittances, per capita GDP, the unemployment rate and the openness indicator are included. The general dataset covers the years 1990 to 2003 (for details see Appendix). Nevertheless, since two observations are lost because of the use of internal instruments for the endogenously determined variables, therefore the estimation sample is called ‘adjusted sample’.

is used.

5. Macroeconomic Determinants of Remittances – Econometric Results

The main findings are: The determinants of remittances in percent of GDP (REM 1) and remittances per capita (REM 2) are similar. Remittances seem to increase with problems of the domestic economy. There is no significant impact of the quality of the institutional framework on the size of remittances. While there is no evidence that remittances in percent of GDP are affected by war, remittances per capita increase in times of war and conflicts.

In general, according to the estimation results remittances in percent of GDP as well remittances per capita seem to be very relatively persistent and stable over time. This fact is reflected in the coefficient for the lagged dependent variable which is 0.5 for remittances in percent of GDP and 0.66 for remittances per capita (table 4 and 5). The relatively high degree of persistence of remittances can be explained by the long-lasting character of intra-family relationships and habits. These findings are in line with the theoretical literature focusing on the motives of the remitter. Usually, it is assumed that there exists a long-term binding relationship between the remitter and the family of origin.

Nevertheless, remittances depend not only on the intra-family relationship but also on general settings in the economy. According to the baseline model remittances decrease with the per capita GDP. A rise in per capita GDP by 1 percent leads a decrease of REM 1 by approximately 0.8 percent. The short-term effect of this income level variable is nearly the same for REM 2, nevertheless the coefficient is lower (0.6). However, the long term impact of per capita GDP differs between both variables: an increase in per capita GDP is associated with a decrease of remittances per capita GDP and an increase of remittances per capita – an effect, which can be attributed to the algebra. In general, the finding that remittances decrease with the GDP is important, since it indicates that remittances might be considered as a substitute for an efficient domestic policy concerning sustainable growth.

Furthermore, one of the major motives for migration might be a high unemployment rate in the domestic economy. But is it also a motive for sending remittances? Since the estimation results reported in the baseline regression show a positive sign concerning both dependent variables, REM 1 and REM 2, it can be stated that the

labor market situation in the sending country influences the size of remittances. In the short-run an increase of the domestic unemployment rate by 1 percent leads to an increase of REM 1 by 0.22 and of REM 2 by 0.29 percent. In the long-run this effect is much higher, increase of unemployment by 1 percent leads to an increase of REM 1 by 1.3 percent and to an 0.7 percentage increase of REM 2. In contrast to the variable “unemployment” the variable “female labor participation rate” is totally insignificant. This result can be explained by the fact that typically in former socialist countries the female labor participation rate is relatively stable.

In the literature remittances are often considered as a substitute for international integration of the real economy. In other words, it could be a governmental strategy to compensate a low international integration of the markets for goods and services by increasing the incentives for migration and remittances. Therefore, to analyze the impact of international integration on remittances the openness indicator is employed. Indeed, there seems to be evidence, that with an increasing degree of openness and therefore with a higher degree of integration into the international markets for goods and services the size of remittances decline. All in all, the results of the baseline model support the hypothesis that a high share of remittances goes in line with a high dependency on this kind of financial flows, a low income level in the home country of the remitter, high unemployment and a low integration of the real sector into international markets. These findings can the interpreted in the way, that the lack of a sufficient domestic development strategy might increase the incentives for migration and remittances.

In addition to the baseline model explained above, the influence of several factors which might influence the size of remittances are checked. Remittances might be not only caused by the recent development but also by the perspectives of the economy. Here, the growth rate is considered as to be a well designed indicator for the economic perspectives. Indeed, this variable shows a positive sign. However, according to estimation results growth has only is a comparable very small effect on remittances in the short-run. Furthermore, there is no long-run effect of growth on remittances in percent of GDP; the coefficient is zero. Nevertheless, a slightly positive long-term effect of growth on remittances per capita can be reported.

A well functioning domestic financial market makes interfamily loans and payment schemes less necessary. Therefore, the access to financial resources as credits as well as the transaction costs in the financial sector might be important factors

concerning the behavior of potential remitters. According to the estimation results there seems to be evidence that the performance of the financial market indeed affects the size of remittances. A higher share of private credit to GDP, which reflects a better access to domestic credit of the private sector leads to a decrease in remittances. Higher transaction costs in the domestic banking sector go in line with the reverse effect, they are accompanied by an increase in remittances. These findings support the view, that remittances at least partly operate as a substitute for a well performing domestic banking sector.

The institutional setting of the economy is also considered as to be important for the size of remittances. Here, we check for the impact of war and of the general institutional development. In general, the institutional conditions seem to be less important concerning remittances. Furthermore, the dummy variable “war” clearly shows that there is no significant influence of these conflicts on remittances per GDP. Nevertheless, there is evidence that remittances per capita increase during times of war. The effect of the institutional development on remittances is captured by the construction of an indicator based on the transformation indices offered by the EBRD. According to the estimation results there can no significant influence of the institutional development on the size of remittances be detected.

Table 4: Results - Dependent variable: Remittances/GDP

	1	2	3	4	5	6
Dependent variable: Remittances/GDP						
Lagged remittances	0.50 (6.41)***	0.45 (5.50)***	0.42 (4.47)***	0.48 (5.60)***	0.50 (6.35)***	0.51 (6.42)***
GDP per capita	-0.78 (-2.08)**	-1.22 (-2.70)***	-1.02 (-1.52)*	-0.79 (-1.84)**	-0.71 (-1.79)**	-0.76 (-1.97)**
Lagged GDP per capita	0.61 (2.30)**	1.06 (2.76)***	0.17 (0.44)	0.55 (1.87)**	0.63 (2.30)**	0.60 (2.23)**
Unemployment	0.29 (2.16)**	0.25 (1.88)**	1.65 (4.25)****	0.31 (2.26)**	0.30 (2.16)**	0.29 (2.14)**
Lagged unemployment	0.34 (2.72)***	0.34 (2.75)***	0.35 (2.80)***	0.34 (2.62)***	0.36 (2.77)***	0.34 (2.65)***
Openness	-0.81 (-1.72)**	-0.86 (-1.79)**	-0.84 (-1.17)	-0.65 (-1.27)	-0.83 (-1.73)**	-0.80 (-1.65)**
Lagged openness	-0.57 (-2.02)**	-0.54 (-1.97)**	-0.49 (-1.47)**	-0.54 (-1.74)**	-0.57 (-2.01)**	-0.56 (-1.95)**
Growth		0.01 (1.77)*				
Lagged growth		-0.01 (-1.29)**				
Transaction costs in the domestic banking sector			0.19 (2.36)***			
Credit to the private sector				-0.15 (-1.39)**		
War					0.06 (0.62)	
Institutional development						0.56 (0.40)

Constant	0.05 (2.31)**	0.05 (2.43)***	0.13 (3.36)***	0.05 (2.33)**	0.05 (2.17)**	0.05 (2.19)**
Number of observation	141	141	88	137	141	141
Sargan Test	63.38 (0.8676)	64.73 (0.9871)	43.97 (0.9991)	72.42 (0.6264)	63.76 (0.8600)	65.27 (0.8273)
AR (1) Test	-2.41 (0.0161)	-2.18 (0.0294)	-1.18 (0.2371)	-2.35 (0.0190)	-2.47 (0.0137)	-2.42 (0.0154)
AR (2) Test	-0.83 (0.4049)	-0.73 (0.4634)	0.18 (0.8585)	-0.63 (0.5280)	-0.85 (0.3973)	-0.81 (0.4171)
Model settings						
Transformation used	First differences					
Level instruments	GMM GDP per capita (lag 2, 3), GMM Unemployment (lag 2), GMM Openness (lag 2,3), GMM Growth (lag 2,3)					

Notes: t-values in brackets.

*, ** and ***: significant at the 10%, 5% and 1% level.

Table 5: Results - Dependent variable: Remittances per capita

	1	2	3	4	5	6
Dependent variable: Remittances per capita						
Lagged remittances	0.66 (9.24)***	0.54 (7.71)***	0.61 (7.60)***	0.64 (8.42)***	0.65 (9.01)***	0.59 (8.53)***
GDP per capita	-0.57 (-1.28)*	-0.53 (-1.30)*	-0.92 (-1.13)	-0.36 (-0.69)	-0.46 (-1.02)	-0.32 (-0.77)
Lagged GDP per capita	0.85 (2.98)***	0.79 (3.26)***	0.64 (1.52)*	0.75 (2.42)***	1.01 (3.38)***	0.86 (3.15)***
Unemployment	0.21 (1.39)*	0.22 (1.59)*	1.78 (3.43)***	0.22 (1.47)*	0.24 (1.55)*	0.23 (1.58)*
Lagged unemployment	0.33 (2.37)***	0.22 (1.64)**	0.36 (2.22)**	0.26 (1.89)**	0.36 (2.56)***	0.24 (1.80)**
Openness	-1.27 (-2.53)***	-1.16 (-2.42)***	-1.80 (-2.34)***	-1.48 (-2.55)***	-1.34 (-2.67)***	-0.98 (-2.02)***
Lagged openness	-0.42 (-1.37)*	-0.64 (2.47)**	-0.60 (-1.63)**	-0.46 (-1.42)*	-0.47 (-1.53)*	-0.67 (-2.49)***
Growth per capita		0.01 (1.52)*				
Lagged growth per capita		0.005 (1.75)**				
Transaction costs in the domestic banking sector			0.15 (1.97)**			
Credit to the private sector				-0.17 (-1.35)*		
War					0.24 (1.79)**	
Institutional development						0.15 (0.94)

Constant	0.04 (1.63)*	0.03 (1.22)		0.03 (1.40)*	0.04 (1.76)**	0.02 (0.79)
Number of observation	141	140		137	141	140
Sargan Test	37.45 (1.000)	43.81 (0.9992)		48.34 (0.9957)	34.35 (1.000)	45.89 (0.9981)
AR (1) Test	-2.93 (0.0034)	-2.79 (0.0053)		-3.05 (0.023)	-3.14 (0.0017)	-2.79 (0.0052)
AR (2) Test	-0.62 (0.5326)	-0.73 (0.4642)		-0.46 (0.6450)	-0.61 (0.5392)	-0.52 (0.6010)
Model settings						
Transformation used First differences						
Level instruments	GMM GDP per capita (lag 2,3), GMM Unemployment (lag 2), GMM Openness (lag 2,3), GMM Growth (lag 2,3)					

Notes: t-values in brackets.

*, ** and ***: significant at the 10%, 5% and 1% level.

6. Conclusions

After the collapse of socialist system remittances to transition countries increased tremendously. However, there are remarkable differences between the transition countries. In 2003, the top ten remittances receiving countries were Poland, the Russian Federation, Serbia and Montenegro, Bosnia and Herzegovina, Croatia, Albania, the Czech Republic, Moldova, the Slovak Republic and the Ukraine. Measured in percent of GDP, the highest dependency on remittances was reported in Moldova, Bosnia and Herzegovina, Albania, Serbia and Montenegro and Georgia.

Focusing on the determinants of workers' remittances the main findings of the study are: Remittances to former socialist countries are driven to by a very large extent by factors which are not favorable for the sending economy. It can be said that the size of remittances is positively affected by former remittances, unemployment and a low performing domestic banking sector. The impact of growth and therefore of economic prospect on remittances is rather small. In addition, remittances per capita increase in times of war. However, remittances are negatively affected by the income level and the degree of international integration of the real economy. All in all, it can be concluded that remittances are not driven and positively affected by institutional and economical progress. Furthermore, remittances tend to increase with the problems of the economy.

The great majority of the transition countries are still in their infancy as market economies. Many of them have undertaken enormous efforts in terms of privatization, enterprise and bank reforms, competition policy, and price and trade liberalization, and most of them have been rewarded with substantial economic growth rates in recent years. According to results of this study it can be assumed that remittances, measured in percent of GDP as well as remittances per capita will decrease during a successful catching-up process. This is an important information and a challenge for any government. Declining remittances might induce ceteris paribus a decline in demand and therefore dampen economic dynamics. One way out of this dilemma could be the better integration of the real sector into the international markets. Therefore the WTO membership would be an important step. While some transition economies - especially the new EU members and candidates - already joined the World Trade Organization, several other former socialist countries are still in the

progress of negotiations. An acceleration of this process could facilitate the international integration of the domestic economy. In addition, the government should increase the incentives for FDIs. Therefore, the creation of sound investment climate and the implementation of a stable, well designed institutional framework is necessary.

However, this paper is only a first attempt to analyze the role of return migration and remittances in the development process of transition countries. A natural extension of this study would be the analysis of the determinants remittances based on data from the hosting countries.

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Appendix

Table 1: Country Set

Albania	Czech Republic	Lithuania	Slovak Republic
Armenia	Estonia	Macedonia. FYR	Slovenia
Azerbaijan	Georgia	Moldova	Ukraine
Belarus	Hungary	Poland	
Bosnia and Herzegovina	Kazakhstan	Romania	
Bulgaria	Kyrgyz Republic	Russian Federation	
Croatia	Latvia	Serbia and Montenegro	

Table 2: List of Data Sources

Data	Source
Aid	World Bank, World Development Indicators
Credit to private sector (% of GDP)	World Bank, World Development Indicators, International Monetary Fund, International Financial Statistics
FDI	World Bank, World Development Indicators
Female Labour Force Participation Rate	World Bank, World Development Indicators
GDP per capita	World Bank, World Development Indicators
Growth rate	World Bank, World Development Indicators
Openess	World Bank, World Development Indicators, International Monetary Fund, International Financial Statistics
Population	World Bank, World Development Indicators, national statistics
Remittances	World Bank, World Development Indicators, International Monetary Fund, Balance of Payments Statistics
Spread	World Bank, World Development Indicators, International Monetary Fund, International Financial Statistics, national statistics
Transition indicator	European Bank for Reconstruction and Development, EBRD Transition Report, own calculations
Unemployment	World Bank, World Development Indicators, national statistics, EBRD Transition Report
War	National documentation, own calculation