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Macroeconomic Analysis of Causes and Effects of Remittances: A Panel Model of the SEE Countries and a Case Study of Serbia

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MACROECONOMIC ANALYSIS OF CAUSES AND EFFECTS OF REMITTANCES: A PANEL MODEL OF THE SEE COUNTRIES AND A CASE STUDY OF SERBIA

The main purpose of this paper is to use econometric modelling in explaining the determinants and main effects of remittances on development and poverty alleviation in the Southeast Europe (SEE), and especially to test the impact of European Union enlargement policy through migration and remittances. This task is made more difficult by the fact that, in case of migration, the SEE is not a clear-cut policy taker. On the one hand, it is difficult to distinguish the differentiated policies or regime changes throughout the EU and towards different SEE countries in different time periods. On the other hand, even in case of strong EU regulations, emigration from different countries is subject to various influences, and estimation of real migration and its main factors can be very inaccurate.

Since the data on migration are very scarce and unreliable, our attention will be focused on financial remittances, developing a new compiled monthly series of remittances for Serbia, as a special case. In order to identify causes and mechanisms of remittances, we shall first try to develop a model of remittance determination in the SEE countries. These issues will be studied taking into account, beside internal factors, also the changes of EU policy regimes in order to analyse how the enlargement policy pursued by the EU, as the developed united economies, is helping in transformation and achievement of sustained growth in the least developed part of the continent.

We are dealing with macroeconomic issues, studying both the main explanatory factors of remittances in the recipient countries and the type of dependence on the remittance inflows. In some SEE countries remittances are more important than foreign direct investment. If the structure of external balance is not changing, there is an incentive to export people, or to keep a sufficient stock of people abroad, in order to keep the steady inflow of remittances. The supply of migrant labour thus features in some countries as a factor of development, poverty reduction and of maintaining the balance of payments. The implications of this link for shaping macroeconomic policy are probably under-researched as the main focus of the analysis.

In the first part of the paper, some general remarks on migration and remittances will be given, as well as the reasons for their increasing importance over time. In the next part, panel econometrics will be used to establish whether there is a systematic pattern of behaviour concerning the main determinants of remittances in the SEE countries, and to test the significance of impacts of the policy regime changes in the EU concerning the countries in the region. The third part represents a case study of Serbia, as the country with the largest remittance inflows in the region, by means of time series analysis of monthly macroeconomic data. The purpose is to discover the main macroeconomic causes and effects of remittance growth, both positive and negative, and to establish the type of behaviour in which the economy adjusts to the expected remittance inflow, distinguishing between short and long-run responses. The fourth part of the paper

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contains conclusions and policy implications, and the Annex gives the definitions and sources of data, as well as a list of relevant references.

Although a number of statistically significant results is presented, the conclusions should be taken as preliminary and partial, limited by the quality of data and only related to the observed sample in the observed period, so that all statements should be considered as an incentive for further investigation in the field.

1. Migration and Remittances as the World Phenomena

The main reasons for migration are the growing differences of the standards of living throughout the world. Therefore, international migration can be considered "a powerful symbol of global inequality"[1]. Despite the globalisation of production and the liberalisation of commodity and capital markets, standards of living across the world have not been equalised[2] and neither have the opportunities for decent work been created where people live. This is the key basis of migration. Poverty and inability to find a job at home induce people to seek a chance away from their community.

Besides, demographic imbalances between the developed and lower income countries are also increasing, which additionally stimulates migrations[3]. On the other hand, in the globalised world the main controversy is - open economies but closed societies. Although new technologies enable the information to reach the remotest villages and although barriers to free movement of people are getting more flexible, social integration of immigrants is becoming more and more difficult.

Studying the effects of migration in Europe is becoming especially important in view of the EU Enlargement and the transition problems in the SEE countries which cause an additional rise in unemployment. Most European countries are experiencing increased immigration. The positive effects are that immigrants are contributing to population growth, resolving labour shortages and lowering unit labour costs, which all contributes to growth and competitiveness enhancement. However, immigrant flows cannot resolve imbalances in the labour market and can even cause certain distortions. In most countries labour shortages coexist with unemployment, low participation rate and inflows of new immigrants. Quick integration of the newcomers in the society is impossible and it brings about social tensions and different undesirable effects.

It is interesting to note that various cultural and socio-economic barriers also prevent intra-European migration. For instance, before the latest EU-15 enlargement, in 1999 intra-European migration involved less than 1% of the total population of the EU[4]. Therefore, labour migration can be considered mostly as a phenomenon occurring between less developed and developed countries, with a growing importance of remittance inflows in the last decade.

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[1] Black, Natali and Skinner [2005].

[2] A most relevant framework of the fact that in the era of globalization people have a higher level of awareness of their relative standard of living leading to migration can be found in: Milanovic [2005].

[3] More about this issue in foreword by former World Bank President James D. Wolfensohn in: Maimbo and Ratha [2005].

[4] According to Katseli [2004].

Different positive and negative expectations are emerging with regard to further EU expansion to the East. It can be expected that in the near future there will be an increased interest in studying the issues of integration of labour markets through migration. The problems arising from the free movement of persons are likely to effect further negotiations and even bring about some changes in the EU enlargement agenda and the current policy regime.

From the viewpoint of the EU countries, it is interesting to note that surveys reveal that the majority of EU-15 citizens were fearful of consequences of the free movement of persons, even before the latest wave of riots[5] and that the EU Commission produces numerous studies reviewing *pro et contra* arguments of flexibility of immigration. Some of the studies examining similarities in migration across developed (OECD) countries conclude that, despite different institutional arrangements, "immigration can confer small net gains to the host country" and even produce losses for "those whose labour is substitutable with immigrants"[6].

On the other hand, a number of studies investigate impacts of migration and remittances in low-income countries, especially in the SEE countries. Most part of the empirical evidence shows that the remittance impacts in these countries depend on the effects they have on productivity growth and investment. However, the general results support the view that remittances have a positive impact on productivity and employment, both directly and indirectly through the effects on investment[7]. At the macroeconomic level, remittances are believed to have predominantly favourable development effects, at least by financing education and health expenses[8]. But even when they are used for mere consumption, remittances generate multiplier effects, especially in poor countries with high unemployment. Therefore, "from a development perspective, migration should be placed within a context where poverty reduction is a primary and overriding objective"[9].

Thus an especially important effect of migration in developing countries concerns poverty alleviation via remittances. In a number of studies a significant relationship between international migration - defined as the share of a country's population living abroad - and poverty reduction has been established. A study on international migration, remittances and poverty, based on 71 developing countries[10], shows that both international migration and remittances have a strong, statistically significant impact on reducing poverty in the developing countries. The authors have estimated that on average a 10 percent increase in per capita official international remittances will lead to a 3.5% decline in the share of people living in poverty (counting the poverty line as $1.00 per person / day). This result has been received after instrumenting for the endogeneity of international remittances, which actually means that in developing

[5] More about that for instance in: De Melo, Miguet and Müller [2002].

[6] Coppel, Dumont and Visco [2001].

[7] See: León-Ledesma and Piracha [2004].

[8] A comprehensive overview of possible positive and negative development effects of migration is given in: Farrant, MacDonald and Sriskandarajah [2006].

[9] According to Tamas [2006].

[10] Page and Adams [2005].

countries variations in poverty in turn cause changes both in the number of emigrants and in the level of official international remittances they send home.

While migrations are generally happening from lower-income towards more developed countries, remittances are regarded as financial flows in the opposite direction. The renewed interest in migration and remittances emerged as a result of the growing volume of financial remittances to low-income countries[11] and thus emerging questions of their potentially proportional contribution to development of these countries.

Although there is a general consensus in the assessment that poor people do benefit from international migration, there are many different evidence results that generate questions about the conditions of the direct relationship between emigration and poverty reduction in the home country. Some studies claim that the poorest people lack the means and access to international and long-distance migration. They are instead engaged in seasonal and internal migration within poor regions, as a survival and income supporting strategy. Therefore, a poverty-oriented migration policy would need to focus more on internal and rural-urban than on international migrants[12]. Furthermore, based on the observation that only the relatively better-off can afford to migrate to developed countries, there are case studies (e.g. in Pakistan)[13] indicating that remittances can increase inequality. By strengthening the feelings of relative deprivation among the poor who are excluded from migration, remittances can potentially lead to deeper poverty and inequality in the receiving society.

Remittances make valuable resources to migrants' families and their countries of origin. But the extent to which migration may lead to poverty reduction actually depends on the degree to which poor people that remain gain in better opportunities for employment and in higher wages[14]. A recent thorough literature overview on migration effects[15] covers cases with gains in wages as a positive effect of emigration, but also the cases of labour shortages and other negative labour market effects. The general conclusion is that there is a widespread agreement about the significant role of remittances in alleviating poverty. However, the development policies obviously need to take into account both the upside and the downside of migration effects on development and poverty reduction.

As expected, countries that are located closest to the most developed countries - United States or Europe - are also the ones with the highest rates of migration[16]. Some authors argue that in such countries remittances may reduce recipients' motivation to work and

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[11] According to the estimates of the World Bank [2005], developing countries received USD 126 billion in official remittances in 2004, while in 1995 total official remittances to developing countries totalled only USD 53 billion. These figures, however, do not take into account unrecorded remittance, estimated as even higher.

[12] About that see Skeldon [2005].

[13] Ratha [2003].

[14] See World Bank [2006].

[15] A very comprehensive literature overview, with a variety of possible positive and negative effects of remittances on development and evidence of case studies in different areas is given in: Lucas [2005].

[16] Adams and Page [2003].

thus slow down the growth[17]. As a form of foreign-currency inflows, a large volume of remittances can also result in currency appreciation, which may affect the competitiveness of exports and cause foreign trade deficit problems, as it appears to be the case in Serbia.

Beside the complicated two-way links among remittances and development, or poverty, which often lead to controversial results, a special problem in studying remittance effects in developing countries concerns the lack of reliable statistical data. A recent study[18] found that the data existing in most countries seriously underestimate the full amount of remittance inflows that they receive every year. Coverage of instruments and financial institutions through which remittances flow in is limited. Remittances that take place through informal channels are measured only in a few countries. Therefore, development of cooperation between the sending and recipient countries should be established in order to reduce remittance costs, supervise the money transfer and reduce money laundering and terrorism financing.

But in view of the very rapid growth of migration and remittances, an important question that arises is the issue of how to balance the interests of countries receiving new workers and the countries that benefit from their remittances, namely whether international migration can become a positive force for both the receiving and the sending countries. The world experience has shown that forces motivating migration cannot be fought by penalties - they only increase the price of illegal passage. But instead of prevention policies, methods should be devised to capitalise on the development potential of remittance flows into low income countries, of course respecting that remittances are composed of private funds and hard-earned incomes. With the intention to maximise the development increase and poverty reduction effects of remittance inflows, it is important to develop better savings and investment instruments for remittance recipient households and the migrants' home countries, so that a larger part of remittance flows might be channelled to finance acceleration of poverty reduction and economic growth.

That is why it is so important to reveal the determinants that stimulate migration and remittances. Some of the new results show that remittances, either per capita or in percent of GDP, increase with the unemployment rate in the receiving country; on the other hand, higher GDP per capita and a higher degree of international integration lead to a decrease of remittances[19]. However, there is little evidence in the literature about the indirect effects of remittances: a reversible flow of funds, namely increase of trade between the host country and the country of migrants' origin.

Very often empirical studies investigate how policy changes in the migrants' home countries affect migration and remittance flows. But one of the central questions to be answered in this study concerns the impacts of changes in the EU migration policy via remittance flows on the SEE as lower-income countries. Actually, in order to objectively assess the net effects of policy changes in the EU that may affect migration and remittance flows into the SEE countries, it is important that the analysis also

[17] Chami et al. [2003].

[18] De Luna Martinez [2005].

[19] About that see in: Schrooten [2005].

includes the internal factors that represent the macroeconomic situation in the recipient country of the remittance inflows. The question whether remittances can be regarded as a "development tool", despite the private nature of their financial flows[20], can be studied by testing double endogeneity of remittance and GDP per capita levels, and by establishing whether remittances exhibit a stabilising nature for the recipient economy.

Another important question to tackle is whether there is a significant poverty-reduction effect of remittances, and whether there are any negative effects, for instance, through deterioration of trade balance, by appreciation of the local currency and stimulation of imports. We develop a new and more precise estimate of remittance inflows in Serbia, as a special case of highest remittance inflows in the region in answering these questions.

Finally, some conclusions and policy implications may be drawn regarding potentially more efficient ways of managing remittances. The general conclusion in all relevant literature is that, until now, the remittance inflows have not been utilised in the best way for expanding development and poverty reduction in lower income countries. Therefore, the effective management of migration flows will probably become a top priority for policy makers across Europe and in other most developed parts of the world. To begin with, the poverty-reducing impact of international remittances can be increased by improvement of the data on migration and remittance flows[21], by lowering transaction costs of remitting money to labour exporting countries, and by stimulating formal remittance methods[22], so that these funds can be used more productively.

2. Comparative Analysis of the SEE Countries

Remittances are considered to be an important source of external finance and, similar to other capital inflows from abroad, a significant source of economic development in the home countries[23]. Remittances also represent an important source of reducing poverty in developing countries[24]. However, the dynamics and importance of remittances are different and depend on many internal factors in the home countries of migrants, as well as on external factors. In order to increase the benefits of remittances, it is important to study their main determinants[25].

In this part of the paper we analyse the main macroeconomic determinants of remittance flows in the SEE countries, including the impact of the EU policy changes. Dependence of the SEE countries on remittances is associated with specific characteristics of the

[20] On the relationship between remittances and development, for instance, in: De Bruyn and Wets [2006].

[21] Improvement of the existing data on migration, as a priority before they can be incorporated into any indicator for monitoring progress towards the existing Millennium Development Goals is stressed in: Skeldon, [2005].

[22] More on suggestions about the poverty reduction effects of remittances in: Page and Adams [2005].

[23] In theoretical and empirical literature, many papers deal with the development effects of remittances on the economy of the home countries, for instance Chami et al. [2003], Leon-Landesma and Piracha [2004], McLeod and Molina [2005].

[24] More on that in: Page and Adams [2005].

[25] Several empirical studies have in focus macroeconomic determinants of remittances flows, for instance: Glytsos [1997], Buch and Kuckulenz [2004], Schrooten [2005].

region. On the one hand, some of these countries had rather developed economies before the Second World War, and although their lagging in development was obvious during the period of socialism, they still had high development potentials. On the other hand, their geographic position close to EU-15 enabled closer economic relations with the most developed countries of the EU. In addition, the EU enlargement process created good chances to speed up the development of the whole region, so that within a decade the new EU members reached high levels of development. However, although these countries do not belong to the lowest income countries in the world[26], they all experienced migration and most of them are highly dependent on remittances, as usually lower income countries are. This again may be partly due to the immediate proximity of the EU and more possibilities to migrate in search for jobs and better wages. Therefore, the conclusions drawn from the following comparative analysis of the SEE countries may not be quite typical for the world migration processes, but should be regarded as specific and related only to the observed countries.

In this section we are trying to answer the following questions:

- What are the main characteristics of the remittance dynamics and how important are remittances in different SEE countries in the observed period? What is the type of relation between the level of income and remittances? Are larger remittances caused by more intensive sending or by more intensive migrations?
- Which are the most important internal determinants of remittances in the SEE countries and how the changes in the EU migration policy toward the SEE countries (visa regime, work permits) influence remittances?

The methodology of the analysis will depend on the data availability. The remittance dynamics will be studied by simple statistical analysis, and the panel modelling will be used for determining the main factors of remittances and the impacts of changes of the EU policy. In representing the impacts of the EU regime changes, dummy variables for each of the characteristic phase will be defined.

Period and data. Comparative analysis of the SEE countries is based on pooling observations of the selected SEE countries over the period 1993-2003. The period is chosen to include the years of change in the EU policy regime towards the region and runs until the latest available year of the data. The sample includes West Balkan countries with similar visa regimes: Albania, Bosnia and Herzegovina, Croatia, FYR Macedonia, Serbia and Montenegro; then the EU candidate countries: Bulgaria and Romania; and the countries in the region with different working restrictions that recently joined the EU: Czech Republic, Hungary, Slovakia and Slovenia; altogether 121 observations. In order to study the main determinants of remittances[27], including internal (macroeconomic indicators in the home country of migrants) and external

[26] According to IMF data for 2004, in the total of 180 countries, ranks of observed countries by GDP *per capita* is between places 31 (Slovenia) and 99 & 100 (Albania and Serbia and Montenegro); see *World Economic Outlook Database*, September 2005.

[27] In this analysis we follow a broader definition of remittances in the context of IMF balance of payments statistics (compensation of employees + worker's remittances + migrant transfers), since it captures the extent of remittances better than data reported as workers' remittance alone. For details, see: Ratha, D. [2005].

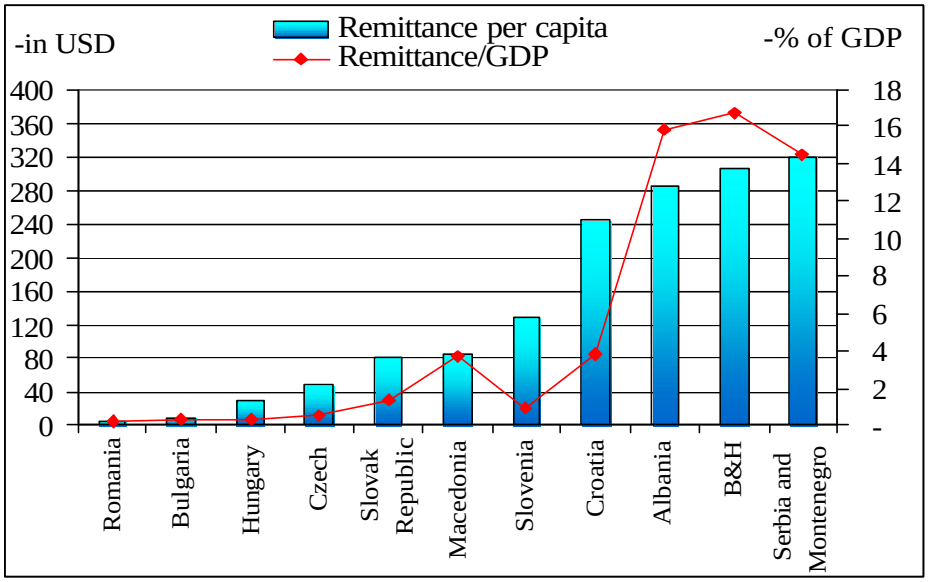
factors (covered here by developed countries' policy changes), we have collected a number of data, whose detailed definitions and sources are given in the Annex.

Dynamics of remittances in the SEE countries based on the official IMF statistics[28] show that the magnitude of remittances increases over time in each country. In the observed period, both total remittances (with the index 432) and remittances *per capita* (with the index 455) were more than four times higher relative to their initial levels, with the average annual growth rate of 15.8% for total remittances and as much as 16.5% for their *per capita* values.

However, along with significant increase of total remittances in the SEE region, they considerably differ among the SEE countries. Serbia and Montenegro was the largest recipient of remittances, with almost 35% of total remittances received by all of the observed SEE countries in 2003. If we measure the importance of remittances for domestic economy by their share in GDP or by their *per capita* value, we can see a clear difference between the group of largest remittance beneficiaries (Serbia and Montenegro, Bosnia and Herzegovina, Albania and Croatia) and other SEE countries (Chart 2.1).

Bosnia and Herzegovina, Albania, and Serbia and Montenegro had an even faster growth of remittances *per capita* than as GDP share. These countries thus attained the highest remittances *per capita* and were the most dependent countries on remittances, accounting for more than 10% of GDP in 2003[29].

Chart 2.1 Remittances in the SEE countries in 2003 *)



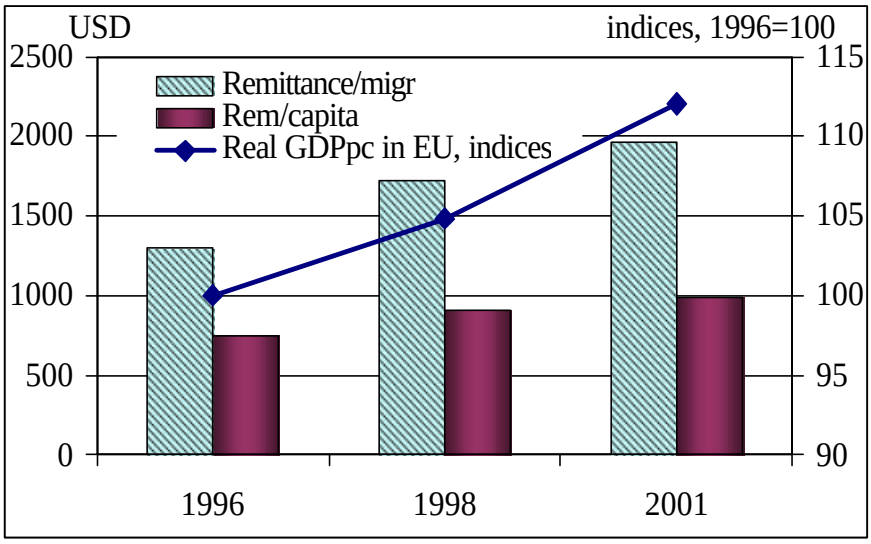
*) *Left scale*: Remittances per capita in US dollars; *Right scale (line):* Remittances as a percentage of GDP.
Source: *Balance of Payment Statistical Yearbook*, IMF and estimates of IMF staffs.

[28] Source: *Balance of Payment Statistical Yearbook*, IMF and estimates of IMF staffs.

[29] On the other hand, remittances are not such a significant source of foreign currency inflow in Czech Republic, Hungary, Slovak Republic, Slovenia, Bulgaria and Romania. In all these countries the share of remittances in GDP is lower than 1%. The exception is Slovenia where the share of remittances in GDP was somewhat higher than 1% in some years.

In trying to answer whether the growing remittances *per capita* in the above mentioned SEE countries are a consequence of more intensive migrations from these countries or of higher remittances sent by the same (or even lower) number of migrants, we calculated the total remittances *per migrant* from the Former Yugoslav Republics (FYR)[30] and received a growing average value of remittances sent by each emigrant worker. Comparing this measure with total remittances *per capita* (Chart 2.2), we can see that remittances *per migrant* grew faster than remittances *per capita* in the period 1996-2001. As seen from the dynamics of the indices measured on the other scale at same chart, one reason for this can well be an even faster growing real GDP *per capita* in the EU - presumably the host countries for most of the migrants from the SEE - and consequently higher migrants' wages[31]. Another reason for the faster growth of remittances *per migrant* than *per capita* is that, along with the increase of total remittances (index 131) in the period from 1996 to 2001, there was a faster decrease of the number of migrants (for instance, from the FYR the index is 86) than the decrease of the number of population (with the index 98).

Chart 2.2 Remittances *per capita,* remittances per migrant FYR and GDP *per capita* in EU area



Left scale: Remittances/pc or /migration in USD; *right scale (line)*: GDP/pc in EU (indices, 1996=100).
Source: OECD *Trends in international migrations*, 2004 and IMF *Balance of Payment Statistical Yearbook*.

Differences of remittance share in GDP among the SEE countries could be a result of both differences in the levels of countries' incomes and remittances. If remittances were counted *per capita*, for all of the observations in the panel - hence for all countries and all observed years - we could notice that SEE countries with a lower - or higher - GDP

[30] Data are used from *OECD Trends in international migrations* [2004]. Since there were no separate data for each Former Yugoslav Republic in the observed years, we had to use available data on total number of OECD immigrants from all Former Yugoslav Republics.

[31] The income of host countries could also influence the changes in remittances dynamics. Some estimations show that there is a positive, but not significant impact of the GDP of host countries on remittances *per capita*. See: *Global Economic Prospect*, World Bank [2006].

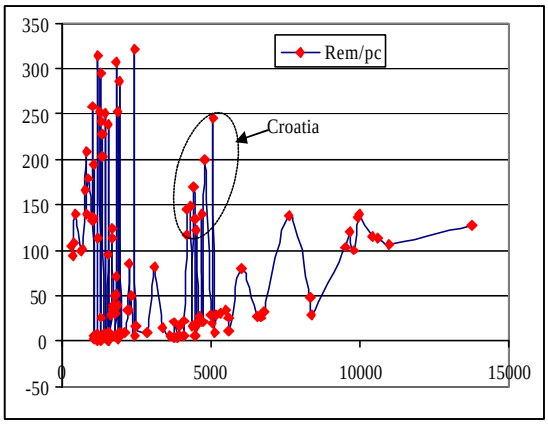
per capita get relatively more remittances than the middle-income countries within our sample[32]. An exception from this are data for Croatia which show a relatively high level of remittances *per capita* during the whole period of observation, although Croatia belongs to a group of middle-income countries in the region[33].

The existence of an almost U-shaped curve between the level of remittances *per capita* and GDP *per capita* could be noticed from the Chart 2.3a. This relation can also be proved by a simple correlation analysis (i.e. by different signs of correlation coefficients for the two subgroups of observations, below and above the average): remittances *per capita* and GDP *per capita* are negatively correlated for the below-average income *per capita* observations (r = – 0.2), whereas the correlation for countries and observations above the sample average is positive (r = 0.4).

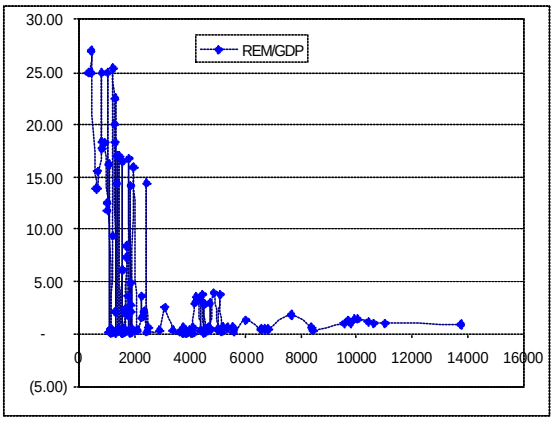
However, this pattern of relation is somewhat different if we express remittances as a share of GDP against the GDP *pc* (Chart 2.3b). In lower income countries remittances make a larger GDP share, which means these countries are more dependent on remittances than middle- and high-income countries in the sample[34]. Correlation between the share of remittances in GDP and GDP *per capita* is significant and negative (r = – 0.584) for observations with lower than the sample average GDP *pc*, and is not significant (r = – 0.01) for the observations with the income *per capita* higher than the sample average. The reason is that relatively faster GDP *per capita* growth lowers the share of remittances in GDP, so that the high *per capita* growth of remittances does not appear to be a significant GDP share for high-income countries.

Chart 2.3 Remittances *per capita* and remittances share in GDP

a) Remittance *pc* against GDP *pc*



b) Remittance/GDP against GDP *pc*



Determinants of remittances. Actually, different dynamics of remittance inflows could be caused by internal (the home country's economic factors) as well as external (the

[32] Contrary to this result, some studies show that developing countries with low and high GDP *per capita* produce smaller share of migrants than middle-income developing countries - thus following an inverse U-shaped curve; on this see: Page and Adams [2005].

[33] The exception of Croatia is probably due to the specific observed period (war period) and thus a growing number of emigrants from Croatia. In order to test whether the same type of relationship between remittances pc and GDP pc exists without the Former Yugoslav Republics, we eliminated the data for Former Yu-Republics from the sample and the U-shaped relationship was again confirmed.

[34] A similar conclusion can be found in Lucas [2005].

host country's) factors. In the literature on remittances, many factors were found significant in determining migrant decision to send remittances: economic situation of the household and the country of origin, the level of skills and earnings of the migrants, the costs of migration, the duration of the stay related to the type of migration (temporary or permanent migration), the stage of development and labour market conditions both in home and host country, etc.[35]

While a variety of empirical studies deal with remittances using microeconomic level of data, there are also papers which analyse macroeconomic variables as determinants of remittance inflows[36] in both host and home countries (unemployment rate, rate of inflation, money supply, consumer price index, exchange rate). The results often show that the host country economic conditions are more important for remittance inflows than economic factors of the home country. Other studies point out that the motive of migrants to remit depends on type of migration, so that remittances sent by temporary migrants are not significantly determined by the home country's condition, but rather by the host country's income level[37]. A study using data for Egypt[38] showed that both exchange rate and interest rate differentials were important macroeconomic determinants of migrants' remittance flows through official channels. Another empirical analysis of the 24 transition countries[39] shows that both remittances *per capita* and their share in GDP significantly depend on the following internal factors: home country's income level, labour market situation, the lack of domestic credits, performance of the domestic banking sector, the openness of the economy.

In choosing the relevant macroeconomic determinants of remittances in the SEE countries, we follow the common result of most of the above mentioned studies i.e. that shocks to employment, output and wages in the home country may give an incentive for sending more remittances. More precisely, we consider the following factors as possible internal determinants of remittances for the SEE countries: domestic income level, domestic labour market situation (in view of unemployment and the level of earnings, i. e. the average wage level), domestic credits to private sector, and openness of the economy. In addition, we are using the change in the EU policy as an external factor representing the impact of the developed countries, which was never covered in the previous empirical studies.

The income level in the SEE countries is captured by variable GDP *per capita* in current USD, the labour market situation is measured by the unemployment rate, and the average wages are given in current USD. The variable of domestic credits to private sector is given as a percentage of GDP, and the openness of the economy is measured by the sum of exports and imports as a share of GDP (all in USD). More details about the data and their sources are given in the Annex.

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[35] More about that can be found for instance in: Schrooten [2005].

[36] Vargas-Silva and Huang [2005], Schrooten [2005], Buch and Kuckulenz [2004], El-Sakka and McNabb [1999] etc.

[37] In other words, there is a distinction between remittances sent by temporary migrants who plan to return to their home country and remittances sent by permanent migrants who plan to stay in the host country permanently (see for instance: Glystos [1997] or Buch and Kuckulenz [2004]).

[38] El-Sakka and McNabb [1999].

[39] Schrooten M. [2005]

On the basis of the findings in the literature on remittances, the higher unemployment or lower wages in the home country can be expected to increase the incentives for migration, which may consequently cause the remittance growth. Lower domestic credits to private sector might have a positive impact on remittance dynamics, since remittances are considered an alternative in case of a lack of domestic credits in the developing countries. Opposite to that, an increasing degree of openness of the home economy indicating larger integration into the international markets of goods and services is considered to be a potential factor of decline of remittances. Therefore, a positive sign of regression coefficient of the variable unemployment rate is expected, while negative signs are expected for the wage level, domestic credits and openness of the economy in the model of remittance determinants[40].

The statistical analysis at the beginning of this section of the paper gives an indication that importance of remittances in the SEE countries is indeed related to the income level as an internal factor. Remittances could be procyclical, indicated by positive correlation, countercyclical (negative) or even acyclical - no correlation with the GDP in the home countries[41]. Procyclical variations of remittances go in line with business cycles, implicating their spending is mostly investment-oriented. Countercyclical variations of remittances, contrary to this, can implicate that they are mostly used to smoothen consumption, to additionally increase the income of migrants' families in periods of crises. They also imply that along with the increase of welfare in the home country, migrant families become less dependent on remittances.

In assessing the impacts of the developed EU (host) countries on the lower-income SEE (migrants' home countries), the EU policy changes should be represented as a relevant external factor. Changes in policy, consisting of various different measures, thus not measurable and best explained descriptively, are usually denoted by dummy variables in econometric models. In deciding how to represent the changes in the EU migration policy towards different SEE countries, it is important to note that the migration regimes are an important part of the EU enlargement process. Therefore, the phases in the process of negotiations and the corresponding changes in the EU policy towards the SEE countries (relaxation of the EU migration policy) could be considered as relevant external factors that influence remittances[42].

The EU policy changes are represented by dummy variables, signifying the specific type of status in the EU enlargement process of every country in each particular year:

- Dummy variable D_0 indicates the EU policy towards potential SEE candidates, as the first phase of a more beneficial treatment in migration policy;

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[40] This is for example shown in Schrooten [2005], both for the model of remittances *per capita* and their % share in GDP.

[41] More on this issue can be found for instance in Sayan [2006]. However, in regression models based on panel data, consisted of both time series and cross-section data, either positive or negative relation between GDP and remittances does not necessarily mean that remittances are countercyclical or procyclical with respect to business cycles.

[42] For example, the number of employment permits issued to Turkish immigrants has significantly increased from 1998, after the implementation of the association agreement with the EU. See: OECD [2004], *Trends in International Migration 2003*, OECD Annual Report.

- D_1 captures the changes in the EU policy toward those SEE countries that have signed the Stabilisation and Association Agreement (the Europe Agreement), as the next phase in the enlargement process. This variable takes value 1 for the period from the Agreement ratification until the formal beginning of the accession negotiations and value 0 otherwise;
- D_2 covers the next phase of the country status in the enlargement process - the period of formal beginning of the accession negotiations.

The following table gives the scheme of dummy variable treatment in the panel, where each dummy signifies periods where it takes the value 1, at other periods taking value 0.

Table 2.1 Unit values for dummy variables representing a country's status in the EU enlargement process

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Albania								D_0	D_0	D_0	D_0
Croatia								D_0	D_1	D_1	D_1
B&H								D_0	D_0	D_0	D_0
S&M								D_0	D_0	D_0	D_0
Macedonia								D_0	D_1	D_1	D_1
Bulgaria			D_1	D_1	D_1	D_1	D_1	D_2	D_2	D_2	D_2
Romania			D_1	D_1	D_1	D_1	D_1	D_2	D_2	D_2	D_2
Slovenia				D_1	D_1	D_2	D_2	D_2	D_2	D_2	D_2
Hungary		D_1	D_1	D_1	D_1	D_2	D_2	D_2	D_2	D_2	D_2
Czech R.				D_1	D_1	D_2	D_2	D_2	D_2	D_2	D_2
Slovak R.			D_1	D_1	D_1	D_1	D_1	D_2	D_2	D_2	D_2

We estimated the following panel data model of remittances *per capita*[43]:

$$R_{it} = a + b_1 Unemp_{it} + b_2 GDPpc_{it} + b_3 Domcred_{it} + b_4 Open_{it} + b_5 Wage_{it} + g_0 D_{0it} + g_1 D_{1it} + g_2 D_{2it} + v_{it} \qquad i=1,..., N;\ t=1,...T \qquad (2.1)$$

where the dependent variable is: remittances *per capita* of country i in the year t (R_{it}); internal factors of country i and period t are: unemployment rate ($Unemp_{it}$), GDP *per capita* ($GDPpc_{it}$), the share of domestic credits to private sector in GDP ($Domcred_{it}$), openness of the economy ($Open_{it}$), average wages ($Wage_{it}$); external factors are captured by dummy variables (D_{0it}, D_{1it} and D_{2it}).

[43] We used the standard panel data techniques to estimate the relationship between chosen macroeconomic variables and remittances *per capita* (Pooled Least Squares Method-POLS, covariance method, Random Effects Generalized Least Squares Method). Estimation and hypothesis testing with panel data have been done using STATA/SE, Version 8 (2003).

According to the first results, we could conclude that the labour market situation in the SEE countries had a significant impact on the remittance inflows in the observed period. This is shown by the fact that the higher level of remittances *per capita* coincides with higher unemployment. The sign of estimated coefficient of wages in domestic economies is unexpectedly positive[44], but not significant. Along with the higher level of openness of the economy and domestic credits to private sector, we could expect the lower dependence on remittances. However, in case of the SEE countries, these two variables, although with the expected signs of their coefficients, showed no significant influences on remittances *per capita* and that is why they were dropped from the model in the next step of estimation.

GDP *per capita* variable also appears to be insignificant determinant for the whole sample. The insignificance of the GDP*pc* coefficient in the initially estimated equation can be possibly due to the observed non-linear relationship with remittances *per capita*. In order to test this U-shaped relation, we defined three GDP *per capita* variables: the first, for the lower-than-average income data (SEE countries); the second, for the higher-than-average income data; and the third for Croatia, to capture the observed outliers in the panel sample. Only the first and the third GDP variables appeared to be significant, the first one with a negative coefficient sign.

The results of the estimated model of remittance determinants are presented in the Table 2.2, with all variables expressed in logarithms, so that the regression coefficients are elasticities.[45]

Table 2.2 Estimated model of remittance determinants in the SEE - Dependent variable: Remittances *per capita*

Variable	**Coefficient**	**Significance level**
Unemp	0.496	0.000
GDP*pc*-Low	-0.173	0.000
GDP*pc*-Croatia	0.049	0.055
D0	1.849	0.000
D1	-1.440	0.000
D2	-0.772	0.000
Constant	3.081	0.000
R^2 =0.640; Breusch-Pagan test=8.241 (0.004);Wald statistics $_{(7)}$ = 364.27 (0.000); Total number of observations=121		

The results again point out that the unemployment rate is a significant explanatory variable of remittances *per capita*, but domestic credits to private sector, openness of

[44] Positive sign could indicate some pro-cyclical variations of remittances: in periods of growing average wages, remittances also increase to support some migrant's family long-run expenditures; but higher wages can be just a consequence of an increase in unemployment.

[45] The first test results show that we should not ignore the presence of heteroscedasticity (F test, Breusch-Pagan, Honda test for individual effects). The same problem exists even after logarithmic transformation of the series, so that we used the feasible GLS as an appropriate method for the model (2.1).

the economy and average wages are insignificant determinants of remittance inflows to the SEE countries. In addition, there is a different response of remittances to the unit change of GDP *per capita* in low- and middle-income countries (Croatia).

Significant negative impact of GDP *per capita* on remittance dynamics in lower-income SEE countries could indicate that remittances are more important and more intensive during down cycles of the economic activity in those recipient countries. On the other hand, as the country's income increases, the living standard of migrant families becomes less dependent on remittance inflows[46]. The opposite is true for Croatia, as the middle-income country, where remittances per capita grow with the GDP pc, thus possibly indicating their different use. For the higher-income SEE countries we also found a positive but insignificant impact of their GDP *per capita* on remittance inflows.

As certain studies showed that macroeconomic activity in the home country had an impact on remittances, and the opposite was found in some other studies, we could expect the endogeneity problem between the remittances and the home country GDP. In that case biased coefficient estimates would not allow impartial significance testing. That is why we also tested for simultaneity between remittances *per capita* and GDP *per capita* (all three variables) using Hausman test for simultaneity. However, the test result indicates that there is no endogeneity problem of any of the used versions of the GDP *per capita* variable. Therefore, a two-stage estimation procedure was not necessary.

But most important for this analysis, and apart from the significance of the internal factors[47], is the finding that different EU policies toward the SEE countries appear to be a relevant determinant of the remittance *per capita* level. The positive and significant regression parameter of the first dummy variable D_0 shows that for potential candidate countries remittances *per capita* are significantly higher than is the overall average of all SEE countries in the observed period. However, the significantly negative regression coefficient of D_1 indicates that SEE countries receive lower remittances *per capita* and thus seem to be less dependent on migration after having signed the Association Agreement. Dummy variable D_2, capturing the phase starting with the formal beginning of the accession negotiations, also has a significantly negative effect on remittance flows, showing that the next advanced stage in the EU enlargement process further reduces remittances *per capita*.

In other words, remittances are more intensive in low-income SEE countries, although decreasing with the GDP *per capita* rise, and are higher in countries that have not yet signed the Association Agreement, but they become reduced by each more favourable stage of the country in the EU enlargement process. These results give an indication that, in general, the changes in the EU policies do have distinctive effects to migration/remittance practice of the SEE countries and have considerable impacts on their different dynamics.

[46] More about evidence of that kind in: Buch and Kuckulenz [2004].

[47] It should be noted here that in the presence of GDP as a regressor, coefficients of dummy variables represent additional (individual) impacts of the status in the EU enlargement, above the GDP influence.

3. Analysis of Determinants and Importance of Remittances in Serbia

Serbia has the highest remittance inflows in the observed sample of the SEE countries. The World Bank report[48] positions Serbia among the top 11 countries in the world by the value of remittances in 2004, highest of all SEE countries, and at the even higher (eighth) place in relation to the remittance share in GDP - 17.2%. The reason for this may be in the fact that there were quite a few large waves of emigration in Serbia in the last several decades. The former Yugoslavia had a long tradition of economic emigration and was the first communist country to allow free travelling abroad in search for employment in the early 1970s. The migration trends became even stronger in the latest period, after the disintegration of the country in 1991. Some investigations estimate as many as 4 million emigrants from Serbia – comparing with the current population of only 7.5 million[49].

Due to economic and even more non-economic factors, wars and political conflicts in the region, mostly young population emigrated, drastically changing the demographic situation in the country. The only positive effects are significant remittances, which became the largest source of foreign currency inflow and a usual reliance of every government. After a decade of economic collapsing under Milosevic's regime, the country largely depends on capital inflows that can facilitate achieving sustainable growth and transformation into an open market economy. Rapid economic reconstruction since 2000 caused a swiftly growing trade deficit. The export/import ratio fell from 78% in 1994 to only 34% in 2004. Therefore, beside the privatisation revenues, foreign direct investment, grants and foreign loans, remittances make an important and probably the most substantial source of increased foreign financial inflows. However, the question remains whether remittances can neutralise negative results of high emigration, as well as whether their effects can be made more useful and act as a positive force in the development of the economy.

In this section of the paper we intend to establish the main macroeconomic factors in Serbia that influence remittance inflows and to examine the relative importance of remittances in Serbia as a source of development increase, poverty alleviation and neutralising large deficits. The results of this analysis, together with the inference of the comparative study of the SEE countries, should help us define the conclusions that could indicate the main policy implications regarding the optimal use of remittances.

The main questions to be answered using macroeconomic data are:

- What are the main macroeconomic factors that influence such high remittance inflows in Serbia?
- To what extent can the large remittance inflows be connected with the development increase and poverty reduction in Serbia?
- To what degree does the country rely on financial results of exporting labour as a secure source of foreign currency funding?

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[48] World Bank [2006], p. 90.

[49] Only Serbia is analysed here, without the Kosovo Province, the UN Protectorate since 1999. About problems of migration from Serbia, see for instance: Grecic [2003].

- What are the possible negative consequences of the macroeconomic adjustment to high remittances?

Data and the observed period. The period of observation should start with 2001, since both economic structure and methodology of data classification changed significantly after the democratic changes of October 2000. We shall try to use monthly series for the relevant macroeconomic data whenever possible, in order to model remittance dynamics and macroeconomic behaviour in expectations of remittances, distinguishing between the short- and long-run effects. Thus the main econometric analysis is based on time series, for the period December 2000[50] until February 2006 (63 months). All the relevant time series (remittances, output level, unemployment rate, average dollar wage, trade deficit, imports, consumer goods imports, etc.) show distinctive linear trends. By unit root test they have all been found to be trend-stationary in the observed period.

Official statistics usually have problems in proper evidence of remittances, a large part whereof is coming through informal channels. That is why a new compilation of the monthly series is made here, based on net monthly inflow to foreign currency accounts and also to exchange offices, after subtracting the estimated income from tourism[51]. The new estimate of remittances more than doubles official figures in the last six years, but it is still lower than the IMF estimate (Table 3.1), which indicates that there is no overestimation of the current inflow.

Table 3.1 Estimates of remittances per annum (in million US $)

	2000	**2001**	**2002**	**2003**	**2004**	**2005**
Official National Bank statistics	512	405	520	779	988	1182
New estimate used in this analysis	348	1029	1329	1788	2291	2306
The IMF estimate	1132	1698	2089	2661	3509	–

Determinants of remittances. Since there were no changes in the general status of the country regarding the EU policy regimes in the observed period, all other previously used variables have been considered as possible determinants of remittances, namely macroeconomic data as internal, and trade balance figures as external factors.

Remittance inflows exhibit certain cyclical variations around a linear trend[52]. Their variations around the time trend (stationary residuals of remittances) with the stationary monthly indices of the industrial production (output), taken as a proxy for the economic activity, show a low negative correlation (-0.27) and similarly with the wage variations around the trend (-0.21)[53]. This points at a somewhat countercyclical nature of remittances in Serbia, meaning that in periods (months) of relatively lower economic

[50] The observed period starts with January 2001, but the data should also allow for the time lag.

[51] Since the national currency (dinar) is the only official means of financial transactions in the country, all foreign currency inflows that finance current spendings have to be exchanged into dinars.

[52] These cyclical variations might also be considered as seasonal, since the data are monthly.

[53] The correlation is negative and somewhat higher with output level lagged one month; for the series of average wage in dollars the variations are computed around the fitted parabolic trend.

activity and personal incomes, remittances are relatively higher. This is an indication that remittances are supporting consumption to a larger extent than investment.

Evidence of countercyclicality of remittances for different countries[54] shows that remittances are driven by complex dynamics and respond differently to the state of economic activity in the home countries of migrant workers. That is why the individual country characteristics should be carefully studied prior to designing policies related to remittance flows.

Among all available macroeconomic series in Serbia, remittances show the highest correlation with the series of imports, especially imports of consumer goods. Average wage in dollars, unemployment rate, domestic credits, trade deficit and total imports were all eliminated from the model of remittance determination by criteria of statistical insignificance, in the general to specific modelling procedure. Only the consumer goods imports and the output level with the one-month time lag turned out to be significant, followed by the lagged value of remittances. Therefore the estimated model of remittances in Serbia for the observed period of 62 months shows an autoregressive nature (a positively rising trend) with a positive regression coefficient of consumer goods imports and a negative regression coefficient of the lagged industrial output (Table 3.2). The model of remittance determinants is thus also supporting the previous conclusion that remittances are mostly oriented towards consumption.

Table 3.2 The estimated model of remittance inflow as a dependent variable [55]

Variable	**Coefficient**	**T-ratio**	**Significance level**
Remittances (t-1)	0.422578	3.940848	0.0002
Cons. goods imports	0.499891	4.117992	0.0001
Industry output (t-1)	-2.162264	-3.402872	0.0012
Constant	10.25248	3.722019	0.0004
R^2 =0.488; DW=1.677; JB=44.163; DF=-7.454; BG(4)=1. 986; W=5.864			

Poverty reduction. The 2003 World Bank report on poverty assessment finds that one out of ten persons in both Serbia and Montenegro is affected by absolute material poverty, which indicates the lack of consumption of essential food and non-food goods and services. In addition, about one third of the population can be considered as "vulnerable to poverty or poor"[56]. From the point of view of the historical standards, this can be considered a very high incidence. This situation is partially due to the great impoverishment during the country's economic isolation, but also to a tremendous increase in unemployment (up to 30% in 2005 according to the National Employment

[54] About the countercyclical nature of remittances, see for instance: Sayan [2006].

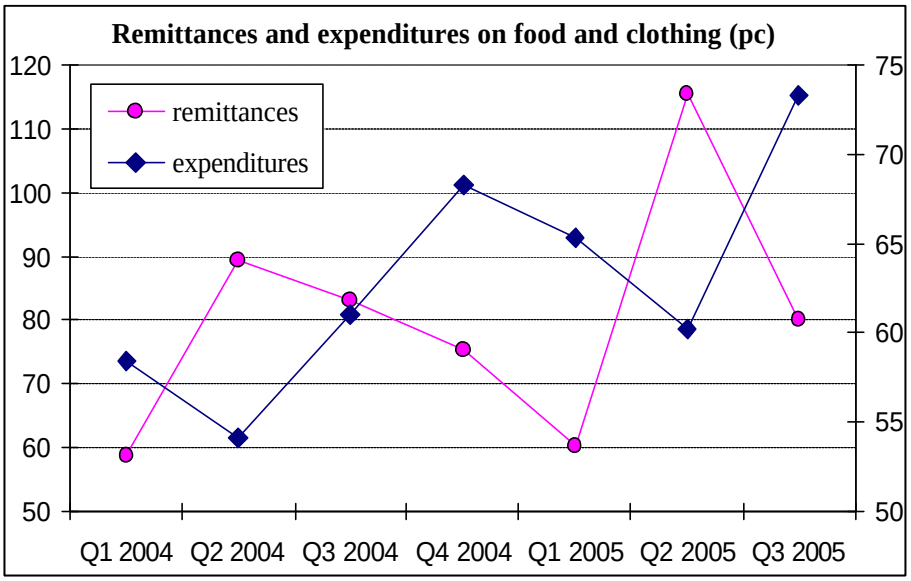
[55] Variables are measured in natural logarithms. The results of statistical tests and the analysis of residuals statistics (Durbin-Watson, Jarque-Bera, Dickey-Fuller, Breusch-Godfrey and White's LMF) all indicate a considerably satisfactory model specification, despite a relatively low coefficient of determination.

[56] While absolute material poverty is defined as full consumption below the cost of the poverty line (poverty threshold is set to 2.4 $ per day for Serbia in the Report), vulnerability line is set at the level 50 percent above the poverty line. See: World Bank [2003].

Service), caused by privatisation of the state sector, economic restructuring and dismissal of the redundant labour. That is why it can be expected that most of the remittance inflows are used to compensate for the low incomes or the lack of any means of support.

Analysis of poverty in Serbia is very difficult due to scarce and unreliable data. Comparing average monthly per capita expenditures in US dollars on food and clothing in the last couple of years, as a relative measure of poverty, according to the Serbian Statistical Survey, they are negatively correlated with remittances. This can be an indication that remittances are more intensively coming to the country at times (quarters) of lower per capita consumption, or higher relative poverty (Chart 3.1). This is yet another indication that remittances are mostly used for consumption, i.e. for poverty reduction.

Chart 3.1 Quarterly data on per capita remittances and expenditures (two scales)*



* *Left scale*: Quarterly remittances *per capita* in US $. *Right scale*: Monthly average expenditures per capita in US $ for food and non-alcoholic beverages, clothing and footwear; counted from household survey, by use of household average number (source: *Statistical Office of the Republic of Serbia*).

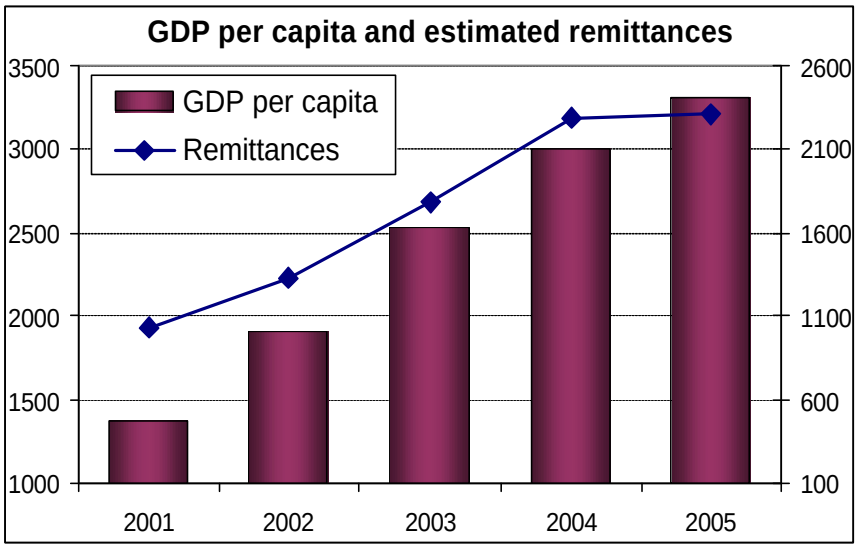
Trying further to investigate the role of remittances in development increase and poverty reduction in Serbia on the macroeconomic level, in absence of more reliable data on poverty, we counted per capita GDP[57] in US $, and compared with the annual inflows of remittances (Chart 3.2). In the observed five years, both remittances (with the increase index of 224) and per capita GDP (with the index 241) more than doubled their initial levels, following the same pattern of growth: in the first couple of years the growth rate was above 30%, and in the following years reduced to half (14.5%).

Therefore it seems that the estimated level of remittances, as a substantial part of GDP (about 10 stable percents of GDP) represents an important source of reducing low-income problems in the years of economic restructuring and growing unemployment in

[57] Annual data of GDP estimates used from the Central Bank, using current market prices and the current exchange rate of dollar, and divided by population to receive per capita figures.

Serbia. By substantial increase in annual financial inflow, remittances undoubtedly represent an important factor of improving the standard of living in the country.

Chart 3.2 GDP per capita and remittances (measured on the secondary scale)*



* *Left scale*: GDP *per capita* in US $. *Right scale*: New estimation of remittances in million of US $

However, some estimates show that, from 10% population below the poverty line in 2002, poverty has been increasing in the past years (to 13% in 2004), and so has Gini coefficient[58] indicating higher inequality in distribution and concentration of wealth. This shows that although remittances are indisputably raising the general income level in the country, they are still not distributed in the way that would considerably reduce poverty problems, since the most jeopardized groups of the society obviously have no household members sent abroad to help them financially.

External balance results. Exporting labour in return for remittances seems to be an accepted strategy to rely on in achieving external balance in Serbia. Remittances show a rapidly growing trend, as fast as the trends of imports or trade deficit, keeping a constant ratio of 22% with imports, and 45% of the trade deficit. The estimated remittance inflow in Serbia exceeded the amount of foreign direct investment and in the last five years (2001-2005) made on the average 9.6% of the total GDP.

High correlation of remittance inflows can be noticed with the trade deficit (r=0.614), thus indicating that remittances are a substantial source of external finance in Serbia. The degree of lowering trade deficit by remittances is made obvious by comparing their values in Chart 3.3.

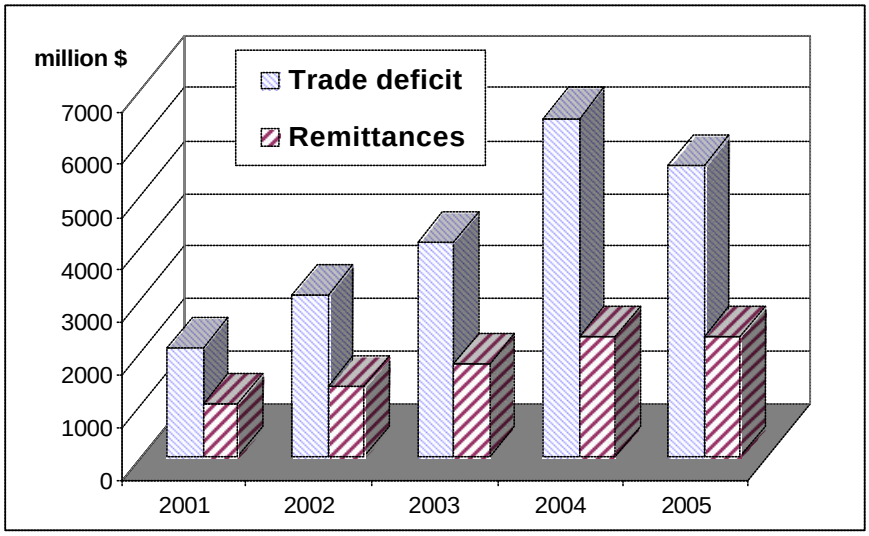
It is worth noting that in the past five years (2001-2005) remittances somewhat exceeded the consumer goods imports, and only in 2004 their ratio amounted to less than 100% (94%). However, imports of raw materials and energents are much larger, so that consumer goods imports make only about 20% of total imports. High remittance

[58] Gini coefficient measures the empirical distribution (Lorentz curve) relative to the line of perfect equality. It ranges between zero for perfect equality and one for perfect inequality (total concentration). The measurement of poverty was done by the World Bank team [2003] and Gini coefficient by the UNICEF - Innocenti Research Centre [2005]; source: *Ekonomist, Special Edition*, 2004.

inflow encourages trade deficit increase, so that the deficit is growing fast (from 19.4% of GDP in 2001 to 28.8% in 2004, and only owing to a higher rise of exports in 2005 it fell to 22.5% of GDP).

Examining the structure of remittances, it can be noticed that it is highly correlated with the structure of imports from the EU: for the 12 largest exporters, from which the sum of imports into Serbia makes 57.10% of total imports, the sum of remittances (by the new methodology) makes 52.56% of total remittances, and the correlation coefficient is positive and equals 0.507. However, when Russia is excluded from the sample (because of large imports of petroleum, and relatively much lower remittances due to the liberal visa regime), the correlation coefficient increases to 0.684, and without Italy (as another extreme of high imports but a low number of immigrants from Serbia), the correlation coefficient between the imports and remittance origin for the remaining 10 countries increases to 0.923. This shows that the structure of consumer imports highly matches the structure of remittances.

Chart 3.3 Trade deficit and remittance inflows in million of US dollars



Macroeconomic consequences. In order to study the cause-effect pattern of relationship between the remittance inflows and consumer goods imports, as the macroeconomic indicator that exhibits highest correlation with remittances (r=0.76), and to distinguish between long and short-run effects (multipliers), we use a vector autoregression model (VAR)[59]. As the first step, all series were expressed in terms of logarithms, so that the coefficients of the linear model can be interpreted as elasticities and heteroscedasticity is reduced.

Since the test results show that the relevant macroeconomic series are trend-stationary with a structural break, to reduce them to stationarity we have eliminated linear trends from the series and the structural breaks by appropriate dummy variables. The consumer goods imports had a shift of linear trend since January 2005, due to the introduction of the Value Added Tax, and the estimated remittances had an outlier in December 2005, due to high expectations of devaluation of the national currency[60]. As an exogenous

[59] The model was estimated by EViews 5.0.

[60] These speculations were caused by a scandal after the arrest of the Central Bank's Vice-governor.

factor, monthly index of the industrial output level (a stationary variable) was also included to represent fluctuations of the economy.

By using VAR lag selection criteria, eight lags were included in the model and the stability test shows that the VAR is stationary, since all roots lie inside the unit circle. By the Granger causality test, examining significance of blocks of other endogenous variable's lags in each of the equations, it was established that remittances cause consumer goods imports, while the opposite is not true. Therefore, remittances can be treated as an exogenous variable in this relationship. In demonstrating short- and long-run effects through the dynamic (lag) structure of the VAR, the impulse response function traces cyclical but diminishing long-run multipliers through time, as a sign of a stable VAR model. The highest response to the same variable's shock is after one month and to the other variable's shock after a year.

The variance decomposition chart gives percentages of the forecast variance due to each innovation. Since remittances do not significantly respond to consumer goods imports, the variance decomposition of forecast error of remittances shows that after a year the percentage of its forecast error attributable to shocks in the other variable stabilises at the percentage of only 6%. On the other hand, variance decomposition shows that an increased percentage of the variations in consumer goods imports can be attributed to innovations in remittances and that this percentage rises from 8% after one period to 40% after another 12 months.

The estimated VAR model proves that there is a very strong adjustment process of consumer goods imports to the remittance inflow. By eliminating all lags except the dependent variable's one, the estimated model of consumer goods imports[61] (Table 3.3) can be interpreted as a habit formation model: the past level of consumer goods imports has a significantly positive coefficient, and the long-run elasticity to remittances is exceeding by far the short-run elasticity. Moreover, it appears that the imports of the country adapt to the expectation of remittances, while remittances are driven by decelerated economic activity and previous habits formed by imported consumer goods. This behaviour bears its share in the trade deficit. The IMF delegation has recently stressed the problem of high trade deficit as the primary economic problem in Serbia[62].

Table 3.3 The model of consumer goods imports as the dependent variable

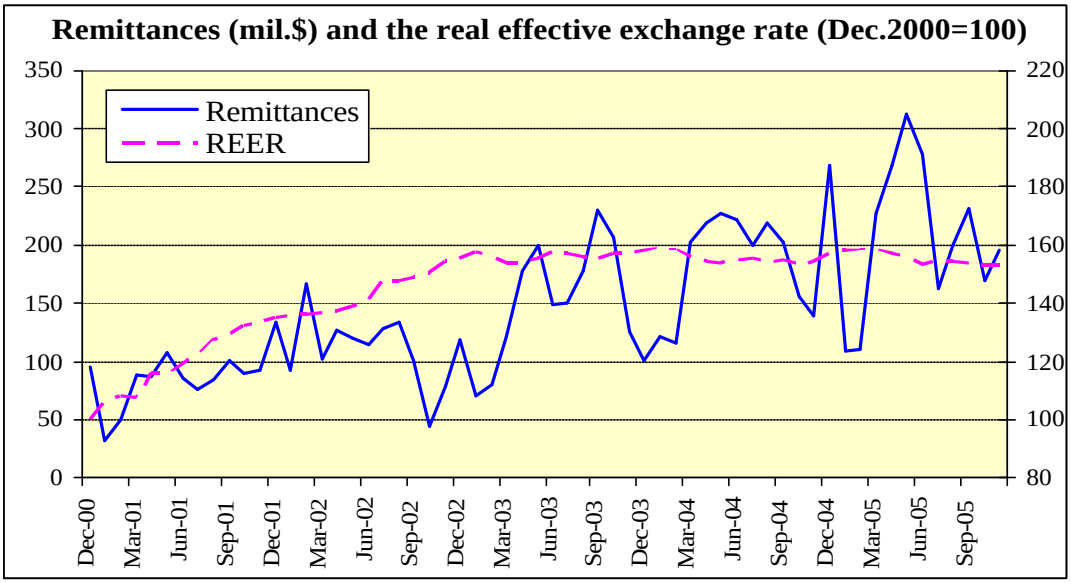
Variable	***Coefficient***	***T-ratio***	***Significance level***
Cons. goods imports (t-1)	0.845593	19.48185	0.0000
Remittances	0.087437	2.345997	0.0225
Industry output	0.839557	3.621288	0.0006
Dummy Jan. 2005	-0.969549	-6.150446	0.0000
Constant	-3.472813	-3.476296	0.0010
R^2 =0.922; DW=2.004; JB=13.944; DF=-7.892; BG=0.861; W=1.405			
Short run elasticity: 0.0874; *long run elasticity:* 0.087/(1-0.845)=0.563			

[61] All variables (save dummies) are measured as natural logarithms, thus coefficients are elasticities.

[62] http://www.24x7.co.yu/default.aspx?cid=700&fid=300&pid=promocija_liberalnog_pristupa_trzistu

In the analysis of macroeconomic effect of remittances to the exchange rate, the real effective exchange rate (REER) should also be counted and compared with the remittance dynamics. We first obtained the nominal exchange rate of dinar, as a weighted average index of its values in dollar and euro, with weights equal to the estimated shares of dollar (30%) and euro (70%) transactions in the Serbian foreign trade. The relative price index was received as a ratio of indices of consumer prices in Serbia and a similarly received index of weighted average of the US and the EU consumer price indices[63]. Multiplying the nominal exchange rate with the relative price index in Serbia, an estimate of the real effective exchange rate is received, as a measure of change of the relative value of dinar to foreign currencies through time. Chart 3.4 shows that the appreciation of dinar is closely related to the level of remittances in the observed period, with a positive correlation coefficient of 0.553.

Chart 3.4 Remittances and the real effective exchange rate (REER) indices*



* *Left scale*: Remittances in million of US $. *Right scale*: Indices of the real effective exchange rate of dinar (December 2000 =100)

However, appreciation of the domestic currency is expected to negatively influence the remittance level and vice versa. The positive exchange rate shock[64] that faces a migrant's household would mean an increase in value of remittances and the migrant's savings counted in domestic currency, thus leading to an increase in their incomes and an incentive to use the favourable opportunity. The monthly changes of REER in Serbia, as short-term exchange rate shocks, indeed demonstrate a significant negative correlation with the monthly level of remittances (r=-0.515). But the established

[63] Definitions of the used variables are given in the Annex.

[64] On the effects of exchange rate shocks to households' investment, see: Yang [2004]. By using household survey data in Philippine on 1,600 households with overseas members, the author estimates that a 25 percent improvement in the exchange rate faced by a household with overseas migrants led remittances to rise six percent as a share of household income and, in addition, it also raised the Philippine-peso value of migrants' overseas savings. Thus remittances accounted for a substantial portion of the households' total income prior to the crisis, for 40 percent on average, which led to their increased long-term investment.

positive correlation of their levels in the long-run can only mean that large remittances have some effect on the domestic currency appreciation.

The increase of the real exchange rate of dinar in the observed period has been made possible only by a rapid inflow of financial means from abroad, and our analysis shows that the estimated remittances are the largest source of this foreign inflow. The consequence of this is underestimation of foreign currencies, making imports relatively cheaper and domestic production less competitive, thus resulting in growing imports and decreasing exports, namely in a rapidly increasing trade deficit. In addition, habit formation in imports of consumer goods shows a firm orientation towards preference of foreign goods in consumption, thus indicating larger external balance problems than the great remittance inflows can solve.

Until 2006, Serbia remained the last of the newly independent former Yugoslav republics[65] with no apparent status in the EU enlargement process. This is a result of various political circumstances that also influenced high migration and consequently largest remittance inflows in the region. Remittances showed an undoubtedly income-increasing effect in Serbia, with their newly estimated figure reaching as much as 10% of GDP, although there is no evidence of their direct poverty-reduction results. A mixture of their positive and negative effects can only lead to a conclusion that exporting labour to benefit from remittance inflows in return is by no means the best development strategy for a low-income country.

4. Conclusions

In the macroeconomic sense financial remittances are a summation of numerous individual inflows from various foreign countries to different types of recipients and motivated by a variety of incentives. Therefore all general conclusions derived from the undertaken macroeconomic analyses should still be treated as limited, related to the particular region at a particular period, and subject to the quality of the used data. But as much as such analyses make it difficult to generalise the results, the high aggregation of remittance inflows also enables assessment of their dynamics compared with other macroeconomic indicators and an evaluation of the overall impact of remittances as an outcome of developed countries' policies on the low-income countries.

In the **comparative analysis of the SEE countries**, we have shown that differences in relative remittance levels among those countries are, in fact, the result of differences in the levels of countries' incomes, indicating that SEE countries with lower and higher GDP *per capita* get more remittances *per capita* than the middle-income SEE countries.

In addition, the growing dynamics of remittances *per migrant*, faster than their *per capita* values in the West Balkans, could point to a growing importance of remittances. The reasons that enabled this are faster growing real GDP *per capita* values, and consequently higher migrants' incomes in the EU host countries, but also a faster decrease of the number of migrants than population in the migrants' home countries.

The comparative analysis of determinants of remittance inflows to the SEE countries has shown that the most important internal determinant of remittances in the SEE

[65] Bosnia-Herzegovina is an exception, due to the UN protectorate.

countries is domestic labour market situation. Namely, the increase of remittances goes in line with the growing problems at the domestic labour market, especially unemployment level. This leads to the conclusion that more jobs in the SEE countries would cause the significance of remittances, and therefore migration pressures, to decline.

For the low-income recipient SEE countries, another important internal factor which determines the remittance inflows is their GDP *per capita*. Remittances are more intensive during the down-cycles of the economic activity in the low-income SEE countries behaving countercyclically. This implies their relative increase in periods of crises and their use mostly for consumption. In higher-than-average-income SEE countries, living standard of migrant families does not seem to be decisive in remittance inflows; hence we expected that the growth of the home country economy may attract more remittances for investment purpose. This is partially confirmed by a positive coefficient of GDP pc for Croatia, as a middle-income country, but in higher-income SEE countries the impact of GDP *per capita* level on remittance inflows, although positive, is not significant.

Regarding the impact of the EU migration policy changes toward the SEE countries on remittances, it has been established that remittances are more intensive in potential EU candidates than in the countries for which there is somewhat relaxed EU entry policy. In other words, significant changes in relative remittance decrease happen along with the upgrading of the country's status in the EU association process. This may well be a consequence of an improvement of the country's welfare, but since the effect of GDP per capita was already counted for, it can also mean that the formal change in the EU policy has significant psychological effects reducing migrations, and consequently remittances. With a better status in relation to the EU and therefore a stronger economic basis of an SEE country, there would be less reason for significant increase of migration and remittances. Therefore it seems that, as a response to migration pressures on the EU labour market, a more flexible but organised scheme of the EU enlargement would lower migration incentives more than the firm EU visa regimes.

The case study of Serbia demonstrates that, like in most transition economies where unemployment increase inevitably follows the economic restructuring, the labour exporting and relying on the resulting remittances also became a traditional development strategy. Due to even stronger motivations to emigrate, as a consequence of war in the region and economic isolation of the country, a large percentage of Serbian population left the country and consequently remittances represent an important increment to total income (GDP) of Serbia.

Judging by the established reducing effect on migration and remittances of the increasingly beneficial status in the EU enlargement process for the observed sample of the SEE countries, Serbia can be regarded as an extreme case, both in its detrimental position caused by the postponed SAA and as the largest remittance-recipient.

In Serbia remittances show slightly countercyclical (seasonal) variations, i.e. negative but low correlation with the lagged industrial output and wage fluctuations, and high correlation only with the external balance figures. The mechanism of remittance inflow and spending seems to be the following: a larger part of remittances comes into the country outside of banking channels; foreign currency inflows are exchanged into dinars

and spent mostly for consumption, since they are highly correlated with the imports of consumer goods. As a part of consumption, they seem to be helping in the country's poverty reduction. However, the growing percentage of population below the poverty line shows that remittances are not distributed among the neediest groups of population.

Besides, remittances are not oriented towards development financing and their effects seem to be evident only in the short run. Therefore, more significant results in their spending for stimulating growth and consequently poverty reduction could be achieved through a more organised management.

Large and growing foreign trade deficit is obviously financed partly by substantial remittance inflows. In that respect, at the first sight remittances seem to show a positive effect in pursuing external balance. However, a rapidly growing trade deficit is obviously financed by a high foreign currency inflow, which produces the established national currency appreciation, as a negative effect of large remittances that lead to reduction of the domestic production competitiveness.

A great dependence of imports on remittances and the established type of causality exhibit a form of habit formation behaviour in Serbia. But the similar dynamics and corresponding structure of consumer goods imports show that a large part of financial remittance inflow sent by Serbian emigrants seems to be returning to the migrants' host countries, as repayments of the recipients for the imported products.

Certain **policy implications** can be drawn summing up the results of this research and the conclusions of the relevant literature. As a compensation for exporting labour, remittances represent an implicit trade-off with the outflow of manpower from their home countries. Remittances are currently the second most important source of development finance to developing countries at the global level after foreign direct investment[66]. The growing volume of financial remittances impose the questions about balancing interests of the host and home countries of migrants, which requires systematic and thorough investigation of determinants and effects of remittances in each specific case.

From the point of view of the migrant-host countries, beside the positive effect of importing labour, usually highly-skilled, remittances indirectly reduce the requirement for their official development assistance to low-income countries. Also, the increased income levels in home countries of migrants can contribute to widening of the existing and development of the new markets for the more developed countries.

On the other hand, for home countries of migrants, remittances represent a stable source of foreign exchange, significantly supporting consumption level and possibly having a considerable poverty-reducing effect. They could also contribute to the increased investment, usually in basic infrastructure and in funding community-oriented investment projects, if successfully managed.

However, there are possible negative effects which should be avoided. The most frequent negative effects for both home and host countries of migrants are sudden shocks and deviations at the labour markets. In the home countries of migrants, another

[66] More about that in: Solimano [2004].

negative effect that can appear is the syndrome of high recipients' dependence on remittances which can dissimulate incentive to work and even increase inequality[67]. Besides, raising the exchange rate due to high foreign currency inflows can make the manufacturing sector less competitive and thus negatively influence growth and development in the remittance-recipient country.

All the evidence indicates that financial remittances are currently not being used in the most optimal way[68]. Although at the macroeconomic level remittances consist of a large number of separate private funds with different origin and purpose, there are policy measures that could increase the potential development impact of remittances and indirectly help in poverty alleviation[69]. These policies seem to require certain innovations in managing emigration, for instance in organising institutions or social networks[70], both for facilitating migration and reducing black economy activites, and for influencing the income earned by migrants to help reduce poverty and inequality.

Besides, it is important to increase competition in order to reduce costs in the remittance market[71]. This can be achieved by increasing the facilities in the financial systems in both host and home countries for better use of remittances in development projects. Attracting remittance inflows by specific accounts for education, housing or business projects can encourage their more productive use. But above all, the improvement of business environment in home countries that would encourage the return of emigrants with their fresh capital, international contacts, new technology and know-how can thrust development and economic growth in the low-income countries.

The return of skilled labour to low-income SEE countries would also mean a much faster development of modern social system and public institutions, as necessary conditions for rapid transition, since "productive individuals who are capable of being successful in high quality institutional environments have the strongest interest in seeing that these institutions are built"[72]. Thus the return of migrants seems to be a more promising strategy than the use of their remittances hitherto. Also, a more favourable status of an SEE country in the EU enlargement process has shown to be supportive in replacing migration and remittances by income increase in the home country.

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[67] Evidence on that can be found in: Skeldon [2005] and Ratha [2003].

[68] This is also confirmed for Serbia by the preliminary results of the ongoing research on remittances from Switzerland "Migration remittances and Development Financing: Action Research / Case Study Balkans and Switzerland", conducted by IOM, Geneva.

[69] For an outline of remittances-related policy measures in making remittances more efficient for development and poverty reduction, see for instance: Tamas [2006] pp. 24-32, Farrant et al. [2006], De Luna Martínez, J. [2005], and Carling [2004].

[70] The examples of why access to social capital or social networks is critically important for successful migration and remittance use can be found in: Black, Natali and Skinner [2005].

[71] A recent survey of central banks in 40 developing countries across different regions in the world (De Luna Martinez [2005]) shows that most countries need to establish better mechanisms in order to maximize the developmental effect of remittance inflows; besides, cooperation between sending and recipient countries is needed to reduce remittance costs.

[72] More about benefits from the return of migrants in: Kapur and McHale [2005].

ANNEX

1. Definitions and sources of data in the SEE countries

Average wage in current US dollars: WIIW Handbook of Statistics *'Countries in Transition 2004'*.

Domestic credits to private sectors, as a percentage of GDP: *Transition Reports 2000 and 2004*, EBRD.

Dummy variables for the EU policy change towards the SEE countries:

D_0 – the first phase of the process in the EU accession; it takes value 1 for the period since 2000 to indicate the status "potential candidate countries" for Albania, B&H, Croatia, Macedonia and S&M.

D_1 – takes value 1 for the period from signing the SAA until the accession negotiations start; Hungary 1994-1997, Slovakia, Bulgaria and Romania 1995-1999, Czech Republic and Slovenia 1996-1997; Macedonia and Croatia from 2001 on.

D_2 – takes value 1 for the period since the formal beginning of the accession negotiations; Czech Republic, Hungary and Slovenia from 1998 on, Slovakia, Bulgaria and Romania from 2000 on.

Sources of information on country status in the EU enlargement process, websites:

- http://www.europa.eu.int/comm/enlargement/
- http://europa.eu.int/comm/external_relations/see/docs/index.htm
- http://europa.eu.int/eur-lex/lex/
- http://www.eurasylum.org/
- http://www.icmpd.org/

GDP *per capita,* in current US dollars: WIIW Handbook of Statistics *'Countries in Transition 2004'*, and IMF database (www.imf.org).

Number of migrants, for calculating remittances per migrant: *Trends in International Migrations*, OECD, 2004.

Openness of the economy, the sum of exports and imports as a share of GDP in current US dollars: WIIW and *Transition Reports 2000 and 2004*, EBRD.

Population, for calculating per capita figures: WIIW Handbook of Statistics *'Countries in Transition 2004'*.

Total remittances in US dollars, as the sum of workers' remittances, compensation of employees and migrant transfers: *The Balance of Payment Statistical Yearbook 2004*, IMF. For the missing data (B&H and Macedonia in the first years) estimates were received by interpolation, taking into account the share of remittances in GDP. For Serbia and Montenegro the data are based on estimates of the IMF (IMF publications *"Serbia and Montenegro: Selected Issues and Statistical Appendix"*, 2001, 2005).

Unemployment rate - official: *The Vienna Institute for International Economic Studies (WIIW) Handbook of Statistics 'Countries in Transition 2004'*, and *Transition Reports 2000* and 2004, European Bank for Reconstruction and Development (EBRD).

2. Data sources and methodology for Serbia*

BOP data, monthly data (exports, imports, imports of consumer goods, inflow of remittances to forex accounts, outflow from forex accounts, net foreign exchange purchases) in millions USD: National Bank of Serbia (NBS).

Consumption per capita in USD, quarterly data = average expenditures per capita for food and non-alcoholic beverages, for clothing and footwear, in CSD/quarterly (CSD/USD) exchange rate: Statistical Office of the Republic of Serbia (SORS)

Dollar wage, average wage, end of month, in USD = wage (average wage, end of month) in CSD/average monthly (CSD/USD) exchange rate, SORS.

Exchange rate, average monthly (CSD/USD): National Bank of Serbia

GDP, annual data, market prices, constant 2002 prices, in millions of dinars (annually): Statistical Office of the Republic of Serbia – Communication number 74/06 (code NR40); GDP per capita = GDP/Population; GDP pc in USD = GDP per capita in CSD/average (CSD/USD) exchange rate;

Gini coefficient, several annual data: UNICEF - Innocenti Research Centre; "Economic development – where to go further?", Ekonomist magazin, special edition, 2004.

Human poverty index (HPI), in %, several annual data: First series (2002-2004): Serbian Government, Poverty Reduction Strategy website (http://t7.sw4i.com) and 2000-2003: "Economic development – where to go further?", Ekonomist magazin, special edition, 2004.

Output level, approximated by the industrial production index, monthly, average 2005=100; calculation of quarterly and annual indices is based on monthly data: Statistical Office of the Republic of Serbia

Population, annual data (at the mid-year): Statistical Yearbook of Serbia 2005, SORS Communication number 306/05 (code SN40), estimation for 2005 = population at the middle of 2004 + average of natural increase + net internal migrations estimation. Average of natural increase: Monthly Statistical Review number 2/2006; Net internal migrations estimation = average net internal migrations: Statistical Yearbook of Serbia

Real effective exchange rate (REER) index, monthly = NEER index * RPI index in Serbia / (0.3*USA CPI index + 0.7*EU HICP index[73]). NEER = Nominal effective exchange rate index, monthly series = 0.3* (Nominal USD/CSD exchange rate index) + 0.7* (Nominal EUR/CSD exchange rate index). Nominal USD/CSD exchange rate, nominal EUR/CSD exchange rate index: Calculation based on nominal daily exchange rates: NBS website.

Real USD/CSD exchange rate index, monthly average = (Nominal USD/CSD exchange rate index) * RPI index in Serbia / USA CPI index. Nominal USD/CSD exchange rate index: Calculation based on nominal daily exchange rates: NBS website.

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* *The official data and new estimates of remittance inflows for Serbia were provided by Mr Milan Aleksic from the National Bank of Serbia (NBS).*

[73] NOTE: Weights of 0,3 for US dollar and 0,7 for euro are NBS staff estimation, based on shares of trade of Serbia with USA and EU respectively. Until January 2001, ponders were 0,35 (USA) and 0,65 (EU). Source: NBS.

RPI index in Serbia: Statistical Office of the Republic of Serbia – Communications (code CN10), monthly publication. USA CPI index (monthly series): NBS.

Real wage, (monthly indices) = Nominal gross average wage month-to-month index/ retail price index (RPI): Statistical Office of the Republic of Serbia

Remittances, monthly data: estimation of total remittances inflow = inflow of remittances to forex accounts (remittances through the banking system) + inflow of remittances through other channels (net foreign exchange purchases – estimation of foreign exchange purchases from tourism) + outflow from forex accounts). Estimation of foreign purchases through tourism is based on average yearly foreign tourist expenditures per day (Statistical Office of the Republic of Serbia) and estimation of average yearly foreign exchange purchases from tourism in 2004 (NBS staff estimation).

Trade deficit, monthly data = exports – imports, in USD: NBS

Unemployment, employment (monthly, in thousands, end of period): NBS.

Unemployment rate = unemployment / (employed + unemployed) * 100;

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