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UDK 336.71:[311.21:658.89(497.7)]
A SIMPLE QUEUING STATISTICAL MODEL FOR THE BANKING SYSTEM IN MACEDONIA

Project conducted by the students[1] from the Integrated Business Faculty Skopje
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Abstract

We try to set up a statistical model to measure the queuing system at the banking system in Macedonia. The illustrative statistical model shows possible not viable queuing systems in the biggest Macedonian banks that lead on one side toward short term cost savings for the banks in terms of fewer employees for the service points but in long run it builds customer's dissatisfaction and social and transactional costs. This research sets up a base for more in depth research about the bank's operations with households operations as customers and might increase the awareness about the customers and banks to improve the existing situation.

Key words: exponential distribution, Poisson distribution, banking system, statistical model, customer's satisfaction.

The banking system in Macedonia

Macedonian banking system comprises 18 banks structured by the Macedonian central bank into three groups by its assets (see more at the Central Bank banking indicators for the third quarter 2007). Macedonia experienced two periods of credit expansion - first in 1997-1998, and second in 2003 and continuing. In between, the country was exposed to the 1999 Kosovo crisis, and to 2001 security crisis with the later having substantial effects for macroeconomic stability (see more at CEA 2006).

The banking system in Macedonia continued to expand their activity measured with the total assets to guarantee capital (see IMF 2008) while the ratio of nonperforming loans has fallen. The banks have strengthened their profitability (rate of return over average assets) and their cost efficiency has continued to rise (operating expenses to grow income). Denar deposits are projected to grow faster than euro deposits and Macedonian banks are optimistic about credit growth. They plan to finance this with deposit growth, drawing down foreign assets held abroad and retained earnings.

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Defining the queuing statistical model for the banking system in Macedonia

The credit expansion and other factors have implication on the queuing system in business operations of the banks that have a direct impact to customer's satisfaction, operating expenses of banks, transaction costs and indirectly to capital expenses of banks, social costs etc.

For the purpose of this research we make assumptions that all banks are operating with the same efficiency and that they are all physically accessible. For the purpose of homogeneity (how big the banks are) we test only three banks at a specified period of time for a period of one hour.

The main point of our queuing statistical model is to provide us with information about the operation of the queuing system specifically the average waiting time and the average length time of queuing and thus, the viability of the queuing.

We assume that individuals join the queue according to the Poisson distribution and that the service times are exponentially distributed (see more at Buglear 2006). We shall study only one service point and by service point here being one service officer per branch for each of the three banks.

The exponential distribution is used to analyse service times in our queuing statistical model. The probability that an exponential random variable takes a particular value can be worked out by:

$P(X = x) = \dfrac{e^{-x/\mu}}{\mu}$ where μ is the mean of the distribution and x is the value of interest.

The Poisson distribution $P(X = x) = \dfrac{e^{-\lambda} \cdot \lambda^x}{x!}$ (where λ is the mean of the distribution and x is the value of interest) is used to analyse the incidents that are unpredictable and in our case this is the number of people that will join the queue in expectation to be served by bank at the service point.

Methodology and data

Given the basic assumptions of exponentially distributed service time with the μ as the main parameter and that the individuals are joining the queue in the banks with the λ as main parameter, the ratio of the two parameters: $\rho = \lambda / \mu$ will show us the traffic intensity in the banking queuing system. For the banking queuing system to be viable the **traffic intensity** must be less than 1 meaning that the mean arrival rate must be less than the mean service rate, otherwise the queue will 'bubble".

The three measurements were done for three bank's branches in The City of Skopje. Two for the hour period from 11:00 to 12:00 and one for the hour period from 15:00 to 16:00 on 6th and 8th of May 2008.

The results

The results from the three measurements are illustrated in the next table.

Table 1. Results from the monitoring/measurement of three bank's branches in Macedonia.

	First bank's branch 11:00 - 12:00 hours One service point	Second bank's branch 11:00 - 12:00 hours One service point	Third bank's branch 15:00 - 16:00 hours One service point

Arrivals in one hour - λ	14	11	23
Mean served in one hour - μ	13	11	20
Traffic intensity - $\rho = \lambda / \mu$	1,1>1	1,0=1	1,2>1
	Not viable	On the margin	Not viable

Possible transaction costs estimation for Macedonia

Let us assume that each household in Macedonia (around 500000) is visiting banks once in a week thus, 4 times in a month. Given the traffic congestion in the city and parking problems it takes at least half an hour to get to the bank.

The mean waiting time in the queue in the bank is: $W_q = \rho / (\mu - \lambda)$ or: $W_q = 1,2 / (23 - 20) = 0,4$ thus, 24 minutes from our measurement on the field (with the worst measured case with traffic intensity of $\rho = \lambda / \mu$ =1,2).

Thus, if we assume that all the banks in Macedonia are operating under same efficiency around Macedonia and given the above assumptions, it turns out that it takes for household at least one hour to deal with the banks in a week (to get there and to do the job) or 4 hours in a month. Four hours is half working day and given that the average net paid wage in Macedonia for February 2008 (see State Statistical Office: www.stat.gov.mk) is 15207 denars (246 euros) it turns that half working day in Macedonia (20 working days in a month assumption) is worth 380 denars (6 euros) per household. For a year this results in 4562 denars (74 euros) and for total Macedonia (500000 households) it results in 37 million euros.

This, really rough calculation illustrates that around 15 million euros (24 minutes average waiting) in a year are paid to Macedonians just to queue in the banks and are the transactional costs in Macedonia caused by the (non)viability of the banking sector. Just one minute improvement in the average waiting time will improve the transaction cost for a bit more than 600000 euros per year.

In the next table it is illustrated a sensitivity analyses of the transactional costs if the Macedonian households are visiting banks once, twice, three times or four times a month.

Table 2. Simulation analyses of yearly transaction costs in euros (1 euro=61,7 denars) from queuing in the banks in Macedonia and transaction gain for one minute improvement of average waiting time.

	Once a month visiting a bank by each household	Twice a month visiting a bank by each household	Three times a month visiting a bank by each household	Four times a month visiting a bank by each household
Transaction costs for net paid wage	3,75 million	7,5 million	11,25 million	15 million
One minute improvement of average waiting time	150000	300000	450000	600000

Conclusion and Limitations

Increasing banking operations in Macedonia and the credit expansion, especially for households, brings also on higher profile the discussion about the viability of the queuing system in the banks, customer's

satisfaction, transaction and social costs. Our simple model (with limited monitoring and measurement) illustrates the intuitive and anecdotic evidence of the low viability and quality of banking service in Macedonia for households as customers and aims at increasing awareness about this potential problem. A further more in depth and thorough research is needed to empirically test this hypothesis and to bring bank's management to a level of awareness about customer's satisfaction.

References

[1] Banking indicators in Macedonia, NBRM Quarterly Report, December 2007

[2] Buglear, J. (2005) Quantitative methods for business. Elsevier Butterworth Heinemann

[3] Credit expansion in Macedonia, CEA 2006, www.cea.org.mk

[4] IMF staff report, March 2008

UDK 339.743
TO FIX OR TO FLOAT FROM PERSPECTIVE OF OUTPUT VOLATILITY AND VULNERABILITY TO CRISIS

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Abstract

The aim of this paper is to offer some less-explored theoretical insights into the exchange rate economics. The debate of whether to fix or to float is still lively, even in the context of output volatility under alternative exchange rate regimes; specifically, the effect of the exchange rate regime on output volatility remains unclear. The very scarce number of studies found divergent results: none of those are overwhelming and none give clear notion of how the regime affects output volatility. The latter might be due to the fact that the exchange-rate regime is not related to output volatility neither, but also due to the fact that the very limited number of studies on this issue do not comprehend it in a coherent and serious manner. Consequently, the issue remains and empirical problem and asks for further empirical investigation.

Keywords: exchange rate regime, output volatility, peg exit
JEL Classification: E42, F31

Introduction

It is theoretically argued and empirically verified that exchange rate targeting (ERT), especially the narrow one, introduces the inflation of the anchor country into the domestic economy. However, peg's effect on growth remains inconclusive even at empirical level. In addition, "[t]he linkages among the international financial system, a country's exchange-rate regime and its domestic real and financial sectors are quite complex and dynamic, challenging our simple models and conventional understanding." (Piragic and Jameson, 2005, p.1465). The assertion stems from the fact that the global capital mobility increased in the last decade,

the conclusion being particularly relevant for the emerging economies. This revives the older debate of fixed versus flexible exchange rates and, in particular, the unsustainability of the exchange rate peg under rapid inclusion of the economy in the international capital markets. This paper discusses the relationship between a peg and output volatility in the context of the still lively debate of to fix or to float.

The reminder is organized as follows. Section 2.1 revisits the older debate of fixed versus flexible exchange rates. Section 2.2 puts particular emphasis on the output variability and vulnerability to crises under alternative exchange-rate regimes. Section three discusses the peg exits. The last section concludes the paper.

2. Fixed versus flexible exchange rates

2.1. Revisiting an older debate - the choice of exchange-rate regime

An issue that has long triggered heated debates in academia not least in empirical research from the post-WWII period is how a country chooses it exchange rate regime. Even today, "debates on the appropriate exchange-rate regime for a country are perennially lively" (Rogoff et al, 2003, p.2). Although far from consensus, a general assertion widely present in the literature of exchange-rate-regime economics is that there is no regime which is uniformly superior; different countries have different exchange-rate regimes; even a single country may adopt different regimes with changes in macroeconomic fundamentals and the macroeconomic objectives to be attained. IMF discussions in late 1999 on exchange-rate regimes came to the view that there is no simple prescription for the choice of a country's exchange-rate regime (Mussa et al 2000). Instead, macroeconomic fundamentals should be first considered along with the consistency of the exchange-rate regime with the underlying macroeconomic policies. Moreover, when one adds to this notion the ways in which the exchange-rate regime could affect macroeconomic variables (Petreski, 2006), then the issue becomes considerably complex.

A country that opts to peg its currency in order to impose credibility and to reduce inflation gives up its monetary policy. The policy "trilemma" suggests that after capital markets became increasingly integrated and obstacles to the free movement of capital dwindled, a country could peg its currency but then ties its monetary policy decisions to those of the anchoring country; or it lets the currency float to pursue a monetary policy directed towards domestic considerations. However, the latter is a privilege of the large economies, which usually serve as anchor countries. On the other hand, Cooper (1999) suggests that with a floating exchange rate complete freedom in capital movements for a small, open economy which lacks a developed financial market might be unsustainable. A large disturbance might hit the economy; for instance, capital flight because of changed investors incentives or political instability. Without capital restrictions, this will cause exchange rate volatility, which is immediately transmitted onto the domestic economic environment, causing nominal and real distortions. Therefore, the choice is narrowed down to a floating rate with some restrictions on capital movements and considerable monetary autonomy vis-a-vis a pegged rate without any restrictions but with subordinated monetary policy. However, many economists would not agree. As an illustration, Eichengreen (1994) says that within a financially integrated world, which is a characteristic of modern times, contingent monetary policy rules will be no longer viable. Fisher (2001) names this as the "hollowing out" hypothesis. The analysis of the spectrum of exchange-rate regimes is behind the objectives of this study. However, from the "hollowing out" hypothesis and the above considerations, one important conclusion is apparent: higher capital mobility, while being beneficial for international trade, portfolio diversification and risk sharing (Tavlas, 2003), makes exchange-rate targets increasingly fragile. This aspect is further analysed in section 2.3.

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2) Summarized by Mussa et al (2000)

Earlier approaches to the exchange-rate regime choice related it to the size of the economy: small economies are usually open (trade a lot) and the fixed rate will serve them better, and vice versa. But, recent literature (see Poirson, 2001 as a good representation) advances the approaches towards the issue of the exchange-rate regime choice and groups them into two broad categories: political factors and "fear of floating". Advocating the former approach, Collins (1996) explains that political instability might influence the choice of an exchange-rate regime by suggesting a floating rate, because the choice to peg the currency imposes a greater political commitment to defend the peg with unpopular measures, like higher interest rates, which may depress economic activity. Also, under a floating regime, exchange rate adjustments are less visible to economic agents, compared to official devaluations under a pegged exchange rate. Edwards (1996) adds that politically unstable countries are not willing to tie their hands by pegging the exchange rate and to forgo the opportunity to inflate in order to create an illusion of augmented economic activity in the short-run, at least.

On the other hand, Calvo and Reinhart (2000) introduced the "fear of floating" approach, according to which countries usually choose to peg their currency in the face of unhedged foreign currency denominated debt, which creates large exchange-rate exposure. However, the peg is only implicit, because authorities fear that the float might hinder the economy, in the worst case leading to default on foreign debt and a crash of the exchange rate peg. Fixing the rate in such a case (implicitly or explicitly) will protect the economy from massive switch from the domestic currency to the foreign one, thus impeding excessive exchange rate volatility (Berg and Borezensztein, 2000). The latter occurs because a larger interest elasticity of domestic money demand in a euroized economy makes the exchange rate more sensitive to expected changes in money supply. However, the inference is not absolute, because the origin of shocks hitting the economy matters.

Subsequently, apart from the macroeconomic effects which an exchange-rate regime might entail, policymakers are also concerned with the ability of the country to respond to different disturbances. Cavalho (2005) and Chang and Velasco (2000) state that a country should opt to peg its currency if it is exposed to nominal shocks, i.e. disturbances affecting the LM curve in a standard ISLM model (changes in money supply, autonomous changes in money demand). For instance, assume that bondholders' preferences change because interest rate on bonds becomes increasingly volatile and thus the demand for money increases. A peg ties monetary policy decisions to those of the anchoring country and subordinates interest rates to the world rates. In other words, a peg will decrease the volatility of interest rates.

On the other hand, if shocks hitting the economy are predominantly originating from the real economy (IS curve: changes in autonomous consumer expenditure, changes in investment spending, changes in terms of trade and so on), then a floating rate is preferable in order to serve the function of disturbances absorber. For example, assume that terms of trade deteriorate so that export becomes more expensive on the foreign market. If the exchange rate is held fixed, such a shock will reduce exports and ultimately output if not compensated by increasing productivity or government subsidy measures. However, these steps could be undertaken once the effect of the shock is realized. If the rate is flexible enough, then the ToT change will result in depreciation of the currency and will not let the output diminish. If the shock is coming from abroad, say oil prices increase, than a flexible exchange rate will absorb part of the shock by experiencing nominal and real appreciation, which in turn will deny the increase of the prices of imports and will hence prevent output from falling. Thus the exchange rate acts as a smoother of external disturbances as well.

Returning to the discussion of capital integration, it is probable that international capital flows make external real shocks more likely (Obstfeld and Rogoff, 1995), suggesting that flexible option of the exchange rate is a more desired alternative today. Moreover, by hitting the pegged rate, in turn, foreign disturbances augment the variance of output. These aspects are analyzed as the study proceeds.

2.2. Output volatility and vulnerability to crises under different exchange-rate regimes - theory and evidence

The core assertion of the Natural Rate Theory is that inflation could not affect output in the long run (Mankiw, 2006). Once nominal wages are set, based on anticipated inflation rate, the labour supply meets labour demand and the market is cleaned. If the central bank eases the monetary policy and inflation increases, real wage decreases because the nominal one is fixed. Firms have incentives to increase labour demand, hence increasing employment and output. In other words, overly expansionary monetary policy which aims at higher employment might shift output from its potential level and create a short-run effect of booming economy (see, for instance, Mankiw, 2006). At this point, the incentives of policymakers and consumers differ: the former try to surprise the latter after they have announced zero inflation. However, this behaviour of the central bank undermines its credibility: workers become rational instead of adaptive in their expectations, as Kydland and Prescott (1977) explained, and anticipate this "inflation bias". The game of the central bank is quickly understood by economic agents; they do not believe the central bank when announcing zero inflation targets and increase their nominal wage demands. On balance, in the long-run, output gets back to its trend level but prices have increased. Levy-Yeyati and Sturzenegger (2001) generalize this conclusion to all nominal variables including the exchange rate, stating that they are believed to be uncorrelated with the longer-term real performance of the economy. The theoretical literature (see Petreski, 2006) and empirical studies of the exchange-rate regime effects on growth (Ghosh et al, 1997; Moreno, 2001a; Levy-Yeyati and Sturzenegger, 2002; Garofalo, 2005; Klau, 1998; Domac et al, 2004a; De Grauwe and Schnabl, 2004; Bailliu et al, 2003) have demonstrated that the relationship between them, even if it exists, remains vague. This implicitly articulates that exchange rate might not be crucial for affecting output growth, but rather for the departure of output from its long-term level or output volatility. However, the literature is consensual on this issue neither. Even the academics themselves are confused; for instance, Moreno (2001), in the theoretical section of his study explains how the peg, which imposes monetary and fiscal restraint causes increased output volatility under a shock, but later in the study, he says that pegging helps policymakers' ability to respond to shocks and reduce output volatility, without explaining how and why. What is the true relationship hence remains unclear and is again an empirical problem.

A general observation in the literature is that, however, the origin of the shock matters. If a monetary shock hits the economy (shifts the LM curve), then a peg will reduce output volatility. Continuing with the example of the previous section, the volatile interest rate which increases money demand will spill over other interest rates in the financial system. Consumers and firms will be deterred from borrowing/investing (binding credit constraints) when the rate is unfavourable and vice versa. But, as the interest rates are volatile, the behaviour of economic agents (households and firms) will result in volatile output (Chang and Velasco, 2000). Then, since the peg provides macroeconomic stability, it stabilizes output volatility caused by domestic nominal disturbances. However, the peg will not insulate the economy from a shock hitting the money demand in the anchoring economy. In this case, quite the contrary, the volatility of the foreign interest rates will be directly transmitted in the domestic economy.

Therefore, if the shock is rooted in the real economy (affects the IS curve) and if it is particularly coming from abroad, a floating rate will be desirable to smooth output fluctuations and shield the economy from the external attack, as explained earlier. The example from the end of the previous section is a good one. In the case of domestic shock in the real sector, depreciation will compensate the rise of the export prices, whereas in the case of external shock the appreciation will impede the increase of import prices. If this was not the case, than in both cases output would have fallen below its potential. Moreover, increased capital mobility augments the exposure of economies to external shocks which are usually related to capital flight, conditional on changes in investors' incentives, domestic political factors or global considerations like oil shocks or even terrorism. Therefore, the view that a peg might be beneficial for trade and investment by imposing certainty in the economic environment, but on the other hand that it might inflict price misalignments and misallocation of resources in times of disturbances, underscores the view that an exchange rate peg increases

output volatility. In addition, Calvo (1999) warns that an exchange rate peg must be defended by an increase of interest rates, which is further harmful for investment.

Another group of studies (McKenzie, 1999; Pugh et al, 1999), however, argues that floating rates, because of the exchange rate volatility implied, are those who spill over the shocks onto the domestic output. The studies of Creedy et al. (1994), Pentecost (1993) and De Grauwe (1996) support the view that exchange rates are unpredictable by demonstrating that nominal exchange rate movements under a floating regime may be represented as lacking in any periodicity, and hence as chaotic. Therefore, exchange rate movements cannot be anticipated and, hence, create uncertainty in the economic environment. Moreover, long-run exchange rate movements are argued to persist for several years (Pugh and Turrall, 2001). If the financial market is sufficiently developed, hedging instruments could serve the function of absorbers of exogenous shock, an assumption which is yet unrealistic for the developing economies. But, since long-run exchange rate variability is less subject to hedging (Cooper, 2000), the exchange rate regime effect on output volatility remains blurred even for the developed economies.

From the discussion, it follows that the way in which an exchange rate regime implicates output volatility is not unclear as much as the effect on growth, but is likely dependent on the nature of the shocks. Also, Moreno (2001) argues that in a world of sticky wages, a peg will limit the transmission of the real shock (say, shock to productivity) on the output: the adjustment of the real wages and labour supply is delayed.

Investigating the preceding views, Levy-Yeyati and Sturzenegger (2001) empirically tested the relationship between exchange-rate regime and output volatility on a 183-country sample over the period 1974-2000. The study is important in that it covers the period after the general switch from fixed rates, independent monetary policy and capital immobility to floating rates, independent monetary policy and growing capital mobility. The study regresses the volatility of real per capita GDP growth on the volatility of the following: investment to GDP ratio, terms of trade and government consumption, and on measures of political instability, initial per capita GDP, population, openness, secondary enrolment, regional dummies and exchange rate dummies, the last distinguishing among hard pegs, intermediate regimes and freely floating rates.

The study found that exchange rate pegs are associated with greater output volatility in developing countries. Again, the study calls onto the previous studies which might have confirmed the relationship, but these are not cited, neither the impression from reading the literature is, as Levy-Yeyati and Sturzenegger (2001) state. For advanced economies however, the relationship was found the reverse, which throws further doubts over the applied modelling framework. The authors themselves ultimately conclude that the evidence of how exchange rate regime [might] implicates output volatility is mixed. However, coupled with the above-mentioned notion of a financially integrated world, the conclusion might highlight the fact that developing economies are usually small and open markets and hence more vulnerable to external shocks. But, the study does not suggest a strong conclusion; neither supports the offered one with tests for robustness.

Some criticisms of the approach of this study can be made. The study constructs this regression by referring to the literature, but does not state which literature; it also utilizes OLS, but does not explain why or why not this technique is appropriate rather than utilizing some advanced technique or at least dynamizing the regression with lags. However, if the reference to the literature is the growth literature, then the question of whether the determinants of output growth and output volatility are the same remains open. For instance, the theory suggests that monetary policy could affect output gap, but not the long-run output growth. This study does not make this distinction. Moreover, the assumption that volatility in some of the production factors will be contemporaneously transmitted onto output appears too strong.

The apparent pitfalls of the study are merely corrected in Edwards and Levy-Yeyati (2003), using the same sample and period. At an outset, the study constructs a long-run growth equation[1], according to the

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1) Real growth = f (inv/GDP; GC; political instability; initial per capita GDP; population; openness; secondary enrolment; regional dummies and exchange-rate dummies)

growth literature (Barro and Sala-i-Martin, 1995). The fitted values of the equation $g*_j$ are than used to construct the following ECM equation:

$$\Delta g_{tj} = \lambda(g^*_j - g_{t-1,j}) + \varphi v_{tj} + \gamma u_{tj} + \xi_{tj} \qquad (1.1)$$

Whereby λ refers to the speed of adjustment of the growth to its long-run level as specified by the growth regression; v_{tj} represents a terms-of-trade shock as measured by the change in the terms of trade defined as the relative price of exports to imports; u_{tj} refers to other shocks, including political ones (civil unrest is used as a proxy). φ is the parameter of interest which is assumed to be positive, since positive terms-of-trade shock should amplify the economic activity and vice versa. More importantly, the study tests how the coefficient changes under alternative exchange-rate regimes. It also specifies separate regressions for groups of countries according to their regime. De-facto classification is used and the terms-of-trade variable is interacted with the exchange-rate dummies. Feasible generalised least squares (FGLS) procedure is used to estimate the regression and indicative results are obtained. The main finding is that under a peg, a 10% deterioration of the terms of trade is associated, on average, with a contemporaneous decline in per-capita growth of 0.8 p.p. Under flexible rate, this figure is 0.43. When separate regressions are used, the same finding is obtained: the more rigid the exchange-rate system, the more amplified the effect of the shock on growth is. Finally, no crucial differences between shock implications are determined if countries are observed as developing versus advanced. The study of Edwards and Levy-Yeyati (2003) is merely the only study in the exchange-rate literature that in a comprehensive and theory-consistent manner captures the effect of exchange-rate regime on output volatility. Not only the determinants of growth are considered, but mostly importantly, shocks are considered in an appropriate manner. Probably, the regression could be augmented by other variables as a proxy for certain shocks. However, the estimation procedure is clearly specified and no special flaws could be identified. Robustness checks are appropriately conducted and convincing.

Moreno (2001a) further develops the hypothesis that if the long-run equilibrium growth rate is found to be unaffected by a peg, then what is affected is the gap to its potential level (the amplitude of fluctuation away from the long-run equilibrium). His study focuses on a sample of 98 developing countries over the period 1974-1998 and calculates the average percentage changes of inflation, output growth and volatility under a peg vis-a-vis floating regime. However, contrary to the initial expectations, output volatility was not found higher under a peg; in essence, the output volatility does not differ between pegging and floating countries in his sample.

Although the results are indicative and point to the belief that the exchange rate regime might not be related to output in general, still the study could be called under a doubt. It covers the period of the generalised floating when pegs started to be progressively abandoned; in that light, a distinction is not made whether the category of a peg encompasses only hard pegs or both hard and soft pegs, since the latter distinction would make difference in terms of output volatility. Moreover, the study does not encompass other factors that might have influential effect on output volatility and create a spurious impression that the exchange-rate regime is powerful: among the others, the possibility of capital controls being imposed and their strength. The study excludes and developed countries because "their institutional characteristics may influence the interpretation of results" (Moreno, 2001, p.26). However, this sampling strategy creates two types of biasness: the first originating from the fact that developing countries are more prone to adopt more rigid form of the exchange rate (because are usually small and open and without developed financial market); the second, from the probability that the sample might be biased towards countries that did not experience exchange rate crisis. The former would make the difference between the effect of the peg and that of the float on output volatility blurred (which is merely the case), whereas the latter would unable clear analysis of regime effects on output volatility past currency crisis (which is the case because the study finds no changes in output volatility once crises episodes are removed).

Bleaney and Fielding (2002) are quite confident in their study that a flexible exchange rate guarantees output stability and test the hypothesis on a sample of 80 developing countries. They develop a model within which they test the relationships between the exchange rate regime and inflation and growth and their respective volatilities. The standard deviation of the real output growth in the period 1980-1989 is regressed on a measure of the volatility of the terms of trade, the agricultural share, country size and dummies for pegged or floating rate, single-currency or basket-currency peg and regional dummies. Within the regression, this study makes crucial advancements in comparison to the above-discussed ones: by including the standard deviation of the annual change in ToT, the model approximates the variation in the size of the output shocks among countries. Moreover, proxies for the country size and its economic structure are included to account for the possibility of easier absorption of an external shock. The assumption that a peg is associated to greater output volatility is supported by the findings, it is particularly strong for CFA countries, but "the difference in output and inflation variance relative to countries with floating exchange rates was less marked" (p.14).

Contrary to the previous lines of thought, Klein and Marion (1997) put their emphasis on the effect of a long-lasting peg on output volatility throughout the possibility that currency crisis would occur. They argue that the duration of the peg determines the probability that currency crisis would happen, which then could transmit into a severe recession. A peg's sustainability is heavily dependent on the current account balance, the stock of international reserves and on the rate of appreciation of the real exchange rate. The probability of devaluation or exit increases when the level of official reserves falls, current account deficit widens and when the real exchange rate appreciates to a level that threatens international competitiveness. Similarly, as the inclusion of the country in the global capital markets increases, a long-lasting peg will increase the probability that an attack will occur, thus increasing the probability of amplified output volatility. In Aizenman and Glick's (2005) words, a severe enough shock will ultimately lead to costly pressure and an attack on the chosen parity, causing a collapse of the official reserves. Subsequently, it will make the cost of sustaining the peg rise above the cost of regime change, hence leading to a collapse of the regime. At this point, either devaluation is necessary, which is only a temporary solution, or a switch to more flexible regime, which is a longer-term option. But, both will adversely affect the output dissent from its trend.

Many papers opt to measure the currency crises and these are summarized in Bubula and Otker-Robe (2003)[2]. Nevertheless, two prominent papers particularly assess the proneness towards currency crises under different exchange rate regimes. IMF (1997) utilizes the period 1975-1996 and groups the currency crises according to the prevailing exchange-rate regime in the period before the crisis and defines currency crisis as a sharp change in the exchange rate. Using de-jure classification, the study found that half of currency crashes occurred under a floating regime. Two criticisms on the study are on hand: the first recognized by the study itself, is the fear of floating which is not considered in, which reflects the suggestion that crisis could have happened quite because of using the exchange rate as a policy instrument while officially reporting a floating rate; the second, stemming from the sample selection bias - the study uses only episodes of sharp exchange rate changes. The study of Bubula and Otker-Robe (2003) tests whether currency crises have been more associated to pegged regimes and which types of pegs were more prone to crisis; IMF-members sample is used during the period 1990-2001. Contrary to the IMF (1997) study, Bubula and Otker-Robe (2003) use the actual behaviour of the exchange rate and measures the exchange-rate crisis as a sharp movements in both exchange rates and interest rates, so that to capture also those attacks successfully resisted by the authorities. However, the study does not consider the movements in the official reserves, which is usually a signal of a pressure on the foreign exchange market. Crisis is identified when the ER pressure index exceeds its mean by three standard deviations. Simple statistical tests have been employed to test various hypotheses and these provided support for the bipolar view, meaning that crises proneness is

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2) The tabulation in the mentioned study is useful as guidelines for the variations for constructing the exchange rate pressure index. However, at this place, no critical assessment of those measurements will be offered, since the issues of measuring exchange rate pressures are beyond the scope of this study.

lower under hard pegs and floating rates than compared to intermediate regimes. In particular, the paper finds no difference in crises proneness across intermediate regimes, with firm exception of conventional pegs, which appeared significantly more crisis prone. Hence, what is of great importance for this study is that pegged regimes as a whole have been more prone to crises compared to floating rates. The latter is particularly applicable to emerging markets that are more integrated in the international financial market. Albeit these findings are somewhat expected, the simplicity of the statistical approach could be contested in the study along the assertion that other factors might lead to currency crises despite the exchange rate regime itself, like durability of the peg, its consistency with the others macroeconomic policies, contagion and so on. The latter are left out of the study.

In summary, although there exists a conventional wisdom that the nominal variables (as inflation or exchange rate) are not related to output growth, but to its departure from the long-run level, the literature is not agreed on the existence of the latter as well. The origin of shocks and the persistence of the exchange rate regime might matter, but the problem, in essence, asks for empirical verification. Despite the distinction between exchange-rate devaluation and exit made earlier, an attack on the peg leads to a sizable disruption of the economy, first and foremost reflected in output volatility and a considerable output loss. However, exchange rate volatility under floating rates could be easily transmitted onto the real activity also, if not insulated by developed financial sector. Moreover, and as noted before, a large-enough real external shock inflicts the foreign exchange regime to fall and the effects on the real economy become increasingly distorting, leading to unprecedented output volatility. The latter suggests that more conservative and longer-lasting pegs are likely to end with severe output losses (Aizenman and Glick, 2005). But whether a peg in general increases output volatility remains an open question. Also, there is some evidence that exchange rate pegs are more prone to crises, but this issue does not reach immediate consensus as well.

2.3. Exiting the fixed exchange rate towards greater exchange rate flexibility - further analysis.

"Can [pegs] plant the seed of their own demise" (Aizenman and Glick, 2005, p.2)? Under increased capital mobility and following the preceding discussion, the answer to this question tends to be positive, but still far from being overwhelming. Aizenman and Glick (2005) argue that pegs lead to the usual trap whereby they deliver early gains in anti-inflationary credibility, but ultimately result in an exit followed by large adverse real consequences, i.e. welfare losses to the economy. Nevertheless, the peg's macroeconomic impact in the period between the "early gains" and the "crisis times" remains theoretically and empirically weakly supported (see section 2.2). Whereas exchange-rate regime's, and particularly, peg's effect on output volatility remains unclear, both above-mentioned outcomes have been empirically verified. A peg's effect on inflation has been largely confirmed in the studies, part of which were considered in Petreski (2006), while the notion that a long-lasting peg establishes grounds for its own downfall could be supported by a look through the history: ERM-EMS currencies crisis (1992); Mexican peso crisis (1994); East-Asian currencies crisis (1997); Russian rouble crisis (1998); Brazilian real crisis (1999); Turkish lira crisis (2001); Argentinean peso crisis (2001); and so on. The cause of all these crises was a pegged or tightly managed exchange rate at a level which, at certain point, became incompatible with the macroeconomic fundamentals and increased international capital mobility manifested through volatile capital flow reversals. In addition, such regimes have been seen as "too costly for a government to maintain when its promises not to devalue lack credibility and when developing and maintaining credibility has become increasingly difficult" (Obstfeld and Rogoff, 1995). In each case, the consequence was exchange rate devaluation or, more probably, peg exit and the establishment of a flexible exchange rate system. Bubula and Otker-Robe (2003) argue that majority of pegs lasted less than five years, but Schuler (1999) emphasizes that some rigid rates existed for decades or even centuries. As an illustration, Klein and Marion (1997) estimated the median duration of a dollar peg to be 10 months in a sample of 16 Latin American economies (1957-1990), whereas Dattagupta and Otker-Robe (2003), four quarters for 32 economies with pegged regimes ranging from currency boards to crawling pegs (1985-2002). But, these studies do not account for the exposure of these economies to international capital flows. In cases

Table 1. Peg-exits

Case	Date	Type of peg/ER target before the exit	New exchange-rate regime
Albania	Jul-92	Conventional peg	Free float
Algeria	Apr-94	Conventional peg (to basket)	Managed float
Angola	May-99	Conventional peg	Free float
Argentina	Jul-01	Currency board	Managed float
Brazil	Jan-99	Crawling peg	Free float
Bulgaria	Feb-91	Conventional peg (to basket)	Free float
Burundi	Aug-99	Conventional peg (to basket)	Managed float
Chile	Feb-99	Crawling band	Managed float
Colombia	Sep-98	Crawling band	Managed float
Congo, DR of	May-01	Conventional peg	Free float
Cyprus	Sep-92	Conventional peg (to basket)	ER band
Czech R.	May-97	ER band	Managed float
Egypt	Jul-90	Conventional peg	ER band
El Salvador	May-90	Conventional peg	Managed float
Ethiopia	Oct-92	Conventional peg	Managed float
Finland	Sep-92	ER band	Free float
Guyana	Jun-90	Conventional peg	Managed float
Hungary	Aug-94	Conventional peg (to basket)	Crawling band
Iceland	Feb-01	ER band	Free float
Indonesia	Aug-97	Crawling band	Free float
Israel	Mar-91	ER band	Crawling band
Italy	Sep-92	ER band	Free float
Kazakhstan	Apr-99	Crawling peg	Free float
Kenya	Mar-93	Conventional peg (to basket)	Managed float
Korea	Nov-97	Crawling band	Free float
Laos	Dec-97	Conventional peg	Managed float
Madagascar	May-94	Conventional peg (to basket)	Free float
Malawi	Feb-94	Conventional peg (to basket)	Free float
Mexico	Dec-94	Crawling band	Free float
Mongolia	Jan-93	Conventional peg	Free float
Myanmar	Dec-95	Conventional peg (to basket)	Managed float
Nicaragua	Jan-93	Conventional peg	Crawling peg
Nigeria	Feb-95	Conventional peg	Managed float
Norway	Sep-92	ER band	Free float
Peru	Aug-90	Crawling peg	Managed float
Phillipines	Sep-97	Conventional peg	Free float
Poland	Feb-92	Conventional peg (to basket)	Crawling peg
	Oct-98	Crawling peg	Managed float
Sao Tome and Principe	Sep-91	Conventional peg (to basket)	Crawling peg
	Dec-94	Crawling peg	Managed float
Sierra Leone	May-90	Conventional peg	Free float
Slovakia	Jul-93	Conventional peg	ER band
	Aug-98	ER band	Managed float
Sweden	Sep-92	ER band	Free float
Thailand	Jul-97	Conventional peg (to basket)	Managed float
Tonga	Aug-98	Conventional peg (to basket)	ER band
Trinidad and Tobago	Apr-93	Conventional peg	Free float
Turkey	Feb-01	Crawling peg	Free float
Ukraine	Oct-94	Conventional peg	Managed float
UK	Sep-92	ER band	Free float
Uruguay	Dec-01	Crawling band	Free float
Venezuela	Dec-95	Conventional peg	Crawling band
Vietnam	Jan-96	Conventional peg	Free float
Zimbabwe	Dec-97	Crawling band	Managed float

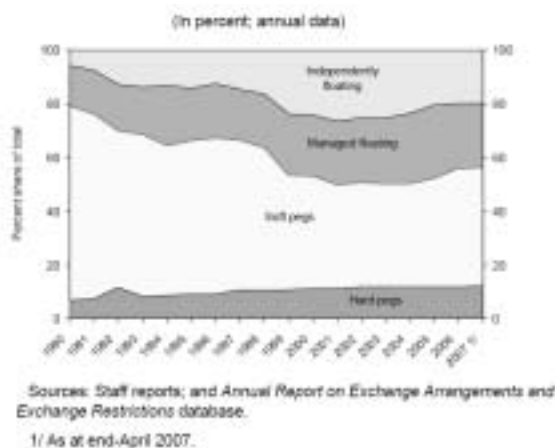*Source: Babula and Otker-Robe, 2003*

where the attack was extremely large, a sharp contraction of economic activity occurred, followed by wider financial "twin-crises", i.e. crisis in both the foreign exchange and banking system.

In general, peg-exits are classified as: i) exits with adjustments within the same regime (for example, devaluation); ii) exits to more flexible regimes (from conventional peg to exchange rate band); iii) exits to less flexible regimes (from conventional peg to a currency board); iv) exits to other type of regimes not comparable with the current regime in terms of flexibility (from peg to managed or free float) (Dattagupta and Otker-Robe, 2003). Although this study makes a pioneering step to group peg-exits, still this grouping is not coinciding with its purpose. For instance, the first three groups are not, in essence, peg-exits (a target is still announced, there is a change in flexibility, but not a peg-exit per se), while the last, which could be treated as a peg-exit, is ambiguously (un)explained. In the explanations by the cited study and that of Tavlas (2003), the preceding paragraph listed the "famous" crises resulting in, so-called, disorderly peg-exits preceded by an exchange rate attack or pressure. However, the propensity towards greater exchange rate flexibility has not always been preceded by severe exchange rate attacks, resulting in financial crises. Although Dattagupta and Otker-Robe (2003) examine orderly pegs as well, still these refer to those where authorities envisaged the temptation that the pressure on the for-ex market would expand into financial crises and impede it by flexibilizing the rate before reserves elapsed or interest rates soared. The next table lists the exchange rate crisis resulting in abandonment of the peg towards greater exchange-rate flexibility. The table does not attempt on exhaustiveness.

Taking on a historical perspective, countries recognized that a peg made their economy vulnerable to foreign disturbances and this led to the era of flexible exchange rates in the aftermath of the Bretton-Woods period. Specifically, during the Bretton Woods system, shocks hitting one economy were easily transmitted over other economies that maintained fixed rates. However, once Bretton Woods broke down, the propensity towards flexible exchange rates has been increasing. In 1975, 87% of developing countries have had some type of pegged exchange rate; in 1996, this percent fell below 50% (IMF, 1997). Caramazza and Aziz (1998) argue that the shift from fixed to more flexible exchange rates has been gradual, leading to complete abandoning of fixed rates in the developed world and an increasing number of developing countries that embark on more flexible exchange rates, which is confirmed by the preceding notion. Certainly, an exception from this assertion is the process of monetary integration in Europe, but that is rather different topic which is beyond the scope of this study.

Figure 1.1.

Evolution of de-facto exchange-rate regimes (1990-2007)

Sources: Staff reports; and Annual Report on Exchange Arrangements and Exchange Restrictions database.

1/ As at end-April 2007.

Nevertheless, these studies pass over the fact that, even excepting the EMU, there is a less-pronounced inclination to establish hard pegs as well (Figure 1.1). Hard pegs belong to the group of irrevocable commitment (euroization, currency board) to support the peg with necessary policies and institutions. Among others, Fisher (2001) argues that the peg might become unsustainable under increased capital mobility, unless

it is in a form of a hard peg. Otherwise, it must freely float. "There is little, if any, comfortable middle ground between floating rates and the adoption by countries of a common currency" (Obstfeld and Rogoff, 1995, p.2). Fisher's idea became known as the "bipolar view" or the "hollowing out" hypothesis. Intermediate regimes are unsustainable under high capital mobility, especially for countries that commit to defend the peg, but do not establish the firm institutional background that would require implementing policies devoted solely to the exchange-rate objective. Yet, the evidence that intermediate regimes (like soft pegs and managed floats) will disappear is scarce (for instance, Masson, 2001), while there is some evidence that corner solutions also might end up with exchange-rate crises, like the speculative attacks on the Hong Kong's and Argentina's currency board in 1997 and 1994, respectively, and the collapse of Argentina's board in 2001 (Bubula and Otker-Robe, 2003). Some arguments follow the line that the corner solutions are more adequate for countries that are fully or relatively open to international capital markets, whereas those with capital restrictions find intermediate regimes more feasible. Although this assertion might be logical and some attempts to test it have been made, it is still not empirically verified.

Partially opposed to the "bipolar view", however, economists recognized the importance of macroeconomic policies directed towards domestic considerations, an assertion which is not compatible with fixed rates and capital mobility simultaneously. Hence, increased capital mobility has been the biggest factor behind the propensity towards flexible (but not floating) exchange rates in the last three decades (Obstfeld and Rogoff, 1995). The trend towards greater exchange rate flexibility has been associated with more open, outward-looking policies in trade and investment generally, and increased emphasis on market-determined exchange and interest rates. Dattagupta and Otker-Robe (2003) support the argument that shifts to more flexible regimes are associated with an increase in trade openness. Moreover, by their attitude towards more flexible rates, authorities directly affect the real economy: flexible rates are argued, but not proved to be absorbers of real exogenous shocks and to steadily smooth output volatility (see section 2.2). However, the literature and this particular study again overlook the evidence from the practice that floating rates are prone to overshooting and to unprecedented short- and long-run variations (Pugh et al, 1999; Pugh and Turrall, 2001), which might spill over the domestic output.

Not only the greater openness leads to greater exposure to capital flows, but it might be also a result of the economic development of the country. As the economy grows, it becomes export-oriented and thus more open. But, the aspect now is on the notion that growing economies might not sustain their peg from some other reasons. Caramazza and Aziz (1998) explain that the real effective exchange rate of the domestic currency tends to appreciate when the economy is booming. Namely, as the economy gets involved in the foreign markets, the tradables sector experiences enhanced productivity growth, which outpaces the productivity growth of the non-tradable sector. The process is accompanied by increasing inflation, due to the higher wages requested by the non-tradables and it particularly happens when a country converges to the level of development of other countries. If the exchange rate is pegged, than the real rate will be appreciating; the faster the economy grows, the more emphasized the pressure on the peg. Besides, inflation will be higher. This process, which became known as the Balassa-Semuelson effect (due to Balassa (1964) and Samuelson (1964)), was largely confirmed in the literature. A sublimation of 58 studies which were published on this topic in the period 1964-2004 could be found in Tica and Druzic (2006) and among those only six did not find a support for the B-S effect. The exchange-rate flexibility would enable balancing those Balassa-Samuelson effects: exchange-rate appreciation will cancel out with the increased inflation. For instance, between 1980 and 1996, Hong Kong has had a type of a currency board arrangement since 1983 and experienced relatively higher inflation than Singapore which had a managed floating regime. But, the real exchange rates of both countries appreciated at roughly the same rates (Caramazza and Aziz, 1998).

Following the preceding lines of arguments and those in section 2.1, the propensity towards greater exchange-rate flexibility, hence, does not mean that the choice is to tightly fix or to freely float. The propensity towards floating rates from the beginning of the 1970s in the developed world and the limited evidence of propensity to establish hard pegs (Hong Kong, Argentina, Bulgaria, Estonia and so on) or to form curren-

cy unions later (for example, EMS/Euro zone in 1979/1999) support Fisher's (2001) bipolar view or "hollowing out" hypothesis. However, along the partial, but increasing inclusion in the world capital market, developing countries still have relatively small and thin financial markets, where a few transactions could aid considerable exchange rate volatility which could not be easily hedged of being transmitted onto the real activity. Therefore, managing the exchange rate is still needed (Caramazza and Aziz, 1998).

For these countries, the question is not to fix or to float, but rather a choice among a greater palette of flexible or intermediate regimes, all listed in table 1.1. Intermediate regimes differ among each other according to the level of flexibility and part of those could appear under ER target, whereas managed float is freed of any target, but the central bank prevents excessive exchange-rate fluctuations. The choice of the level of flexibility is related to the concept of "fear of floating". However, while the "fear of floating" emerges when the central bank announces a de-jure float, but opts to maintain a de-facto fixed parity which is believed to be consistent with macroeconomic fundamentals (Calvo and Reinhart, 2002), intermediate regimes are those within which the currency is neither narrowly fixed nor freely floats. In the latter case, de-jure and de-facto regime coincides: flexibility is provided and the fear of floating is made explicit. The level of flexibility depends on the relative weight given to sustaining activity or limiting inflation and on the shocks hitting the economy or, implicitly, on real sector effects (Masson, 2000). In the same line, Williamson (1999) highlights that intermediate regimes could help prevent misalignments and provide greater flexibility to cope with shocks.

Rogoff et al (2003) consider the greater exchange rate flexibility due to increased credibility and maturity of the financial institutions. Albeit that financial integration affects all countries, developing countries still face institutional weaknesses (for example, instrument independence of the central bank is often contested in these economies). These, in turn are an obstacle for establishing an exchange rate with considerable flexibility (like managed float), except in the case when the currency is attacked and the target must be abandoned because reserves already elapsed. Consecutively, the institutional weaknesses could manifest themselves in higher inflation, debt sustainability problems, fragile and highly concentrated banking systems, all of which could undermine the credibility of the monetary policy. As noted earlier, credibility is accumulated by pegging; it decreases inflation and enables authorities to pursue credible macroeconomic policies. At the same time, this is a period of self-reflection, whereby pegging countries could learn to float (Rogoff et al, 2003).

The same study introduces the concept of financial maturity, explaining that a shift to more flexible regime must be founded on a sound financial system, which includes well-developed financial markets, institutions and instruments, including the foreign exchange market, as well as access to international capital markets and greater trade openness. The latter, in turn, assumes boosted competitiveness on the global market and greater labour productivity (Salman and Shukur, 2004). Implicitly, the greater propensity towards exchange rate flexibility and international capital mobility are concepts that mutually reinforce.

In summary, the debate whether to fix or to float is not ended and will not end for long probably. It is theoretically and empirically verified that pegs help in fast disinflation and impose credible macroeconomic policies on the economy. Alternatively, the history of currency crises across the world and the limited evidence have suggested that de-facto pegs are likely prone to exhibit crises and do not respond to output volatility, but instead cause serious real economy distortions when exogenous disturbances occur, although the latter remains without theoretical consensus or convincing empirical verification. On the other hand, flexible rates are argued to be firm shock absorbers; they provide an adequate buffer against external shocks, thus taking into account the consequences of increased output volatility. They are not prone to crises, but prone to overshooting and unpredictable volatility (Pugh et al, 1998), which could be easily transmitter over the real activity. Taking into account the level of institutional and financial development of a country, this reasoning might give a priority of flexible over fixed exchange rates or vice versa. But all these considerations ask for empirical verification, depend on the current macroeconomic state of the country and will probably remain a further debated issue in international finance.

Summarizing all views related to exchange-rate regime's macroeconomic performance and propensity for crises (provided in Petreski, 2006 and in this particular study), the following table is drafted:

Table 1. Macroeconomic performance across exchange-rate regimes

	Inflation	Growth	Volatility	Crisis
Fixed	Enhances domestic monetary policy credibility and lower domestic inflation by tying monetary decision to those of the anchor country. Emerging markets less likely to be able to import credibility without the peg. Moreover, inflation may be suppressed under weak macroeconomic management (fiscal policy) and weak institutions.	May raise trade, investment and, thus, growth by imposing certainty in the economic environment. But, may also cause price misalignments and harm competitiveness by artificially appreciated currency, thus harming growth.	May decrease output volatility under domestic nominal shocks, but may increase output volatility in the presence of real (and particularly exogenous) shocks and nominal rigidities.	High risk of speculative attacks against the currency, especially when exposed to volatile capital flows (which is highly realistic assumption in modern times). Vulnerability to banking sector distress.
Flexible	The importance of "imported" credibility declines with stronger institutions (central bank independence, disciplined fiscal policy) and financial sector maturity (diversified hedging instruments). In the majority of cases, price stability achieved by other monetary-policy anchor (like inflation targeting or implicit targeting)	May aid growth due to shock absorbers and fewer distortions following real shocks, but may be an obstacle to growth by imposing economic uncertainty.	Reduced output volatility due to the function of shocks' absorber, but the real exchange rate volatility may spill over into real activity, if not insulated by a developed financial sector.	Low risk of currency and banking crises, but the exchange rate volatility might cause uncertainty into the financial system.

Source: Adopted and modified by the author from Rogoff et al (2003), p.30, according to the discussion in Petreski (2006) and in this study.

3. Conclusion

The aim of this paper was to offer some less explored issues in the debate of whether to fix or to float. In summary, the debate of whether to fix or float is still lively. The choice of the exchange-rate regime depends on the size of the economy, macro-fundamentals, but especially on the shocks hitting the economy. As the economy involves into the world financial market, real exogenous shocks become increasingly apparent, hence requesting floating rate which will serve the function of absorber of such disturbances.

Although the theoretical and empirical search confirmed that a peg delivers low inflation, but is prone to exhibit crises in times of large adversarial shocks, still the issue of its effect on the output volatility remains blurred. The very scarce number of studies found divergent results: none of those are overwhelming and none give clear notion of how the regime affects output volatility. The latter might be due to the fact that the exchange-rate regime is not related to output volatility neither, but also due to the fact that the very limited number of studies on this issue do not comprehend it in a coherent and serious manner. Consequently, the issue remains and empirical problem and asks for further empirical investigation.

References

[1]   Aizenman, J. (1992) Exchange rate flexibility, volatility and domestic and foreign direct investment. NBER Working paper, 3953, Cambridge University press, MA.

[2]   Bailliu, J., Lafrance, R. and Perrault, J.F. (2003) Does Exchange Rate Policy Matter for Growth? International Finance, 6(3), p.381-414.

[3]   Balassa, B., 1964. "The Purchasing Power Parity Doctrine: A Reappraisal". Journal of Political Economy, 72 (2), 584-596.

[4]   Berg, A. and Borensztein, E. (2000) The Choice of Exchange Rate Regime and Monetary Target in Highly Dollarized Economies. IMF Working Paper, 29.

[5]   Bohm, H. and Funke, M. (2001) Does the Nominal Exchange Rate Regime Matter for Investment? CESifo Working Paper, 578, p.1-25.

[6]   Canavan, C. and Tommasi, M. (1997) On the Credibility of Alternative Exchange Rate Regimes. Journal od Development Economics, 54, p.101-122.

[7]   Caramazza, F. and Aziz, J. (1998) Fixed or Flexible? Getting the Exchange Rate Right in the 1990s. IMF Economic Issues 13, p.1-25.

[8]   Chang, R. and Velasco, A. (2000), Exchange Rate Policy for Developing Countries, American Economic Review, 90(2), p.71-75.

[9]   Cooper, R. (1999) Exchange Rate Choices. Mimeo, Harvard University.

[10]   Cooper, R. (2000) 'Towards a Common Currency'. International Finance, Vol. 3, No. 2 (July), pp. 287-308.

[11]   Corden, W.M. (2002) Too Sensational: On the Choice of Exchange Rate Regimes. Cambridge, MA: MIT Press.

[12]   Creedy, J., Lye, J. and Martin, V. (1994) 'Non-linearities and the Long-run Real Exchange Rate Distribution'. In Creedy, J. and Martin, V. (eds) Chaos and Non-linear Models in Economics (Cheltenham: Edward Elgar), Chapter 13.

[13]   De Grauwe, P. (1989; 2nd ed., 1996) International Money, (Oxford: Oxford University Press).

[14]   De Grauwe, P. and Schnabl, G. (2004) Exchange Rates Regimes and Macroeconomic Stability in Central and Eastern Europe. CESifo Working Paper, 1182, p.1-34.

[15]   Dellas, H. and Zilberfarb, B. (1995) Real Exchange Rate Volatility and International Trade: A Re-examination of the Theory. Southern Economic Journal, p.641-647.

[16]   Domac, I., Peters, K. and Yuzefovich, Y. (2004a) Does the Exchange Rate Regime Matter for Inflation? Evidence from Transition Economies. Policy Research Working Paper, p.1-29.

[17]   Du, H. and Zhu, Z. (2001) The Effect of Exchange-rate Risk on Exports: Some Additional Empirical Evidence. Journal of Economic Studies, 28(2), p.106-123.

[18]   Edwards, S. and Magendzo, I. (2003) A Currency of One's Own? An Empirical Investigation on Dollarization and Independent Currency Unions. NBER Working Paper, 9514, p.1-47.

[19]   Eichengreen, B. (1994) International monetary arrangements for the 21st century. Washington DC: Brookings Institution.

[20]   Fisher, S. (2001) Exchange Rate Regimes: Is the Bipolar View Correct? Jorunal of Economic Perspectives, 15, p.3-24.

[21]   Friedman, M. (1953) The Case of Flexible Exchange Rates. Cited in: De Grauwe, P. and Schnabl, G. (2004) Exchange Rates Regimes and Macroeconomic Stability in Central and Eastern Europe. CESifo Working Paper, 1182, p.1-34.

[22]   Garofalo, P. (2005) Exchange Rate Regimes and Economic Performance: The Italian Experience. Banca D'Italia Quaderni dell'Ufficio Ricerche Storiche, 10, p.1-50.

[23]   Ghosh, A.R., Ostry, J.D., Gulde, A.M. and Wolf, H.C. (1996) Does the Exchange Rate Regime Matter for Inflation and Growth? IMF Economic Issues, 2, p.1-19.

[24]   Goldstein, M. (2002) Managed Floating Plus. Washington DC: Institute for International Economics, Policy Analyses in International Economics.

[25]   Gylfason, T. (2000) Fix or Flex? Alternative Exchange Rate Regimes in an Era of Global Capital Mobility, North American Journal of Economics and Finance, 11(2), p. 173-89.

[26]   Hagen, J.V. and Zhou, J. (2002b) De facto and Official Exchange Rate Regimes in Transition Economies. IMF Working Paper, 53, p.1-23.

[27]   Hernandez-Verme, P.L. (2004) Inflation, Growth and Exchange Rate Regimes in Small Open Economies. Economic Theory, 24, p.839-856.

[28]   Kydland, F. and Prescott, E. (1977) Rules Rather than Discretion: The Inconsistency of Optimal Plans. Journal of Political Economy, 85(3), p.473-92.

[29]   Levy-Yeyati, E. and Sturzenegger, F. (2001) Exchange Rate Regimes and Economic Performance. Journal of International Money and Finance, 47(special issue), p.62-95.

[30]   Levy-Yeyati, E. and Sturzenegger, F. (2002) To Float or to Fix: Evidence on the Impact of Exchange Rate Regimes on Growth, American Economic Review, 12(2), p.1-49.

[31]   Lucas, R. (1976) Econometric Policy Evaluation: A Critique. In K. Brunner and A. Meltzer (eds) The Phillips Curve and Labour Markets, Carnegie-Rochester Conference Series on Public Policy, 1.

[32]   Masson, P. (2000) Exchange Rate Regime Transitions. IMF Working Paper, 134, p.1-17.

[33]   McKenzie, M. (1999) 'The Impact of Exchange Rate Volatility on International Trade Flows'. Journal of Economic Surveys, Vol. 13, No. 1, pp. 71-106.

[34]   McKinnon, R. and Schnabl, G. (2003) The East Asian Dollar Standard, Fear of Floating and Original Sin. Hong Kong Institute for Monetary Research Working Paper, 11.

[35]   Mishkin, F.S. and Calvo, G. (2003) The Mirage of Exchange Rate Regimes for Emerging Market Countries. Journal of Economic Perspectives, 17(4), p.99-118.

[36]   Moreno, R. (2001a) Pegging and Macroeconomic Performance in East Asia. ASEAN Economic Bulletin, 18(1), p.48-63.

[37]   Moreno, R. (2001b) Pegging and Stabilization Policy in Developing Countries. Economic Review of the Federal Reserve Bank of San Francisco, 12(99), p.17-29.

[38]   Obstfeld, M. and Rogoff, K. (1995) The Mirage of Fixed Exchange Rates. Journal of Economic Perspectives, 9(4), p.73-96.

[39]   Pentecost, E. (1993) Exchange Rate Dynamics (Aldershot: Edward Elgar).

[40]   Poirson, H. (2001) How Do Countries Choose Their Exchange Rate Regime? IMF Working Paper, 46, p.1-34.

[41]   Pugh, G. and Tyrrall, D. (2001) Will the Single Currency Promote intra-European trade? European Business Journal, 14, p.150-157.

[42]   Pugh, G., Tyrrall, D. and Tarnawa, L. (1999) 'Exchange Rate Variability, International Trade and the Single Currency Debate: A Survey'. In Meeusen, W. (ed.) Current Issues in European Economic Policy (Aldershot: Edward Elgar).

[43]   Rogoff, K.S., Husain, A.M., Mody, A., Robin, B. and Oomes, N. (2003) Evolution and Performance of Exchange Rate Regimes. IMF Working Paper, 243, p.1-82.

[44]   Samuelson, P. A., 1964. "Theoretical Notes on Trade Problems". The Review of Economics and Statistics, 46, 145-154.

[45]   Talvas, G.S. (2003) The Economics of Exchange-Rate Regimes: A Review Essay, World Economy, 26(8), p.1215-1246.

[46]   Tica, J. and Druzic, I., 2006. "The Harrod-Balassa-Samuelson Effect: A Survey of Empirical Evidence"., University of Zagreb, Faculty of Economics and Business, Zagreb, FEB - Working Paper Series, 06-07

[47]   Willett, T. (1998) Credibility and Discipline Effects of Exchange Rate as Nominal Anchors: The Need to Distinguish Temporary from Permanent Pegs. World Economy, 21(6), p.803-827.

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POTENTIAL GROWTH, OUTPUT GAP AND THE CYCLICAL FISCAL POSITION OF THE REPUBLIC OF MACEDONIA

MSc Misho Nikolov

Abstract

Economic analysis is becoming more quantitative. Thus the analysis of the main macroeconomic variables will be better performed if it is expanded with the analysis of the potential output, the output gap and its relations with the other economic variables. The main objective of this paper is to calculate the potential output and the output gap of the Macedonian economy. The analysis of these variables is useful for the policy makers when they make policy decision, especially in the field of fiscal and external sector analysis. Potential output and the output gap can be used for the analysis of the other sectors as well. The potential output is an unobserved variable which signifies different things to different people, especially when discussed over various time horizons, with the concept appreciated differently when placed in a short, medium or long term perspective. Since it has to be estimated using statistical methods, it is subject to a high degree of uncertainty

The structure of this paper is as follows: first, the concept of potential output and the output gap is being presented. Than the theoretical background for calculating those variables are analyzed. Further more, potential output and the output gap for the Republic of Macedonia is calculated. Economic analysis using these variables is done as well. Finally, recommendation for future research and conclusions are presented.

Key words: *Potential output, output gap, potential revenues, potential expenditures, Hodrik Prescott method, regression analysis*

Introduction - the concept of Potential Output

Potential output is defined as maximum output level that an economy can attain without creating any inflationary pressures. It is also called maximum sustainable output level. The meaningful analysis of cyclical developments, of medium term growth prospects or of the stance of fiscal and monetary policies should be based on either an implicit or explicit assumption concerning the rate of potential output growth. In this turn, the output gap is defined as the difference between effective output and the potential output. Both indicators are composite indicators of the aggregate supply side capacity of an economy and of its scope for sustainable, non-inflationary, growth.

The potential output is an unobserved variable which signifies different things to different people, especially when discussed over various time horizons, with the concept appreciated differently when placed in a short, medium or long term perspective:

- In the short run (less than one year), when the physical productive capacity of an economy may be regarded as being quasi fixed and its comparison with the effective / actual output developments (i.e. in output gap analysis) shows by how much total demand can develop during that short period without inducing supply constraints and inflationary pressures. Currently, the short term analysis of the potential growth is very important as it can be an indicator to the government on the relation between the government expenditures and the second round inflation effect.

- In the medium term (from three to five years), the expansion of domestic demand when it is supported by a strong upturn in the amount of productive investment may endogenously generate the productive output capacity needed for its own support. The latter is all the more likely to occur when profitability is high and either increased or supported by an adequate wage evolution with respect to labour productivity.

- Finally, in the long run (10 years and beyond) the notion of full employment potential output is linked more to the future evolution of technical progress (or total factor productivity) and to the likely growth rate of labour potential. For the latter, the EU is paradoxically in a much better position than the US, thanks to its present very low employment rate (with respect to the working age population) and its very high rates of structural and cyclical unemployment (as a proportion of the active population).

Once we have the potential output calculated it can be used for the analysis of different macroeconomic variables with an objective to see what their behavior would have been different if the economy was at its potential. Currently, most of the economists use this output gap for analysis of the fiscal and external position of the economy.

The medium and long run considerations should always be kept in mind when discussing potential output since the latter is often seen in an excessively static manner in some policy making fora, where the growth of capacity is often presented as invariant not only in the short run (where such an assumption is warranted) but also over the medium term as if the projection of fixed investment had no impact on productive capacity.

Methodology and data

The quantitative research in this paper is based on quarterly macroeconomic data (Gross domestic product, General government revenues and expenditures, current account deficit), starting from 1997 till 2007 i.e. 40 observations (year 2001 is omitted due to non economic reasons. There are no available quarterly GDP data for the Republic of Macedonia and this is why this period is being chosen.

The potential GDP growth is calculated with the Hodrick Prescott method. This is a smoothing method that is widely used among macroeconomists to obtain a smooth estimate of the long-term trend component of a series. The method was first used in a working paper (circulated in the early 1980's and published in 1997) by Hodrick and Prescott to analyze postwar U.S. business cycles. Further more, the potential output is used for calculation of potential government revenues and expenditures, as well as potential deficit. Regression analysis is used for calculation of theses variables.

For the quantitative research, E-views statistical software package is used.

Measuring Potential Output for Use as an Operational Surveillance Tool

Measurement of potential growth is far from straightforward and, being unobservable, can only be derived from either a purely statistical approach or from a full econometric analysis. It is clear however that conducting either type of analysis requires a number of arbitrary choices, either at the level of parameters (in statistical methods) or in the theoretical approach and choice of specifications, data and techniques of estimation (in econometric work).

Since it has to be estimated using statistical methods, it is subject to a high degree of uncertainty. There are various methodologies which have been suggested for estimating potential output, but all of them can be classified in two groups. The first one is based on the trend estimation, and the second one is based on the production function estimation. Both of them assume that GDP growth may be divided into two components: trend growth and cyclical growth, whereby:

$$Yt = \Theta t + Ct$$

where Y is the logarithm of GDP, Θ is its trend component and C is its cyclical component. The trend reflects a broad long-term growth curve around which output fluctuates, and it is regarded as a measure of potential output. The second group of methods is based on estimating the production function and using this to estimate potential output. Production is commonly described using the Cobb-Douglas specification of the production function:

$$Yt = At\ N^{\alpha}{}_t * K_t{}^{1-\alpha}$$

where Yt is the output level of the economy at constant prices, At is total factor productivity (i.e. productivity of the combined factors of production (labour, capital and other factors)), Nt is labour input and Kt the capital stock, while ? is the share of wages in the total value added in the economy and is assumed to be constant over time.

This method begins by dividing labour use into its components:

$$Nt = Ht *Lt* (1-Ut)$$

where Ht is the participation ratio, Lt is the number of individuals of working age and Ut is the unemployment rate. An attempt is then made to measure the natural rate of unemployment, i.e. the level of unemployment measured at full utilization of the factors of production. Most of these methods used to calculate potential output are based on different estimates of the natural rate of unemployment. One applies the HP filter to the unemployment rate, whereas the other uses an assumed rate of natural employment. These set the unemployment rate at full utilization of the factors of production in developed countries is usually set at 2.5% and 3.0%. For developing countries this number can be much higher. This approach yields a specific estimation of potential output, which is then used together with estimated output to calculate the output gap (using equation (1)).


Measuring potential output in the Republic of Macedonia using HP filter

In this section, the calculation of the potential growth and output gap using the trend method (HP filter) will be presented. The potential growth in the Republic of Macedonia is calculated by applying the Hodrick-Prescot trend estimation, where trend value (Y*) is estimated by minimizing the real domestic production gap (Y) and the trend and the variability thereof for the whole sample (T):

$$\text{Min} \sum_{t=0}^{T} (Yt-Yt^*)^2 = \alpha \sum_{t=2}^{T-1} ((Y^*{}_{t+1} - Yt^*) - (Yt^* - Y^*{}_{t-1}))^2$$

where α is a parameter for smoothing the time series. According to literature (for developing countries), the assumption is that the value of the parameter is 30.

Graph 1 HP trend
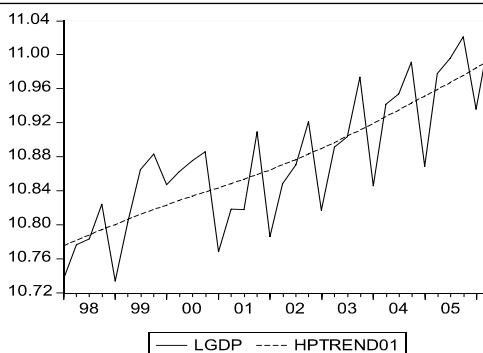
We would like to point out that having in mind the many structural disturbances that occurred in the past period, as well as the external shocks which the Republic of Macedonia was exposed to, together with the long period of transition (i.e. significant decline of the economic activity by 1995), there is a great probability that the Hodrick-Prescott method produces biased results in the case of Macedonia.

Table 1

	2006	2007	2008	2009	2010
GDP	4,0	5,1	6,0	6,5	6,5
Potential growth	4,6	5,0	5,7	5,9	5,9
Autput gap	-0,6	-0,1	0,3	0,6	0,6

Source: Calculation based on State statistical data and projections of the Ministry of finance

In order to calculate the output gap, we simply subtract the GDP growth from the potential GDP growth. The country's economic growth was below its potential in 2002 (-1.1 percentage point) when the economy was recovering from the 2001 crisis, and in 2006 (-0.6 percentage points), when the growth was 4%. In 2007 the GDP growth was almost on its potential level which shows that the projected growth for the next period is optimistic but achievable.

The use the potential growth and the output gap

1. Use of the potential output for the fiscal policy analysis

Possible use of these concepts is within the analysis of the macroeconomic variables in case economic growth is different from the potential growth. One very interesting and useful analysis is the stance of the fiscal policy. Namely, the cyclically adjusted fiscal balance is the budget deficit that would have occurred if the economic growth was at it potential. It shows the real stance of the fiscal policy in the country. In order to calculate cyclical adjusted balance we need historical data on the real government revenues and expenditures, as well as GDP data. For the analyse we use quarterly data. The correlation between potential GDP growth and the fiscal revenues shows the following relation (t statistic in brackets):

LREV = -9.19 + 1.76LGDP
　　　　(-11.1)　　　(23.3)

where, LREV represents logarithm of the quarterly budget revenues, and LGDP represents the logarithm of GDP.

The relation between GDP and the expenditures is the following:

LEXPE = -9.6 +1.8LGDP
　　　　(-3.6)　　　(13.5)

where, LEXPE represents logarithm of the quarterly budget expenditures, and LGDP represents the logarithm of GDP.

According to the government projections until 2010, GDP growth is expected to be above the potential, between 6 and 7%. In order to analyze the effect of the cyclical fluctuations over the budget balance, we calculate the cyclical component of the budget, i.e. assume what would have happened with the budget balance should the real GDP had been within its growth trend line, i.e. that there is no gap between the realised (projected) and potential output[1]. Thus, if we remove the cyclical component from the current (projected) budget balance, we add the cyclical adjusted budget balance, i.e. the balance that shows more closely the intentions of the authorities, i.e. its fiscal policy.

Table 2

	2006	2007	2008	2009	2010
GDP	4,0	5,1	6,0	6,5	6,5
Potential growth	4,6	5,0	5,7	5,9	5,9
Autput gap	-0,6	-0,1	0,3	0,6	0,6
Budget balance (% of GDP)	-0,6	0,6	-1,5	-1,5	-1,5
Cyclicaly adjusted budget balance	0.0	0.7	-2.2	-2.0	-2.5

Source: Calculation based on State statistical data and projections of the Ministry of finance

The results show that the cyclical budget component is positive in 2006 since the economic growth was below the potential, whereby the cyclical adjusted deficit is (0.6%) lower than the realised. In 2007 the cyclical component of the budget is positive (0.1 percentage points), which constantly decreases (in 2010 it is 1.0 percentage points). The cyclically adjusted budget balance in the period 2008-2010 is between 2% and 2.5% which is acceptable as the Maastricht criteria require deficit not higher than 3%. However, in the period of a higher inflation the government should be cautious as higher deficit might speed up the inflation rate.

Chart 2

Source:
Calculations based on the SSO
and Ministry of finance data

Primary balance and output gap
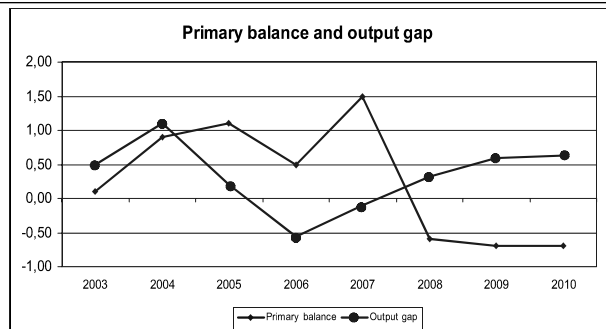
Analysis of the output gap and the primary balance (budget deficit excluding the interest rate expenditures is also an important indicator for the policymakers. In the Republic of Macedonia the fiscal policy in the period of 2003-2007 was countercyclical - decreasing output gap with high surpluses (fiscal policy that did not contributed significantly to the economic growth, while according to the government programme the fiscal policy will be counter cyclical in the 2008-2010 period, which if realised should help to boost the economic growth. Of course the structure of the government expenditures is also very important.

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1) Macroeconomics- Michael Burda

2. Use of the potential output for the external position analysis

The potential output is also very important for the external sector analysis. Namely, in fixed exchange rate environment, it is to be expected that if the economic policy of the government expects GDP growth higher than the projected one (positive output gap) than the savings ratio will be reduced[2] thus, current account balance should be higher than the historical one, as the adjustment period for the domestic suppliers is long. In the mean time, higher consumption is satisfied with the increased imports. Further more, in a small and open economy it is logically to be expected the growth to have significant import component (due to increased imports of machinery (which are usually produced in the developed countries, and raw materials). As it can be seen on the chart, the output gap moves exactly opposite of the current account balance indicating high CA deficit when the output gap is decreasing and low deficit when output gap is positive. For the following period it is expected that the current account deficit will be much higher as the output gap is projected to be positive.

Chart 3

Source:
Calculations based on the SSO and Ministry of finance data

Autput gap (right scale) and the current account deficit (left scale)
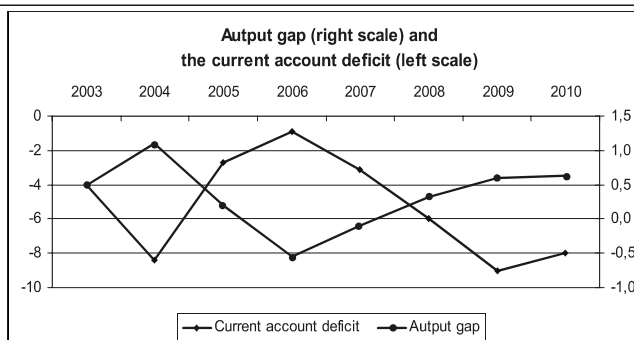
Future research

Once we have the potential output calculated it can be used for the analysis of different macroeconomic variables with an objective to see what their behavior would have been different if the economy was at its potential. In this paper, calculation of the potential growth using the trend method (Hodrick Prescott method) was used. This method has several disadvantages as it is simple smoothing technique. The research in this field should continue with calculation of the potential growth for the Republic of Macedonia with the other methods based on estimating the production function and using this to estimate potential output.

Conclusions

Output gap is important economic variable which the policymakers should have in mind when making policy decision. According to the output gap analysis which we have produced the policymakers should be pay attention to the following:

● In 2007, economic growth in the Republic of Macedonia was on the level of the potential one, which is a significant success.

● The officially projected economic growth for the period of 2008 -2010 of the economy is above potential one which means that the structural reforms are expected to speed up in the future in order to achieve this projection.

● Cyclically adjusted budget deficit is around 2% of GDP which is in line with the Maastricht criteria. This gives a relaxing position for the government as the European commission will probably not make any remarks on the expected fiscal expansion.

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2) Modeling the U.S. Current account as the Saving-Investment balance, Juann H.Hung, Charles Bronowski

- If the fiscal policy is realized in line with the government fiscal strategy, the fiscal policy of the government will be pro-cyclical which means will boost the economic growth,
- However, this might heat up the economy (increase the credit activity, consumption and imports), which in a fixed exchange rate regime environment will create higher current account deficit.
- If the current account deficit is financed properly (through foreign direct investments) this deficit will be a manageable concern.

References:

Calculating potential growth rates and output gaps - A revised production function approach - by Cecile Denis, Daniel Grenouilleau, Kieran Mc Morrow and Werner Roger (Directorate-General for Economic and Financial Affairs)

Canova, Fabio (1998), Detrending and business cycle facts. Journal of Monetary Economics, 41, pp. 475-512.

Hodrick, Robert J. and Edward C. Prescott (1997), Postwar U.S. Business Cycles: An Empirical Investigation. Journal of Money, Credit and Banking, Ohio State University Press, 29(1), pp. 1-16.

Central Bank of Iceland (2000), Measuring the output potential of the economy.
Economic and Monetary Developments and Prospects, Monetary Bulletin
2000/4. Box 2, pp. 14-15.
Output Gap - Inflation: The Case of Greece (1858-1938) Erotokritos Varelas Associate Professor Department of Economics, University of Macedonia, 54006 Thessaloniki, Greece

Measurement of the Output gap: A discussion or recent research at the Bank of Canada, by Pierre St-amant and Simon van Norden
Errors in the measurement of the output gap and the design of monetary p[olicy, by Athanasios Orphandies, Richard D.Porter, David Reifschneider, Robert Tetloe and Frederico Finan
Productivity,growth potential and monetary policy in EMU, by Gustav Horn
Modeling the U.S. Current account as the Saving-Investment balance, Juann H.Hung, Charles Bronowski

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UDK 339.727.22(497.7)"2002/06"

ASSESSMENT OF FOREIGN DIRECT INVESTMENTS IN WESTERN BALKAN COUNTRIES, THE CASE OF MACEDONIA

Aleksandar Kostadinov, postgraduate student at the University of Bologna

Abstract

The paper assesses FDI in Western Balkan countries and attractiveness of Macedonian clusters. The first part is consisted of macroeconomic data on FDI in Western Balkan countries, expected FDI in the region based on forecast function. The second part shows competitiveness of two Macedonian clusters. According to the Macedonian Investment Agency, automotive and food processing industry are considered as a high competitive on a regional level and industries with high potential to attract Foreign Direct Investments (FDI). For this purpose, I have build a match-making matrix of this two clusters, based on an article and methodology proposed by: S. Young, N. Hood and A. Wilson in "Targeting Policy as a competitive strategy for European Inward Investment Agencies"- European Urban & Regional Studies-1994

Keywords: FDI, Governmental policies, Regional competitiveness

Introduction

The term Western Balkan, has been used for the first time in the beginning of 1990's and is often explained as Yugoslavia minus Slovenia plus Albania. Western Balkan countries are also in a political and economic context described as a "black hole" of Europe as a result of lacking cooperation with the rest of Europe and slow reform process toward modernization and democratization of their societies.

Western Balkan countries occupy an area of 196,047 km^2, with population of around 21 and a half million citizens. Despite the bloody wars and conflicts during 1990's and heavy downturn of their economies, WB economies in the last 5-6 years have grown fast and predictions are that they will continue to perform well. In 2005 all WB countries have generated an output of 88,816 million of US$ with an average growth of 4.7%.

Table 1.Macroeconomic outlook of the WB countries

Country	Area (km²)	population 2006	GDP (current 000 US$) (2005)	GDP growth (annual %) -2005	GDP per capita US$ in 2005
Albania	28, 748	3,129 678	8,380,314	5.5	2678
Bosnia and Herzegovina	51,066	3,907,074	9,948,769	5	2546
Croatia	56,594	4,443,350	38,505,553	4.3	8666
Macedonia	25.713	2,034,060	5,766,178	4	2835
Serbia and Montenegro	88,361	8,064,253	26,215,215	4.7	3251
Total	196,047	21,578,415	88,816,029	4.7 (average)	3995 (average)

Source: own calculations based on World Bank online database and IMF data statistics

As a result of political stabilization of the region and efforts made by USA and EU, WB countries are attracting more and more FDI every year. During the period of 2002- 2006 stock of FDI has reached 18, 318 million US$ of which 3/4 were located in Croatia and Serbia and Montenegro. Other countries, for example Macedonia, still remain non attractive and have attracted less than 500$ per capita during the period of 2002-2006. However, WB countries compared to the World share are very attractive for FDI and all have ratios above the average.

Trade policies and strategies remain weak point of all WB countries and they all prove high trade deficits in the last decade. Trade deficits range as a share of GDP from 20 to 25%, except Bosnia and Herzegovina where this share was around 47%. Trade liberalization and recent signing of CEFTA agreement, probably will increase trade deficits because WB countries had high protective measures of domestic production, especially for agricultural products. After disintegration of Yugoslavia and fall of communism in Albania, WB countries have partially liberalized their economies and new reforms toward marked based economy have started. FDI still vary from year to year, but shows positive trend during the period of 2002-2006.

Table 2.   Foreign direct investment, net inflows   (million US$) in WB countries

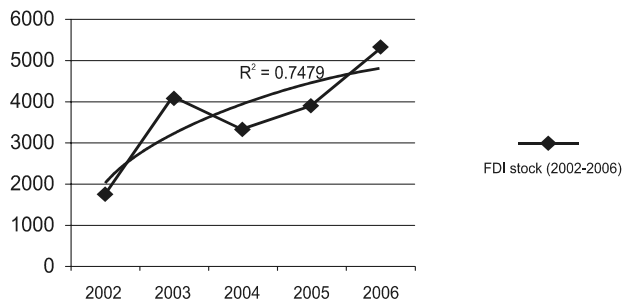| Country	2002	2003	2004	2005	2006	FDI stock (2002-2006)	population 2005	FDI/per capita (stock 2002-2006)
Macedonia	77	96	157	100	280	710	2034060	$ 349
Bosnia and Herzegovina	267	381	612	299	350	1909	3907074	$ 489
Croatia	1123	2056	1224	1761	2000	8164	4443350	$ 1,837
Serbia and Montenegro	137	1360	966	1481	2450	6394	8064253	$ 793
Albania	135	178	341	262	225	1141	3129678	$ 365
Total	1739	4071	3300	3903	5305		21578415	
Total FDI stock 2002-2006 WB countries	18318							

Source: own calculations based on World Bank online database and The Vienna institute for International economic studies

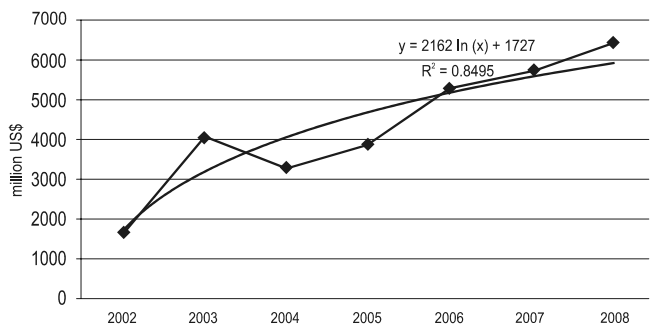

Chart 1:

FDI stock (2002-2006)
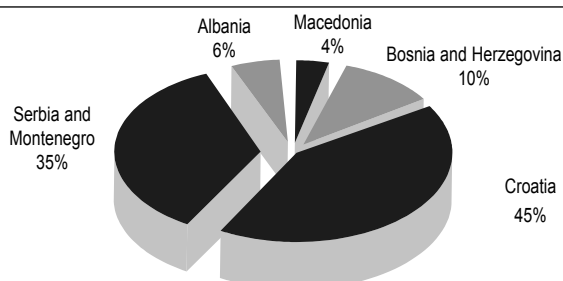
Year	2002	2003	2004	2005	2006
FDI stock WB countries	1739	4071	3300	3903	5305

FDI stock (2002-2006)

By using Excel, forecast of FDI in 2007 and 2008 in WB countries, would have the following figures.

Year	2002	2003	2004	2005	2006	2007*	2008*
FDI stock WB countries	1739	4071	3300	3903	5305	5753*	6449*

**FDI stock (2001-2008)
in million US$ (forecast)**

Match making matrix[5] of the Macedonian clusters

The matrix is meant to measure the contribution that a given sector can contribute to the development of the regional economy and on the other hand, competitiveness in attracting particular industrial sector. For the purpose of this matrix, I have focused on the automotive and agribusiness sector in Macedonia.

For this sector I have a rating for each element that signals the economic impact of the given sectors, and for the same sector I have a weigh value that this sector attributes to each location factor. The task is to assign a weight to each economic impact variable that is thought to be very important for the development of Macedonian economy and to rate strengths and weaknesses for each specific location factor[6]. (S. Young, N. Hood, A. Wilson 1994)

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5) Match making matrix is based on a article of the authors: S. Young, N. Hood, A. Wilson
6) This methodology is based on own judgments, therefore is it essential to be realistic and selective

Automotive industry in Macedonia

Macedonia is already manufacturing and exporting a range of automotive components mainly for the aftermarket in Europe, Russia, Turkey and Africa. Products exported include seat belts, clutches, gears, springs, multi-layer printed circuit boards, pneumatic and brake systems. The country is particularly suitable as a location for the manufacture of high value to weight labour intensive products such as safety systems (seat belts, airbags), electronics (controllers, sensors) and precision plastic products. (PriceWaterHouseCoopers 2006).

Economic Impact indicators[7]	Weight	Rating	Value
Employment			**61**
Wages and Salary levels	4	3	12
Proportion of service jobs	3	3	9
Proportion of skilled job	5	4	20
Track record of working with universities and research institutes	3	4	12
Level of training expenses	4	2	8
Trade & Balance of payments			**59**
Volume and value of exports	4	5	20
Local sourcing	5	5	25
Complexity of components	2	4	8
Current volume of imports	3	2	6
Technology transfer			**29**
Level of innovation/ R&D	2	4	8
% of personnel in R&D	2	4	8
Centralized vs. Decentralized R&D	2	2	4
Track record of working with universities and research institutes	3	3	9
TOTAL			**149**

Location factors[8]	Weight	Rating	Value
People			*46*
Skilled labour	4	5	20
Labour costs	4	5	20
Multi-Lingual personnel	1	4	4
Productivity track record	1	2	2
Physical & Market infrastructure			**61**
Distribution cost and system	4	5	20
Judicial system	4	1	4
Success of other companies	5	5	25
Proximity to University & Research Institutes	4	3	12
Business environment			**55**
Political and Social stability	4	3	12
Financial and Fiscal incentives	4	5	20
Tax system	3	5	15
GDP rate of growth	2	4	8
TOTAL			**162**

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7) Weight measures the correspondence of the variables to the local economy needs (1 less important - 5 very important).
   Rating measures the industrial segment attitude to satisfying local needs (1 less relevant - 5 very relevant)
8) Weight measures in relative importance assigned to each location factor by the industrial sector's investors (1 less important-5 very important). Rating measures the actual and potential strengths and weaknesses of the country (1 less relevant - 5 very relevant)

Agribusiness and food processing industry:

Macedonia's EU accession process will involve substantial technical assistance and investment support funds dedicated to the sector. The sector's numerous competitive advantages include a unique combination of Continental and Sub-Mediterranean climates, environmentally friendly production practices, sound food processing technologies, highly qualified labour available throughout the rural areas, very good access to regional markets and a reputation for quality food products. (PriceWaterHouseCoopers 2006)

Economic Impact indicators	Weight	Rating	Value
Employment			**43**
Wages and Salary levels	4	4	16
Proportion of service jobs	3	1	3
Proportion of skilled job	4	3	12
Track record of working with universities and research institutes	2	4	8
Level of training expenses	2	2	4
Trade & Balance of payments			**64**
Volume and value of exports	3	5	15
Local sourcing	5	5	25
Complexity of components	3	4	12
Current volume of imports	3	4	12
Technology transfer			**45**
Level of innovation/ R&D	3	3	9
% of personnel in R&D	2	4	8
Centralized vs. Decentralized R&D	3	1	3
Track record of working with universities and research institutes	5	5	25
TOTAL			**152**
Location factors	**Weight**	**Rating**	**Value**
People			**46**
Skilled labour	2	4	8
Labour costs	5	5	25
Multi-Lingual personnel	1	1	1
Productivity track record	3	4	12
Physical & Market infrastructure			**48**
Distribution cost and system	4	5	20
Judicial system	2	3	6
Success of other companies	4	4	16
Proximity to University & Research Institutes	3	2	6
Business environment			**61**
Political and Social stability	4	3	12
Financial and Fiscal incentives	5	5	25
Tax system	4	4	16
GDP rate of growth	2	4	8
TOTAL			**155**
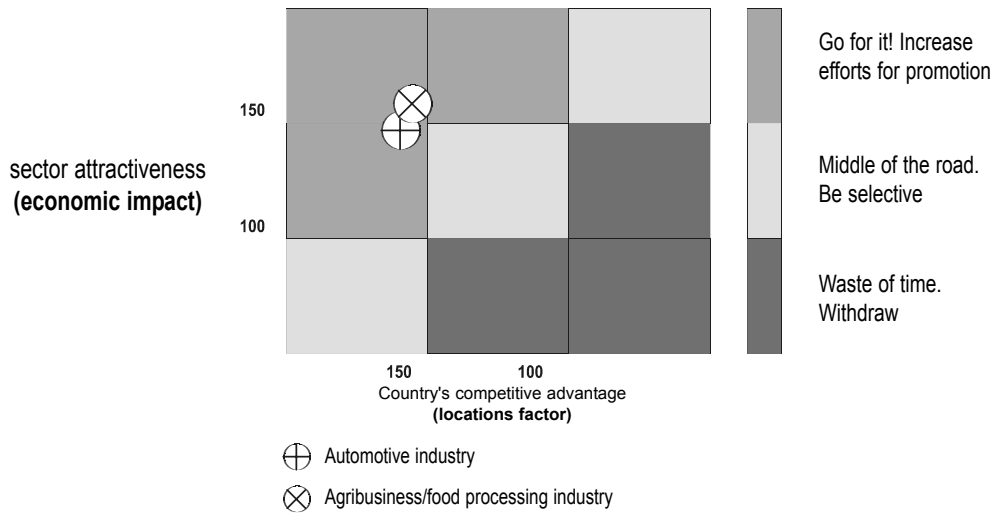
Both clusters observed have shown competitive advantages for the location factors of 162 and 155 for automotive and agribusiness sector and economic impact values were 149 and 152 respectively. Those values are enough to place both clusters in the highest priority for the country's attracting FDI. This methodology approves the fact why Macedonian Government and MakInvest agency have chosen these two clusters as priority and invest constantly for their promotion worldwide. Employment subsection of the economic factors table has big impact of overall scoring as a result of well trained and low cost labour. Macroeconomic subsection also favours cluster's value as a result of low inflation rate, stability of the tax system and exchange rates etc. However, weak point still remains the part of University cooperation, R&D, productivity level of Macedonian workers and technology transfer. In this part we can find the answer why agribusiness cluster has been chosen as a "strategic" cluster in a time when hi-tech are favoured among European countries.

Conclusions

FDI plays major role in the western Balkan economies. As far as privatization process has finished and there are less state owned companies, western Balkan governments are facing to run budget deficits that are not sustainable on a middle term. Attracting FDI is top priority to all WB countries not only to finance their budgets, but moreover to improve their economic performance and standard of living.

Although there are many reforms and tax incentives in the last two years, Macedonia proves weak responsiveness to attract FDI and is the last country with FDI per capita in the Balkan. Good geographic position, market access to EU, South East European markets and relatively good infrastructure makes Macedonia attractive country for FDI. Stronger economic cooperation among WB countries would uphold stability in the region, increase trade volume and promote the region as a good and safe place to invest. Promoting deeper cooperation among the countries, (not only trade liberalisation) but building networks among Agencies for promotion of FDI, Business communities and transfer of know how would lead to improved allocation of FDI and possibility for decentralised production sites among the countries.

Match making matrix have shown good perspective for the two clusters already chosen by Macedonian Government, but still, this is only estimation and does not represent any empirical experience. In my opinion, Macedonian agrarian sector is still underdeveloped and it would need heavy investments and good and sustainable governmental strategies in order to satisfy pre accession EU funds requirements and achieve better attractiveness for FDI.

The experience of Central European countries in attracting FDI could be repeated in WB countries if new signed CEFTA agreement would be respected. High inflow of FDI can increase efficiency of the production and introduce new products on the markets, but still depends on the reasons of investment and "target" companies.

References:

1. Driffield, Lisa De Propris and Nigel. "The importance of clusters for spillovers from foreign direct investment and technology sourcing." Cambridge Journal of Economics, 2005: 1-16.

2. Eurostat. Europe in Figures. Statistical books, Luxembourg: Office for Official Publications of the European Communities, 2007.

3. Gligorov, Vladimir. Trade and investment in the Balkans. 1998.

4. Mencinger, Joze. Privatization in Slovenia. Report, Ljubljana: EIPF and University of Ljubljana, Slovenia.

5. OECD. OECD Benchmark definition on Foreign Direct Investment. Paris: OECD publication, 1999.

6. Porter, Michael E. "Clusters and the new economics of competition." Harvard Business Review, 1998: 77-90.

7. PriceWaterHouseCoopers. Doing business and Investing in Macedonia. Skopje, 2006.

8. Promotion of entrepreneurship and SMEs. FINAL REPORT OF THE EXPERT GROUP ON ENTERPRISE CLUSTERS AND NETWORKS. Final report, Brussels: ENTERPRISE DIRECTORATE-GENERAL-EUROPEAN COMMISSION, 2002.

9. Propris, Lisa De. "Mapping Local Production Systems in the UK:Methodology and Application." Regional Studies,Vol. 39.2, 2005: 197-211.

10. S. Young, N. Hood, A. Wilson. "Targeting Policy as a competitive strategy for European Inward Investment Agencies." European Urban & Regional Studies, 1994.

11. Stiblar, Franjo. Solutions for Western Balkans. project Report, USA: Woodrow Wilson Center, 2006.

12. "South East Europe." Economic Survey of Europe,, 2005, No.1: 45-57.

13. "The economic situation in ECE region in mid-2005." Economic Survey of Europe, 2005 No.2: 1-55.

14. www.worldbank.org (accessed May 23, 2008)

15. http://www.bankwatch.org. http://www.bankwatch.org/billions/detail.shtml#p1.

16. http://www.unctad.org. 2007. http://www.unctad.org/Templates/Page.asp?intItemID=3146&lang=1.

UDK 314.74(497.7)
A STUDY ON DETERMINANTS AND TRENDS IN REMITTANCE FLOWS IN MACEDONIA

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Abstract

Labor migration and remittances have become increasingly important for many developing and transition countries in recent decades. In the case of Macedonia, labor migration has a long history, going back for a century or even more. Yet, remittance flows have ignited considerable interest within the academic and policy community in the last few years, as net private transfers in Macedonia increased from 565.75 Millions of EUR in 2003 to 923.07 Millions of EUR in 2006.

Despite the high level of remittances, little is known about the sources of remittances (or the main source countries of remittance transfers), the demographic and educational profile of senders and recipient households, the final use of remittance inflows (household consumption, investments or savings), the role of the formal financial sector, the link between remittances and financial development and the prospective trends.

Without proper survey data, accurate estimation of remittance flows and how they are impacting the economy is not possible. No surveys or other in-depth analyses have been conducted in Macedonia on this topic so far. Moreover, the link between migration movements and developments in remittance receipts has not yet been properly analyzed.

The official estimate of remittance inflows in Macedonia was $181.45 millions of US $ in 2006, whereas our alternative estimate equals roughly 301.8 millions of US $. Therefore, the true importance of remittances to the Macedonian economy is much higher that the ratio of official remittances to GDP. In addition to shedding light on the size and importance of remittances in Macedonia, we believe that the insights gained on how remittance data are used will be useful to policymakers and donor community.

Key words: remittance transfers, migration, macroeconomy.

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1) This paper is a much shorter version of the final paper prepared by CEA and submitted to the NBRM and USAID BEA. The final paper will be readily available at: www.cea.org.mk. The study was sponsored by the USAID BEA.

Introduction

Publicly-available details on how remittance transfers are compiled by national statistical authorities are lacking. As with all countries and particularly transition ones, accurate estimation of Macedonian remittance flows is a challenging and difficult task due to a variety of factors. Many remitters use informal transfer channels and therefore, it is difficult to determine what part of transfers through formal financial institutions should be classified as remittances (income transfers).

Without proper survey data, accurate estimation of remittance flows and how they are impacting the economy is not possible. No surveys or other in-depth analyses have been conducted in Macedonia on this topic so far. Moreover, the link between migration movements and developments in remittance receipts has not yet been properly analyzed.

Therefore, the main objective of this project was to deepen the understanding of the:

● main sources of remittances in Macedonia,

● key determinants of remittance flows (push- and pull-factors),

● the channels through which remittances are transferred, and

The estimate of remittances inflows in this Study, based on the Survey conducted should be taken as indicative and considered as that of the authors. The only authorized institution for compilation and dissemination of the official Balance of Payments Statistics is the National bank of the Republic of Macedonia . We hope that this research will contribute to its forthcoming official estimate of this highly sensitive for the compilation item of the Balance of Payments. The USAID BEA project sponsored the research, IDSCS conducted the survey and the research was done by CEA.

**AN ESTIMATE OF EMIGRANT AND DIASPORA REMITTANCES - ANALYSIS OF THE QUESTIONNAIRE**

REMITTANCE-RECEIVING HOUSEHOLDS

Profile of the remittance recipients

Most respondents (55.4% out of 1046) have only one person from their family working abroad. The responses of remittance-receiving households indicate that 19.7% have parents, and 32.0% have son or daughter abroad. Husbands or wives as migrant workers have 13.7 % of the respondents, whereas brother or sister 33.4%.

The relatives of remittance recipients are concentrated in Germany, Switzerland and Italy (55% in total). The main host countries of Macedonian migrant workers are presented in Chart 1.

Chart 1

Main host countries of Macedonian migrant workers
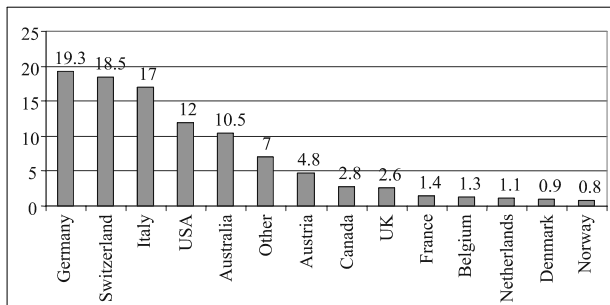
Reasons for migration

The most important reasons for migration are the expectations of higher income abroad (36.7%), and unsuccessful job search in Macedonia (30.5%). Moreover, better quality of life expect 20.9% of the respondents, 5.7% are joining their families abroad, and 3.3% are looking for better educational quality.

**Table 1** - Conditioning factors for migration (pull-and push factors) perceived by the remittance recipients

Conditioning factors for migration	In percent
Pull factors	**66.6%**
Higher income in the destination country	36.7%
Better quality of life in the destination country	20.9%
Education	3.3%
Joining the other family members	5.7%
Push factors	**30.5%**
Impossibility to find job in Macedonia	30.5%
Other reasons or no response	**2.9%**

Duration of stay abroad

Most respondents are abroad more than 15 years (28.8%), whereas 52.4% are more than 10 years.

Chart 2

Duration of stay abroad (temporary vs. permanent migrants)
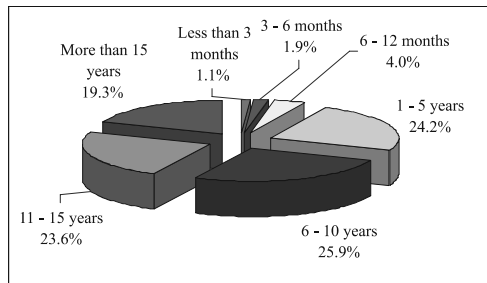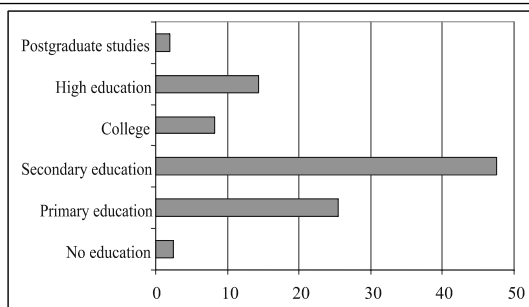

The education background of remittance senders

Most senders have only secondary school (57.2%).

Chart 3

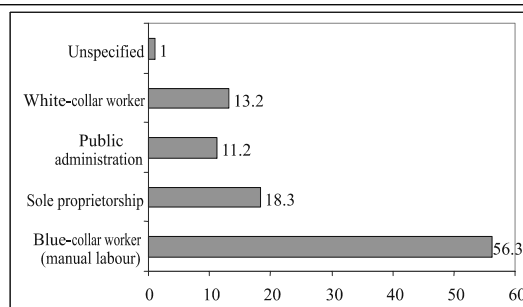The education background of remittance senders

Professional background of the remittance sender

Most senders are blue-collar workers (56.3%), and the rest are evenly distributed among sole proprietors (18.3%), white-collar workers (13.2%) and public administration (11.2%).

Chart 4

Professional background of the remittance sender

Types and timing of money transfer

Most respondents are receiving funds from abroad (85.7%), out of which nearly 81% have received funds from only one sender. Remittance-receiving households get the funds by physical transportation of cash (44.4% get them in hand from the relative, 15.2 percent receive transfers through formal money transfer businesses, and 23.4 through bank transfer. Hence, more than half of the money transfers, coming as private transfers are not registered through the payment operations channels.

Table 2 - Types of remittance channels used

Types of money transfer	Number of respondents	Percent	Recalculated per cent
Physical transportation of cash by the worker	398	38	44.4
Making transfers through formal money transfer businesses (Western Union)	136	13	15.2
Making bank transfer	210	20.1	23.4
Physical transportation of cash by friend or colleague	138	13.2	15.4
Physical transportation of cash by visiting family member	6	0.6	0.7
Other type	8	0.8	0.9
Sub-total	896	85.7	100
Respondents declared "no remittances received"	150	14.3	
Total	**1046**	**100**	

Most respondents (39.0%) that are getting funds through the bank prefer this type because of the safety or because of the sender's preferences. And only 9.6% answered that the decision is based in terms of the transaction costs.

Most of those who get the funds through Western Union are choosing this type of money transfer because it is faster than the others (49.2%), because it is the preferred method by the sender (22.9%), whereas 17.3% believe this is the safest manner.

Only 1.6% of remittance recipients get funds through credit card from foreign bank. Most of those who receive cash prefer this way because it reflects sender preferences (64.5%) or because they perceive it as the safest way (25.7%).

Therefore, the strongest impact on selecting the type of money transfer have the senders' preferences and the safety reasons, while the option of Western Union money transfer is preferred in terms of promptness.

More than 60.9% of remittance-receiving respondents rely on private transfers for more than 5 years.
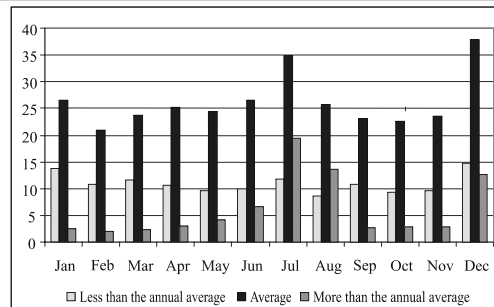
Chart 5

Dependence on remittances of Macedonian remittance-receiving households
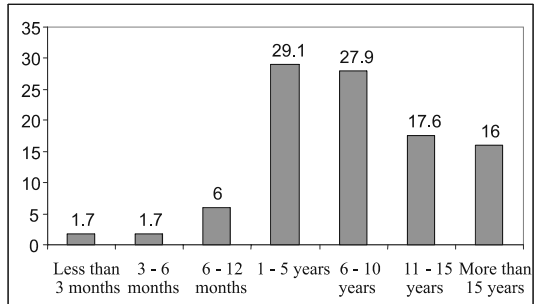
Many recipients answered that during the summer months they get most of the funds, which indicates strongly pronounced seasonal effect.

Chart 6

Monthly fluctuations of remittance inflows (the monthly amount is less than average, average and more than average)

The highest amounts of remittances are received in July and December.

Magnitude of received remittances

Interestingly, 83.9% of the respondents report that they receive between 0 to 5000 EUR as private transfers from abroad. Out of them, 34.7% received between 1000 and 5000 EUR.

Table 3 - Magnitude of received remittances

Amount of remittance received respondents	Number of Percent	
Less than 500 EUR	168	16.1
Between 501 and 1000 EUR	272	26.0
Between 1001 and 5000 EUR	311	29.7
Between 5001 and 10000 EUR	87	8.3
Between 10001 and 20000 EUR	33	3.2
More than 20000 EUR	17	1.6
No response	8	0.8
Respondents declared "no remittances received"	150	14.3
Total	1,046	100

Currency structure of spending financed by remittances

Most respondents are spending the funds in Denars (41.6%), 19.8% in the same currency as they got the funds, and 38.6% as combination. An exceptionally high percentage (81.1%) of remittance recipients save or spend in cash, thereby avoiding the bank transactions.

Chart 7

Currency structure of spending financed by remittances

Foreign currency 19.8%

Combined 38.6%

Domestic currency 41.6%
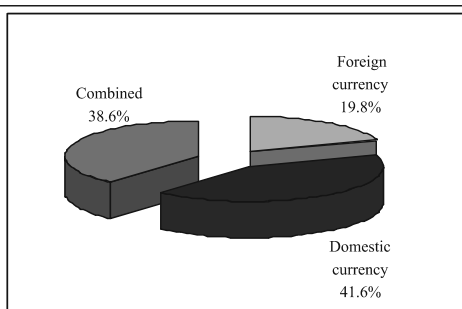
Spending priorities (Final uses of the remittances)

The respondents could report a variety of spending decisions with modalities, such as least important, important, most important or irrelevant.

Table 4 reveals that the funds are mostly spend on current spending. Lower priority is attached to saving decisions, and the least important is the housing maintenance. Portfolio investment and real estate purchase seem to be the least preferred options.

Table 4 - Spending priorities (Final uses of the remittances)

Final use / purpose	Not important	Most important	Important	Least important
Saving	60.5	13.7	16.6	9.2
Current spending	7.7	74.1	14.5	3.7
Family celebrations	69.2	5.6	17.0	8.3
Cars (durable goods)	90.2	1.5	4.8	3.6
Construction of homes	85	8.8	4.7	1.5
Housing maintenance	70.8	5.7	13.5	10
Business start-ups	92.7	2.6	2.6	2.1
Real estate purchase	98.3	0.7	0.3	0.7
Portfolio investment	98.4	0.3	0.6	0.7
Loans	97.3	0.2	1.0	1.5
Other	90.6	1.6	2.8	5.0

Moreover, 75.3% of the respondents reported they spend the remittances within the next six months of their reception.

Remittances received as percent of total household income

33.8% of the remittance-receiving households report that the magnitude of remittances is between 10% and 30% of their disposable income, and 14.8% of them declared that these funds could be the only source of their income (between 90% and 100%). Interestingly, 39% of the respondents reported that remittances received constitute half of their disposable income.

Chart 8

Remittances received as percent of total household income

Legend:
- Less than 10%
- 10 to 30%
- 30 to 50%
- 50 to 70%
- 70 to 90 %
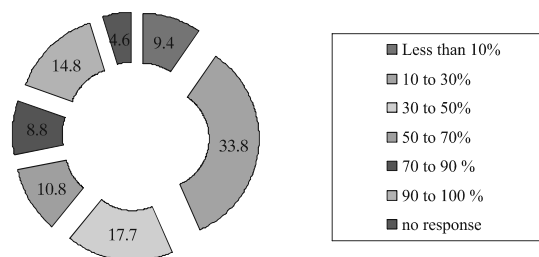- 90 to 100 %
- no response

Table 5 indicates that not much funds are used for investing, whereas most are used as a cash flow. Moreover, 26.3% from respondents reported that they will spend nearly the all amount received.

**Table 5** - Allocation of remittances received by final use (median for each class)

	Not devoted for this purpose	Up to 10%	10 - 20%	20 - 30%	30 - 40%	40 -50%	50 - 60%	60 - 70%	70 - 80%	80 - 90%	90 - 100%
Saving	60.3		9.8								
Current spending	8.6										26.3
Cars	84.7		5.1								
Construction of homes	89.1			2.6							
Housing maintenance	76.1		9.9								
Celebrations	76.1		8.3								
Business start-ups	94.8	1.5	1.5								
Real estate purchase	98.9		0.2	0.2			0.2				
Portfolio investment	98.9		0.2	0.2	0.2						
Loans	97.8	1.3									
Other	91.6	3									

Trends in remittance inflows, reasons and expectations

The survey reveals that 58.7% of the remittance-receiving respondents reported that they do not antici-pate any changes of the amount in comparison with 2005 and 2006. However, the largest share explained that these two years witnessed increasing amounts of remittance received.

Chart 9

Trends in remittance inflows (Annual remittance inflows in 2005 and 2006 in comparison with previous years)
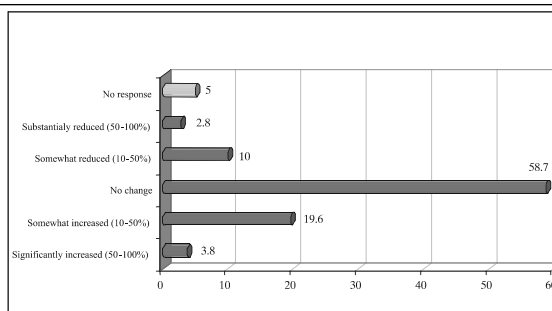
The reasons behind such trends in remittance inflows are different: 44.1% reported that all depends on the earnings of the relatives abroad, 26.9% explained that these transfers depends on the family needs, and only 3.2% responded that the main determinant is the political and economic situation in Macedonia.

The expectations of the remittance-receiving respondents are that no changes in the trend are foreseen (49.7%), 25.4% are expecting moderate increase and 17.4% believe they will receive smaller amounts of private transfers. The reasons behind those expectations are in line with the trend.

Plans of the remittance senders

Most remittance-receiving respondents (44%) reported that the migrant worker visits Macedonia 2-3 times per annum, whereas 33.8% opted for one visit per year. Within this percentage, 61.3% of remittance-receiving households reported that the migrant workers are staying from one to three weeks, and 32.4% declared that they are staying from one to three months. 45.6% of the remittance-receiving respondents explained that their relatives are planning to stay abroad in future, and 24.7% said that they do plan to return to Macedonia.

Plans of the remittance recipients

Only 32.1% of respondents are determined not to emigrate, whereas 21.7% of them are planning to do so. 19.7% of those planning to go abroad, would like to stay there forever, and 82.3% will be sending remittances to their family in Macedonia.
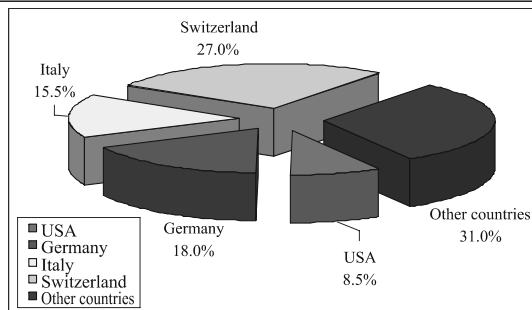
REMITTANCE SENDERS

Destination and period for staying abroad

Out of the sample of 200 respondents, the largest shares of senders come from Switzerland (27.0%), Germany (18.0%), Italy (15.5%) and USA (8.5%). This is consistent with the gravity models of remittance flows that highlight the distance from the home country as one of the main determinants of the destination country.

Chart 10

Main source countries of remittance inflows in Macedonia

Large share of respondents declare that they send remittances for many years. This is a category of permanent migrant workers, given the fact that 56.5% from the respondents are more than 10 years abroad (Chart 11).

Given the relatively low share of the seasonal workers in the sample, one could observe that estimated remittance inflows will reflect the long-term migrant's propensity to remit. The results for the duration of stay are consistent with the responses on the number of the household members joining the remittent. 50% of the respondents are living with their spouse, 46% of those live with their son or daughter, and 20% of them

are staying with their parents. In accordance with the empirical literature on migrant remittance flows, if the close family members accompany the emigrant, then their propensity to remit is lower (Faini, 2007). With respect to the plans for returning to Macedonia, even 44.5% are reporting that they do not plan to return, but 37% are still hesitant whether they will permanently migrate.

Chart 11

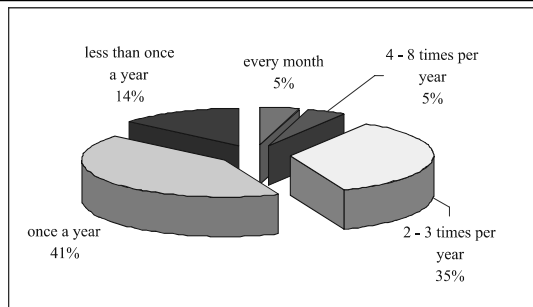Duration of stay of remittance senders
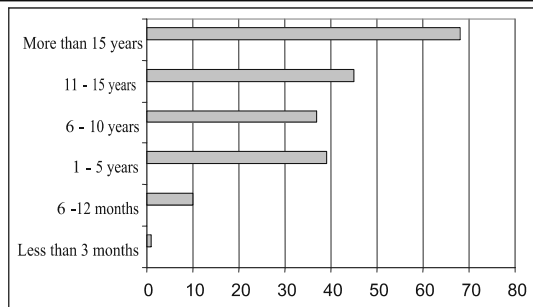
Frequency of trips to Macedonia

Again the responses are entirely consistent with the number of visits to Macedonia. Most respondents answered they are visiting Macedonia at least once per year (42%), whereas 35% reported that they visit Macedonia 2 or 3 times per year.

Chart 12

Frequency of trips to Macedonia

Most respondents are coming to Macedonia on a short visit (58.5%), from one to three weeks, and most of them (77%) are usually staying only for the summer. A stylized fact is that 77% from the respondents are staying in Macedonia for one to three months. The responses seem logical, if we consider that the main destination for Macedonian emigrants are the European countries (Germany, Italy and Switzerland). Republic of Macedonia has direct airline connections with these destinations and such distance permits even alternative modes of transport (e.g. traveling by car). The duration of stay from one to three months is a relatively wide interval, as it precludes estimation whether the respondents are concentrated on the lower borderline of the interval (implying they are taking one month leave from their employer), or they work for nine months abroad (e.g. Italy or Greece), so that they can return to Macedonia for three-month visit.

The concentration of emigrants in certain countries supports the preposition of magnet effect (pull factor) that facilitates the decision for migration of the other family members or friends. In this case, the 46.5 % of the respondents are stating that they have helped in the job search or organized the trip for their friends or relatives. Moreover, 12.5 % of the respondents decided to migrate because this was family tradition.

Conditioning factors for migration

The main reasons behind the decision to migrate are usually linked with certain indicators of 'the magnetic force' of the destination country and the unfavourable political or economic situation in the migrant home country. The theoretical push-pull model identifies two groups of factors determining the decision to migrate. Standard variables in the first group (pull factors) are the wage differential, the differences in the quality of life in the host country, the emigration stock in particular country, the degree of political and economic freedom, fluency of the foreign language, destination country attitude toward foreigners (or degree of xenophobia), the generousness of the social security system, etc. On the other side, there are a lot of push factors which motivate individuals or household to leave their home country: high unemployment rate, wars or conflicts, relatively low wages, labour force discrimination, limited political and economic freedom, dissatisfactory education quality system etc.

Table 6 presents the answers with respect to the push and pull factors for migration.

Table 6 - Conditioning factors for migration (pull- and push factors) perceived by remittance senders

Conditioning factors for migration	In percent
Pull factors	68,5%
Higher income in the destination country	36,0%
Better quality of life in the destination country	17,5%
Education	2,5%
Joining the other family members	12,5%
Push factors	27,5%
Impossibility to find job in Macedonia	27,5%
Other reasons or no response	4,0%

The questionnaire design favours the pull factors, but given the low percent of responses for "the other non-specified factors", this has proven to be appropriate empirical strategy. Over 68% of respondents migrate because of the more favorable conditions in destination country, and 27.5% reported that the high unemployment rate is the main factor for leaving the Republic of Macedonia.

The occupational status of senders

According to the occupational status of respondents, it seems that low-skill migrant workers have the largest share. More precisely, 54% are blue-collar workers, while the 17% of respondents are sole proprietors, whereas only 9% have some form of intellectual work. The existing body of empirical literature demonstrates that low-skill migrant workers have greater propensity to remit, which is associated with favourable microeconomic (financial support to their families) and macroeconomic implications (higher remittance inflows in the current account balance).

Magnitude, final use and preferred currency for remittance-financed expenditure

During their stay in Macedonia, emigrants display relatively high propensity to spend, which could be explained by their wish to justify the sacrifice for leaving their home country or the need to provoke admiration or jealousy. Even, 50% of the respondents answered that during their short-term stay in Macedonia, they are spending between 1000 and 5000 EUR, and 83% of them say that they do not save at all (Chart 13). Most of them are planning their visits in accordance with the family celebrations, given the fact that 68% of respondents indicated that this is the most important expenditure while they are staying in Macedonia. 34%

of the respondents are spending on housing maintenance. The number of respondents reporting real estate purchase is negligible. Nearly all of the respondents are not interested for portfolio investments.

Chart 13

Magnitude of spending during the stay in Macedonia
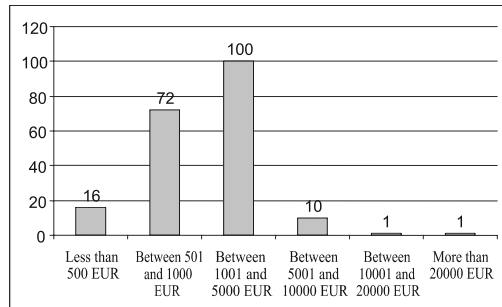
An interesting stylized fact is that the practice of intrafamily loans has nearly ceased. Even 93% of respondents answered that they are not lending to family members. Recent empirical literature conjectures that the fall in intrafamily borrowing is associated with the financial system development and improved access to consumer credit (Schrooten, 2005; Giuliano and Ruiz-Arranz, 2006). Given the rapid private-sector credit growth, this is likely scenario for Macedonia, as well.

Currency substitution and remittance senders

The responses with respect to the preferred currency for cash transactions reveal that on average, 72.8% of the remittance amount is exchanged in Denars (Table 7). Moreover, 81 of the respondents (or 40.5 % of the sample) report that their payment operations are preceded by foreign currency exchange in Denars.

Table 7 - Use of foreign money as means of exchange (degree of currency substitution)

Number of respondents	Percentage of prefference for Denars	Frequency times preferrence for Denars	Weighted average
81	100	8,100	
49	70	3,430	
50	50	2,500	
15	30	450	
4	0	0	
199	**Total:**	**14,480**	**72.8%**

The relatively low degree of currency substitution, compared to official estimates, might reflect the fear of remittance senders that their responses will be disclosed to authorities.

Propensity to remit

Over 80% of the respondents reported they were remittance senders, out of which 47.2 % answered that they financially support their parents, 27% - their partner, 20.5% - their brother or sister and 17.4 % - their children.

If non-remittent respondents are excluded from the analysis, then the weighted-average propensity to remit is 27.4% (according the number of respondents and the mid-point of the interval).

Table 8 - Estimation of the propensity to remit

Propensity to remit	Number of respondents	Mid-point of the interval	Frequency times propensity to remit	Weighted average
Less than 10%	36	5	180	
From 10 to 30%	64	20	1280	
From 31 to 50%	25	40	1000	
From 51 to 70%	12	60	720	
From 71 to 90%	7	80	560	
From 91 to 100%	3	95	285	
Total:	147		4025	27.4

Remittance distribution channels

According to the survey, 36.6% of the respondents use the services of specialized cash transfer bureaus, and 24.8% preferred inter-bank transfer of remittances. The credit card distribution channel is not viable option for 92.5% of respondents, implying lack of basic knowledge on electronic banking. The cash delivery is preferred option by 67.7% of respondents, out of which 31.1 percentage points stated that this was preferred channel by the remittance recipients.

Chart 14

Perception of the security of alternative remittance channels
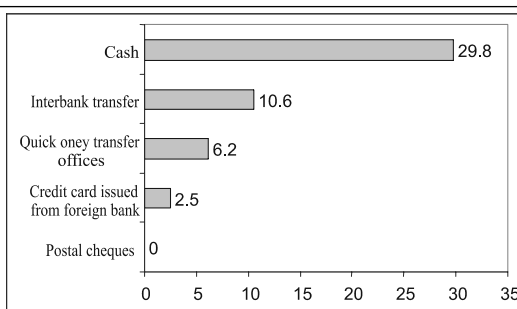
Particularly interesting is the perceived security of certain remittance distribution channels. Even 29.8% of the respondents are considering that physical transportation of cash is the safest way to transfer remittances, 10.6% stated that the inter-bank transfer offers sufficient security, 6.2% reported substantial confidence in the specialized money transfer bureaus, only 2.5 % have confidence in the credit cards, and postal cheques are simply inattractive.

Recommended final use of remittances

About 77% of the respondents supposed that the remittances are not used to increase their household savings, whereas only 13.7% reported that this is very important to them. 78.3% of remittance senders stated that the most important final use of remittances is current consumption, whilst 6.2 % reported that the most important use is to finance the family celebrations. Only 12.5% of them reported that there is likelihood of buying a car (or other durable goods).

Variability of remittance inflows

Most respondents (52% of the sample) there were no significant changes in the remittances they sent in 2006 with respect to the previous three years. The weighted average of the responses demonstrates that the remittances in 2006 were 3.8% higher than the average for the previous three years.

Table 9 - Dynamics of remittance inflows in 2006

Increase or reduction of remittances	Number of respondents	Mid-point of the interval	Frequency times change of the remittance amount	Weighted average
51 - 100% more	6	75	450	
11 - 50% more	33	30	990	
No change	85	0	0	
11 - 50% less	24	-30	-720	
51 - 100% less	2	-75	-150	
Total:	**150**		**570**	**3.8**

The answers are consistent with respect to the expectations. Unfortunately, the questionnaire does not distinguish among short, medium and long term. The answers reflect expectations for a moderate increase of future remittance flows (4.2% increase in relation with 2006).

Table 10 - Dynamics of remittance inflows in near future

Increase or reduction of remittances	Number of respondents	Mid-point of the interval	Frequency times change of the remittance amount	Weighted average
51 - 100% more	6	75	450	
11 - 50% more	38	30	1140	
No change	75	0	0	
11 - 50% less	25	-30	-750	
51 - 100% less	3	-75	-225	
Total:	**147**		**615**	**4.2**

AN ESTIMATE OF REMITTANCE INFLOWS

The estimate of remittance inflows uses the information content of the surveys on both remittance-sending and remittance-receiving respondents. In either case, the annual remitted amount per sender (per recipient) is estimated and then, based on the official figures for the emigration stock, the total annual inflow of remittances is calculated.

The remittance senders' survey does not explicitly ask for the remitted amount, but senders do respond to questions on annual earnings and their propensity to remit. According to the survey of 200 respondents, the average annual earning is estimated to equal 32,800 US $ (the upper section of the left panel in Table 11), whereas their weighted-response propensity to remit is 0.274 (the lower section of the left panel). These elements provide an estimated of the average remittance inflow of 8984.4 per sender, under the assumption that every migrant worker would remit.

Remittance senders' survey				Remittance recipients' survey		
Estimated annual earnings:				**Estimated annual remittance inflows:**		
Annual amount of remittances received	Number of respondents	Frequency times annual amount		Annual amount of remittances received	Number of respondents	Frequency times annual amount
15000	51	765000		250	168	42000
25000	50	1250000		750	272	204000
35000	29	1015000		1250	311	388750
45000	7	315000		7500	87	652500
75000	17	1275000		15000	33	495000
105000	6	630000		25000	17	425000
Total:	*160*	*5250000*		*Total:*	*888*	*2207250*
Estimated annual earnings		32,812.5				
Implicit propensity to remit						
5%	36	1.8				
20%	64	12.8				
40%	25	10				
60%	12	7.2				
80%	7	5.6				
95%	3	2.85				
Total:	*147*	*40.25*				
Propensity to remit		0.274				
Average remittance inflow sent to Macedonia:		8984.4		**Average remittance inflow received in Macedonia:**		2485.6

Table 11
Comparison of perceptions on sent and received annual remittance inflows

The amount of received remittances is a straightforward question in the remittance recipients' survey. The weighted average of their responses generates an estimate of the received annual remittance amount of 2,486 US $ per recipient household. The discrepancy between the two surveys is stark, since the remittance senders report that they remit 6,500 US $ more per annum. Even so, it is questionable whether the results from the two surveys are indeed comparable.

The sample of remittance-receiving households is more representative on statistical grounds, because the remittance recipients' survey encompasses 1,046 respondents, which is 5 times more than the sample size of the remittance senders' survey. Therefore, the reported figure of 2,485.6 US $ per annum is taken as more realistic assessment.

Convenient approach in estimating the "true" remittance inflows in Macedonia is to extrapolate the number of respondents that declared dependence on remittances. Yet, the survey provides an implausibly high figure of 85.7% of remittance-receiving households. As a second best solution, the Macedonian emigration stock could be used to assess the total annual remittance inflows in Macedonia. Even so, there are different estimates of the number of Macedonian emigrants with notable stark discrepancies.

Table 12 - Assessment of annual remittance inflows

Source	Estimated emigration stock	Estimated remittance inflows in Macedonia in 2006 (in millions of US $)	Officially reported migrant remittances in 2006 (in millions of US $)	Discrepancy
OECD	193,940	482.1	181.45 **	300.65
World Perspective, Universite de Sherbrooke, Canada	121,400	301.8	181.45 **	120.35
Macedonian census 2002	35,123	87.3	181.45 **	-94.15
Memorandum items:				
Average remittance inflow	2485.6			
Implicit propensity to remit	27.4			
** *Equivalent to 144.68 millions of EUR*				

If the OECD statistical database is taken as reliable source for the Macedonian emigration stock, then the estimate of remittance inflows is 482.1 millions of US $ per annum (Table 12). The estimated Macedonian emigration stock by the World Perspective at the Universite de Sherbrooke in Canada is a bit lower (121,400) and in this case, it would imply an estimated annual remittance inflows of 301.8 millions of US $ in Macedonia. Lastly, the estimated emigration stock by the Macedonian census in 2002 is 35,123, which is comprised of 22,995 migrant workers staying abroad up to one year (temporary migrants) and another 12,128 staying longer (permanent migrants). The very low margin would imply an estimate of 87.3 millions of US $ per annum.

Given the implausible assumptions that every migrant worker would remit and would have similar propensity to remit, the conservative estimate based on data from the World Perspective at the Universite de Sherbrooke in Canada seems realistic. Yet, the estimated annual remittance inflows are a mixture of capital and current transfers and therefore, in the next section we estimate the share of each component.

The extent of possible uses of remittances has been formulated in qualitative terms (very important, "so-so", least important and not important). In order to make some reasonable estimate of the weighted-average response, we have attached certain percentages to their importance (very important=100%, non-important=0%, not very important = 10%). The category "so-so" has been derived as residual, which imposes consistency on the respondents' answers with respect to their saving and consumption behaviour. In other words, 35% serves as quantitative equivalent of the response "so-so", ensuring that propensity to save and consume would add up to 100. This is very rough approximation, as there are other combinations of percentages that would generate different propensities.

	Saving	Consumption
0%	60.5	7.7
100%	13.7	74.1
35%	16.6	14.5
10%	9.2	3.7
Weighted average	20.4	79.5

Table 13

Saving and consumption behaviour
of remittance-recipients

The weighted average of the responses generates an estimate of the propensity to save of 20.4 percent. Such an estimate is at odds with the existing body of the empirical literature, which suggests that the propensity to save out of remittance income is high (almost 40%). Yet, this is in line with the prepositions of the permanent income hypothesis, as it is quite possible that Macedonian remittance-receiving households consider remittances as a permanent income stream and tend to consume more. This is fully consistent with the answers of the migrant families that they expect stable streams of remittance inflows in near future.

Then, based on survey results we analyze the structure of consumption, financed by the inflow of private transfers (Table 14). We classified immediate consumption, purchase of cars (durable goods), housing maintenance, loans and unspecified spending as current spending, whereas construction of homes, business start-ups, real estate purchase and portfolio investment into capital spending. For consistency purposes, we used the same numerical values for the qualitative answers for derivation of the weighted average response.

Such classification enables us to introduce the distinction between current and capital spending, which could serve as indicator of the nature of the remittance inflow. Current spending comprises 63.8%, whereas capital spending amounts to 15.8% of the total income from private transfers. The composition of spending indicates that nearly 20% (19.8%) could be qualified as capital transfers, whereas more than 80% (or 80.2%) could be defined as current transfers. This estimate is close to the IMF (2007) estimate of the final use of private transfers, which attaches 75% to current and 25% to capital transfers.

Table 14 - Weighted average responses for the uses of private transfers

Composition of spending and saving	0%	100%	35%	10%	Weighted average
Current spending					63.8
Immediate consumption	69.2	5.6	17.0	8.3	12.4
Cars (durable goods)	90.2	1.5	4.8	3.6	3.5
Routine housing maintenance	70.8	5.7	13.5	10	11.4
Loans	97.3	0.2	1.0	1.5	0.7
Unspecified spending					35.8
Capital spending					15.8
Construction of homes	85	8.8	4.7	1.5	10.6
Business start-up	92.7	2.6	2.6	2.1	3.7
Real estate	98.3	0.7	0.3	0.7	0.9
Portfolio investment **	98.4	0.3	0.6	0.7	0.6
Saving					20.4
Total income from private transfers					**100.0**

Note:

** *Some authors classify portfolio investment into saving, given that it does not affect country's capital stock.*

From subnational perspective, in the next step, we use the number of remittance-receiving respondents to derive an estimate of annual remittance inflows in separate regions of Macedonia.

Table 15 - Extrapolated remittance inflows across regions in Macedonia

Region	Number of respondents	In percent	Extrapolated remittance inflows (in millions of US $)
Skopski	106	10.1	30.5
Pelagoniski	141	13.5	40.7
Ohrid	210	20.1	60.7
Polog	340	32.5	98.1
Povardarie	31	3	9.1
Kumanovski	67	6.4	19.3
Bregalnicki	151	14.4	43.5
Total	**1046**	**100**	**301.8**

REFERENCES

Adams, Richard, 1989, "Worker Remittances and Inequality in Rural Egypt," Economic Development and Cultural Change, Vol. 38, pp.45-71.

Adams, Richard, 1998, "Remittances, Investment, and Rural Asset Accumulation in Pakistan," Economic Development and Cultural Change, Vol. 47, pp.155-173.

Adams, Richard, 1991, "The Economic Uses and Impact of International Remittances in Rural Egypt," Economic Development and Cultural Change, Vol. 39, pp.695-722.

Adams, Richard, 2002, "Precautionary Saving From Different Sources of Income - Evidence from Rural Pakistan," World Bank Policy Research Discussion Paper 2761.

Adams, Richard, 2003, "International Migrations, Remittances and the Brain Drain: A Study of 24 Labor-Exporting Countries," World Bank Policy Research Working Paper #3069 (June.)

Adams, Richard and John Page, 2003, "International Migration, Remittances and Poverty in Developing Countries," World Bank Policy Research Working Paper 3179.

Ahlburg, Dennis, 1996, "Remittances and the Income Distribution in Tonga," Population and Policy Review, Vol. 15, pp.391-400.

Ahlburg, Dennis, 1991, Remittances and Their Impact: A Study of Tonga and Western Samoa. Policy Paper No. 7, Canberra: National Centre for Development Studies, Australian National University.

Ahlburg, Dennis and Richard Brown, 1998, "Migrants' Intentions to Return Home and Capital Transfers: A Study of Tongans and Samoans in Australia," Journal of Development Studies, Vol. 35 (December), pp.125-151.

Armenia Microenterprise Development Initiative, "Assessment of the Opportunities for Banks to Enter the MSE Market," December 2003.

Banerjee, Biswajit, 1984, "The Probability, Size, and Uses of Remittances From Urban to Rural Areas in India," Journal of Development Economics, Vol. 16, pp.293-311

Barham, Bradford and Stephen Boucher, 1998, "Migration, Remittances, and Inequality: Estimating the Net Effects of Migration on Income Distribution," Journal of Development Economics, Vol. 55, pp.307-331.

Brown, Annette, 2003, "Tax Policy and Poverty in Armenia," Armenian Forum, Vol. 3, pp.37-56.

Brown, Richard, 1997, "Estimating Remittance Functions for Pacific Island Migrants," World Development, Vol. 25, pp.613-626.

Chami, Ralph, Connel Fullenkamp, and Samir Jahjah, 2003, "Are Immigrant Remittance Flows a Source of Capital for Development?," IMF Working Paper 03/189.

Docquier, Frederic and Hillel Rapoport, 2004, "Skilled Migration: The Perspective of Developing Countries," World Bank Policy Research Working Paper #3382 (August)

Durand, Jorge, William Kandel, Emilio A. Parrado, and Douglas Massey, 1996, "International Migration and Development in Mexican Communities," Demography, Vol. 33, pp.249-264.

EC, 2005, Labour Market Review of Macedonia.

Edwards, Alejandra Cox and Manuelita Ureta, 2003, "International Migration, Remittances, and Schooling: Evidence From El Salvador," Journal of Development Economics, Vol. 72, pp.429-461

El-Sakka, M., McNabb, R., 1999. The Macroeconomic Determinants of Emigrant Remittances, World Development, Elsevier, vol. 27(8), pp. 1493-1502, August.

Faini, R., 2007. Remittances and the Brain Drain: Do More Skilled Migrants Remit More?, World Bank Economic Review, doi:10.1093/wber/lhm006, May.

Gevorkyan, Aleksandr and David Grigorian, 2003, "Armenia and Its Diaspora: Is There Scope for a Stronger Economic Link?," Armenian Forum, Vol. 3, pp.1-36.

Glytsos, Nicholas, 1993, "Measuring the Income Effects of Migrant Remittances: A Methodological Approach Applied to Greece," Economic Development and Cultural Change, Vol. 42, pp.131-168.

Grigorian, David, 2003, "Banking Sector in Armenia: What Would It Take to Turn a Basket Case into a Beauty Case?," Armenian Journal of Public Policy, Vol. 1, pp.57-78.

Giuliano, P., Ruiz-Arranz, M., 2005. Remittances, Financial Development, and Growth. IMF Working Paper No. 234, The International Monetary Fund, Washington D.C.

Hanson, Gordon and Christopher Woodruff, 2003, "Emigration and Educational Attainment in Mexico," working paper.

Hoddinott, John, 1994, "A Model of Migration and Remittances Applied to Western Kenya," Oxford Economic Papers, Vol. 46, pp.459-476.

Ilahi, Nadeem and Saqib Jafarey, 1999, "Guestworker Migration, Remittances and the Extended Family: Evidence From Pakistan," Journal of Development Economics, Vol. 58, pp.485-512.

IMF, 2006, Country Report no. 06/344

IOM (International Organization for Migration), 2003, "National Survey on Family Remittances Year 2003," Working Notebooks on Migration No. 17: (http://www.oim.org.gt).

Iradian, Garbis, 2003, "Armenia: The Road to Sustained Rapid Growth," Armenian Journal of Public Policy, Vol.1, pp.35-56.

Itzigsohn, Jose, 1995, "Migrant Remittances, Labor Markets, and Household Strategies: A Compartive Analysis of Low-Income Household Strategies in the Caribbean Basin," Social Forces, Vol. 74, pp.633-655

Johnson, Brett and Santiago Sedaca, 2004, "Diasporas, Emigres and Development: Economic Linkages and Programmatic Responses," USAID Special Study.

Jones, Richard, 1998, "Remittances and Inequality: A Question of Migration Stage and Geographic Scale," Economic Geography, Vol. 74, pp.8-25

Knowles, James and Richard Anker, 1981, "An Analysis of Income Transfers in a Developing Country," Journal of Development Economics, Vol.8, pp.205-226.

Korovilas, James, 1999, "The Albanian Economy in Transition: the Role of Remittances and Pyramid Investment Schemes," Post-Communist Economies, Vol. 11, pp.399-415

Lapointe, Michelle (rapporteur), 2004, "Diasporas in Caribbean Development," Report of the Inter-American Dialogue and the World Bank (August.)

Lucas, Robert E.B. and Oded Stark, "Motivations to Remit: Evidence From Botswana," Journal of Political Economy, Vol. 93, pp.901-918

Maimbo, Samuel and Cerstin Sander, 2003, "Migrant Labor Remittances in Africa: Reducing Obstacles to Developmental Contributions," Africa Region Working Paper Series No. 64, World Bank (September.)

Massey, Douglas and Emilio A. Parrado, 1998, "International Migration and Business Formation in Mexico," Social Science Quarterly Vol.79, pp. 1-20.

Mussig, Gunther, 2002, "National Community Funds Program for Guatemala: Joint Investment System Between Local Villagers and Migrants," IOM Working Notebooks on Migration No. 11.

Newland, Kathleen, with Erin Patrick, 2004, "Beyond Remittances: The Role of Diaspora in Poverty Reduction in Their Countries of Origin," Migration Policy Institute Study for DfID.

OECD, 2004, Migration for Employment, Bilateral Agreements at a Crossroads

Orozco, Manuel, 2003, Hometown Associations and Their Present and Future Partnerships: New Development Opportunities?, Washington: Inter-American Dialogue.

Orozco, Manuel, 2004, "Mexican Hometown Associations and Development Opportunities," Journal of International Affairs, Vol. 57.

Puri, Shivani and Tineke Ritzema, 1999, "Migrant Worker Remittances, Micro-Finance and the Informal Economy," International Labor Office Working Paper No. 21.

Schrooten, M., 2005. Bringing Home the Money - What Determines Worker's Remittances to Transition Countries?, Discussion Paper Series A No. 466, Institute of Economic Research, Hitotsubashi University.

Sofranko, A.J. and Khan Idris, 1999, "Use of Overseas Migrants' Remittances to the Extended Family for Business Investment: A Research Note," Rural Sociology, Vol. 64, pp. 464-481

Stark, Oded, 1991, "Migration in LDCs: Risk, Remittances, and the Family," Finance and Development, December: pp.39-41

Stark, Oded and Robert E.B. Lucas, "Migration, Remittances, and the Family," Economic Development and Cultural Change, Vol. 36, pp.465-482.

Stark, Oded, J. Edward Taylor, and Shlomo Yitzhaki, "Migration, Remittances and Inequality: A Sensitivity Analysis Using the Extended Gini Index," Journal of Development Economics, Vol. 28, pp.309-322.

Struyk, Raymond, 2002, Managing Think Tanks: A Practical Guide For Maturing Organizations (Urban Institute.)

Swamy, Gurushri, 1981, "International Migrant Workers' Remittances: Issues and Prospects," World Bank Staff Working Paper No. 481 (August.)

Swamy, Gurushri, 1985, "Population and International Migration," World Bank Staff Working Paper No. 689.

Taylor, J. Edward, 1992, "Remittances and Inequality Reconsidered: Direct, Indirect, and Intertemporal Effects," Journal of Policy Modeling, Vol. 14, pp.187-208

Wahba, Sadek, 1991, "What Determines Workers' Remittances?", Finance and Development, December: pp.41-44.

Woodruff, Christopher and Rene Zenteno, 2001, "Microenterprises in Mexico," mimeo, University of California at San Diego.

World Bank, 2006a, Global Economic Prospects, no. 34320, Economic implications of remittances and migration.

World Bank, 2006b, Labour Migration from the new EU Member States, Quarterly Economic Report on EU8, Special topic, September

Yang, Dean, 2004, "International Migration, Human Capital, and Entrepreneurship: Evidence from Philippine Migrants' Exchange Rate Shocks," Working Paper, University of Michigan (May 2004).

ANNEXES

Table 1: Population born in Macedonia living abroad by status

	Census year	Foreigners	Nationals	Unknown	Total
Australia	2001	2894	40072	561	43527
Austria	2001	11736	2154	58	13948
Belgium	2001	38	8		46
Canada	2001	1545	5785		7330
Czech Rep	2001	406	124	3	533
Denmark	2002	1301	306		1607
Finland	2000	22		1	23
France	1999	1798	762		2560
Greece	2001	662	274		936
Hungary	2001	49	24		73
Ireland	2002	34	1		35
Italy	2001	24534	339		24873
Japan	2000	15			15
Luxembourg	2001	243	11		254
Mexico	2000			2	2
Netherlands	1995-2000	16	7		23
New Zealand	2001			591	591
Norway	2003	361	354		715
Poland	2001	72	132	0	204
Portugal	2001	9	3		12
Slovak Rep	2001	103	50	3	156
Spain	2001	185	20		205
Sweden	2003	1068	1903		2971
Switzerland	2000	39816	1690		41506
Turkey	2000	1355	30160		31515
United Kingdom	2001			1285	1285
United States	2000	9015	9980		18995
Total:					**193940**

Source: OECD online database.

Table 2: Macedonian migration in Germany

	1995	1996	1997	1998	1999	2000	2001	2002
Stock	33984	38774	42550	46167	49420	51841	55986	58250
Inflow	4000	2835	3060	3051	3503	3411	5421	3913

Source: National statistical offices.

Table 3:

Macedonians living abroad in neighbouring countries

Source: National statistical offices.

	Census year	Total
Bosnia & Herzegovina	2005	2278
Serbia	2002	25847
Croatia	2001	4270
Slovenia	2002	3972
Bulgaria	2001	5071
Albania	1989	4697
Total:		46135

Table 4: International migrations

	1998	1999	2000	2001	2002	2003	2004	2005
Immigrants	1057	1118	1199	1185	1257	1145	1381	3638
- Citizens of Macedonia	595	658	639	458	723	567	543	524
Emigrants	248	141	172	503	141	144	669	1300
- Citizens of Macedonia	241	127	165	312	81	112	656	1282
Net migration	809	977	1027	682	1116	1001	712	2338
Net migration of citizens	354	531	474	146	642	455	-113	-758

Source: State Statistical Office of the Republic of Macedonia.

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